QUARTERLY PROGRESS REPORT FOR RI/FS

RPAC - Portland Site

FOURTH QUARTER 1999

OCTOBER 1, 1999-DECEMBER 31, 1999

SCOEPA00008795

870688

QUARTERLY PROGRESS REPORT FOR RI/FS RPAC - Portland Site

FOURTH QUARTER 1999

OCTOBER 1, 1999-DECEMBER 31, 1999

January 10, 2000

Submitted to:

Oregon Department of Environmental Quality
811 SW 6th Avenue
Portland, Oregon 97204

Prepared for:

Rhone-Poulenc AG Company
1600 Perimeter Park, Suite 400
Morrisville, North Carolina 27560

Prepared by:

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Portland, Oregon 97201
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92CO804A/15

SCOEPA00008796

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The integrated resources of
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January 10, 2000
92C0804A/15

Eric Blischke
Environment Policy Analyst
Department of Environmental Quality
811 SW 6th Ave.
Portland, Oregon 97204

Subject: Fourth Quarter, 1999-Progress Report
RPAC, Portland Site

Dear Eric:

On behalf of Rhône-Poulenc AG Company (RPAC), URS Greiner Woodward Clyde (URS) is submitting five ring-bound copies of the enclosed Fourth Quarter, 1999- Progress Report. An unbound copy was not necessary since all the copies of the report are provided in three-ring binders. One of the copies will be sent directly to Mavis Kent of DEQ, per DEQ's request.

This is the second quarterly progress report being submitted by RPAC in accordance with the July 8, 1999 Consent Order.

If you have any questions, please call (503) 222-7200.

Sincerely,
URS CORPORATION

FOR
Roger Gresh, P.G.
Project Manager

Mike Edwards, P.E.
Project Engineer

Enclosures: Fourth Quarter 1999 – Progress Report for RI/FS, RPAC – Portland Site, January 6, 2000

cc: R. Ferguson, RPAC
J. Benedict, CHBH&L
M. Kent, DEQ – NW Region
D. Blount, CLB&W
K. McCaw, ESCO Corp.
E. McDaniel, SMR&H
B. Sheppard, BNSF
C. Young, Wacker Siltronic Corporation
L. Patterson, Elf Atochem North America, Inc.
A. Pardini, Schnitzer Investment Corp.
J. Baird, Air Liquide America Corp.

SCOEPA00008797

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January 10, 2000

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On behalf of Rhône-Poulenc AG Company (RPAC), URS Greiner Woodward Clyde (URS) has prepared this Quarterly Progress Report for Remedial Investigation/Feasibility Study (RI/FS) activities associated with RPAC's Portland facility. This report covers activities conducted during the fourth quarter of 1999 (October 1, 1999 through December 31, 1999).

The submittal of quarterly progress reports is specified under the Consent Order (No. WMCSR-NWR-99-07) executed between RPAC and the Oregon Department of Environmental Quality (DEQ) on July 8, 1999.

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2.1 CPT ACTIVITIES

CPT activities continued during the months of September and October. CPT borings were installed on the Atochem and Wacker properties between September 28 and October 1, 1999. Table 2-1 provides the sampling locations and total depths achieved during these activities. Figure 1 identifies the locations of the CPT borings. CPT activities were performed at these locations as specified in the RI Work Plan.

CPT borings could not be completed at locations specified on the BNSF property due to unusual subsurface conditions and access. Soil profiling activities for these locations were, therefore, performed using a Geoprobe rig, and are discussed in Section 2.2.

The CPT logs for all CPT activities conducted between September 28 and October 1, 1999 at the Atochem and Wacker properties are included in Appendix A.

2.2 GEOPROBE SOIL PROFILING ACTIVITIES

Continuous Geoprobe soil profiling was conducted at five locations on the Atochem, Wacker and BNSF properties, between September 28 and October 12, 1999. Geoprobe (GP) 010 was located near CPT-010 on the Atochem property and GP-011 was located near CPT-011 on the Wacker property, for confirmation purposes. Three Geoprobe borings were also located on the BNSF property in place of the CPT points described in Section 2.1. Boring logs from these locations are included in Appendix B.

2.3 RECONNAISSANCE GROUNDWATER SAMPLING ACTIVITIES

Reconnaissance groundwater sampling activities were conducted in the RPAC Lake Area, and on the ESCO, BNSF, Wacker and Atochem properties, between October 18 and 28, 1999. Geoprobe direct-push technology was used to advance borings at fourteen locations for the collection of groundwater samples from 26 intervals. Groundwater samples were submitted to the laboratory for the following EPA methods analyses: 8260, 8151, 8041, 8081/8082, 8141, Dissolved Metals, and 8290. Samples collected from the ESCO property and Lake Area were not submitted for pesticides analysis. The analytical results were validated in accordance with DEQ's approved QAPP that RPAC submitted on May 23, 1999. The validation report is included in Appendix C. Detections only tables for reconnaissance groundwater samples are included in Appendix D. Table 2-1 contains a summary of the sampling location and the depth of the samples collected from each boring as well as laboratory analysis. Figure 1 depicts these locations.

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Reconnaissance groundwater samples were collected at locations corresponding to previously completed CPT or Geoprobe borings. Screen intervals were chosen with DEQ's approval during the September 14 meeting between DEQ and URS. These intervals were located in zones of soils identified as exhibiting behavior similar to (relatively) higher-conductivity material. A reconnaissance groundwater sampling data sheet was completed for each sampling location. Copies of the field data sheets are included in Appendix E. Field data sheets from sampling locations GP-025, 026, 027 and 007 were lost in a traffic accident in mid-October and are, therefore, absent from Appendix E.

DEQ had requested that reconnaissance groundwater samples be collected from three intervals at the RPAC Waste Water Treatment Plant (WWTP) location. Samples were collected from these intervals October 18, 1999. Based on the results of earlier Geoprobe soil sampling on the ESCO property, a reconnaissance groundwater sample was also collected from 27-30 feet below ground surface (bgs) at the W-12 location. All sample identification numbers are summarized in Table 2-1.

With only minor variations, the proposed groundwater sampling intervals were sampled. Due to a seasonally low water table, URS was unable to collect a groundwater sample from the shallow interval at 6 sampling locations (GGW-010, 014, 015, 016, 023 and 026). Generally, a sample was collected from an interval several feet deeper.

At CPT-011, the proposed sampling interval was from 91-94 feet bgs. Refusal was encountered at 90.5 feet bgs and a sample was collected from 87.5 – 90.5 feet bgs. Proposed sampling intervals versus actual are summarized in Table 2-1.

The reconnaissance groundwater sampling methodology utilized was described in the July 7, 1999 "CPT GeoProbe and Well Installation Field Sampling Plan, RPAC-Portland Site". No significant modifications were made to these sampling methods.

2.4 WELL INVENTORY ACTIVITIES

Well inventory activities were completed at the wells on the Atochem and Wacker properties during the fourth quarter of 1999. Well inventory activities were previously conducted during the third quarter of 1999 on the following areas/properties: RPAC Herbicide Area; RPAC Insecticide Area; RPAC Lake Area; Metro; Schnitzer; ESCO; and BNSF.

The results of the field assessment will be summarized in the Monitoring Well and Staff Gauge Integrity Assessment Report, which is being prepared by URS. This integrity assessment report will provide a detailed description of well inventory activities. The well inventory methodology

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utilized was described in the June 11, 1999 "Early RI Activities Well Inventory Field Sampling Plan, RPAC Portland Site". No significant modifications were made to these inventory methods.

2.5 EX-1 BACKFILLING ACTIVITIES

The Amended Record of Decision (AROD), for the Gould property required that excavation EX-1 be backfilled. EX-1 is located in the RPAC Lake Area. On December 6, 1999, the backfilling activities for EX-1 were begun under the oversight of URS personnel. Backfilling of the rock was completed December 29, 1999; however the soil backfilling for the top few feet was suspended until drier weather conditions allow appropriate compaction of the soil fill.

Excavation EX-1 was backfilled in accordance with the methodology outlined in a letter from URS to DEQ dated July 19, 1999.

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TABLE 2-1
Proposed and Actual Groundwater
Reconnaissance Sample Intervals
RPAC and Surrounding Properties
RPAC- Portland Site

Property	CPT/Geoprobe Identification	Total Depths of CPT (feet bgs)	Geoprobe Identification	Proposed Geoprobe Screen Intervals (feet bgs)	Actual Geoprobe Screen Intervals (feet bgs)	Sample ID	Date Sampled	Analysis
RPAC-LA	CPT-001	126	GGW-01	82-85	82-85	008-GG-01	8/30/99	VOC,H,M,D/F,TPH, PH
				95-98	95-98	009-GG-01	8/31/99	VOC,H,M,D/F,TPH, PH
				121-123	NS	NS	NS	NS
RPAC-LA	CPT-002	75	GGW-02	73-76	73-76	001-GG-01	8/26/99	VOC,H,M,D/F,TPH, PH
RPAC-LA	CPT-003	68	GGW-03	22-25	22-25	005-GG-01	8/27/99	VOC,H,M,D/F,TPH, PH
				66-69	66-69	002-GG-01	8/27/99	VOC,H,M,D/F,TPH, PH
RPAC-LA	CPT-004	55	GGW-04	53-56	53-56	003-GG-01	8/27/99	VOC,H,M,D/F,TPH, PH
RPAC-LA	CPT-005	46	GGW-05	44-46	56-59	013-GG-01	9/1/99	VOC,H,M,D/F,TPH, PH
RPAC-LA	CPT-006	48	GGW-06	36-39	36-39	007-GG-01	8/27/99	VOC,H,M,D/F,TPH, PH
				47-50	47-50	006-GG-01	8/27/99	VOC,H,M,D/F,TPH, PH
Gould	CPT-008	96	GGW-08	51-54	51-54	011-GG-01	9/1/99	VOC,H,M,D/F
Gould	CPT-009	90	GGW-09	25-28	25-28	010-GG-01	8/31/99	VOC,H,M,D/F
				65-68	65-68	012-GG-01	9/1/99	VOC,H,M,D/F
				88-91	88-91	014-GG-01	9/2/99	VOC,H,M,D/F
Atochem	CPT-010	50	GGW-010	20-23	27 - 30	032-GG-01	10/25, 10/26, & 10/27/99	VOC,H,M,D/F,P,PH
				36-39	36 - 39	033-GG-01	10/26/99 & 10/27/99	VOC,H,M,D/F,P,PH
				47-50	47 - 50	034-GG-01	10/26/99	VOC,H,M,D/F,P,PH
Wacker	CPT-011	99	GGW-011	54-57	54 - 57	028-GG-01	10/22/99	VOC,H,M,D/F,P,PH
				91-94	87.5 - 90.5	029-GG-01	10/22/99	VOC,H,M,D/F,P,PH
Atochem	CPT-012	47	GGW-012	NS	N/A	N/A	N/A	N/A
Atochem	CPT-013	48	GGW-013	36-39	36 - 39	038-GG-01	10/27/99	VOC,H,M,D/F,P,PH
Atochem	CPT-014	47	GGW-014	17-20	NS	NS	NS	NS
				46-49	46 - 49	037-GG-01	10/27/99	VOC,H,M,D/F,P,PH
Atochem	CPT-015	48	GGW-015	N/A	27 -30	041-GG-01	10/28/99	VOC,H,M,D/F,P,PH
				44-47	44 - 47	035-GG-01	10/26/99	VOC,H,M,D/F,P,PH
Atochem	CPT-016	45	GGW-016	first water	NS	NS	NS	NS
				25-28	30 - 33	039-GG-01	10/28/99	VOC,H,M,D/F,P,PH
				42-45	42 - 45	040-GG-01	10/28/99	VOC,H,M,D/F,P,PH
Atochem	CPT-017	27	GGW-017	N/A	N/A	N/A	N/A	N/A
Atochem	CPT-018	44	GGW-018	N/A	N/A	N/A	N/A	N/A
Atochem	CPT-019	43	GGW-019	first water	TBD	TBD	TBD	VOC,H,M,D/F,P,PH
				47-50	TBD	TBD	TBD	VOC,H,M,D/F,P,PH
Atochem	CPT-020	37	GGW-020	N/A	N/A	N/A	N/A	N/A
Atochem	CPT-021	46	GGW-021	N/A	N/A	N/A	N/A	N/A
Wacker	CPT-022	66	GGW-022	22-25	22 - 25	026-GG-01	10/21/99	VOC,H,M,D/F,P,PH
				62-65	62 - 65	027-GG-01	10/21/99	VOC,H,M,D/F,P,PH
Wacker	CPT-023	73	GGW-023	14-17	14 - 17	025-GG-01	10/21/99	VOC,H,M,D/F,P,PH
Wacker	CPT-024	113	GGW-024	25-28	25 - 28	030-GG-01	10/25/99	VOC,H,M,D/F,P,PH
				82-85	82 - 85	031-GG-01	10/25/99 & 10/26/99	VOC,H,M,D/F,P,PH
BNSF	GP-025	51	GGW-025	17-20	25 - 28	023-GG-01	10/21/99	VOC,H,M,D/F,P,PH
				43-46	43 - 46	024-GG-01	10/21/99	VOC,H,M,D/F,P,PH
BNSF	GP-026	51	GGW-026	12-15	NS	NS	NS	NS
				27-30	27 - 30	019-GG-01	10/19/99 & 10/25/99	VOC,H,M,D/F,P,PH
				46-49	48 - 51	020-GG-01	10/19/99	VOC,H,M,D/F,P,PH
BNSF	GP-027	76	GGW-027	21-24	21 - 24	022-GG-01	10/20/99	VOC,H,M,D/F,P,PH
				72-75	72 - 75	021-GG-01	10/20/99	VOC,H,M,D/F,P,PH
RPAC-LA	NA	NA	GGW-028	first water	12 - 15	015-GG-01	10/18/99	VOC,H,M,D/F,TPH, PH
				36-39	36 - 39	016-GG-01	10/18/99	VOC,H,M,D/F,TPH, PH
				47-50	50 - 53	017-GG-01	10/18/99	VOC,H,M,D/F,TPH, PH
ESCO	GP-007	NA	GGW-07	24-27	27 - 30	018-GG-01	10/19/99	VOC,H,M,D/F

Note:
TBD: To be determined following sampling
N/A: Not Applicable
NS: Not Sampled
PH: Phenols (8041)
H: Herbicides (8151)
M: Dissolved Metals
D/F: Dioxins/Furans (8290)
NWTPH: Total Petroleum Hydrocarbons (diesel)
P: Pesticides (8081/8082, 8141)

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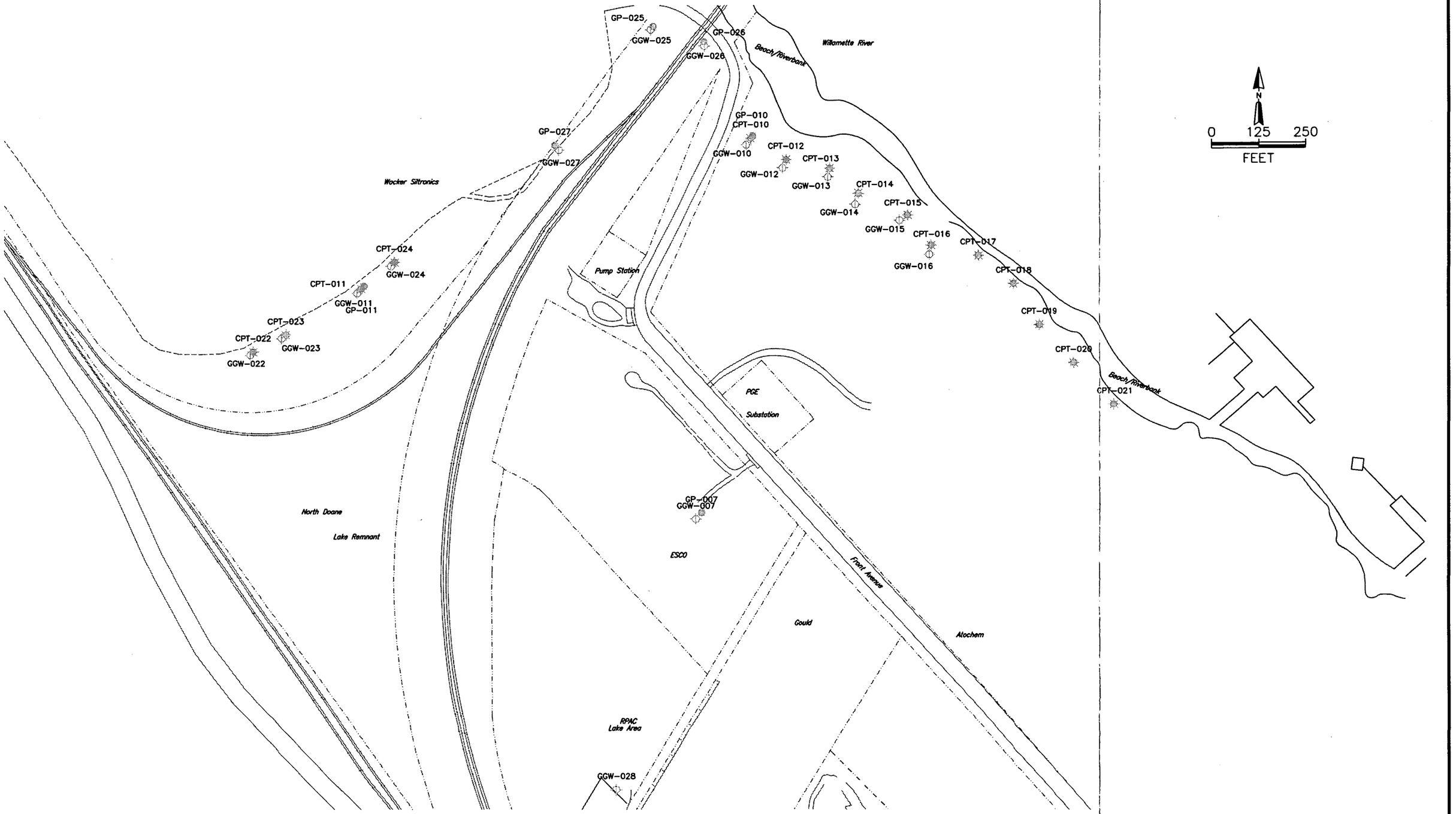

URS Greiner Woodward Clyde	TITLE: CPT and Geoprobe Points – RPAC Lake Area, ESCO, Atochem, BNSF and Wacker Properties Rhone-Poulenc AG Company Portland, OR	DWN: jgdp	DES.:	PROJECT NO.: 5292C0804A
		CHKD:	APPD:	FIGURE NO.: 1
		DATE: 1/3/00	REV.: 0	

The only significant problem encountered during field activities was with CPT borings on the BNSF property. URS attempted to locate a CPT boring (CPT025) in the northern corner of the BNSF property near the Wacker Siltronics entrance. At this location, the drilling crew encountered refusal at approximately 60 feet below ground surface. The drilling rods broke and approximately 50 feet of drilling equipment (rods and cone) were lost. Several attempts were made to retrieve equipment before grouting the borehole.

Due to the drilling problems mentioned above and limited access, CPT points 025, 026, and 027 were installed using Geoprobe techniques. Each borehole was continually sampled for lithology descriptions only, using a dual tube sampling method.

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4.1 CPT ACTIVITIES

The CPT logs generated during this reporting period are included in Appendix A.

4.2 GEOPROBE SOIL PROFILING ACTIVITIES

The soil boring logs generated during this reporting period (GP-010, 011, 025, 026 and 027) are included in Appendix B.

4.3 RECONNAISSANCE GROUNDWATER SAMPLING ACTIVITIES

The QA Data Validation Report is included in Appendix C. The Detections Only Results for the reconnaissance samples are included in Appendix D. The reconnaissance groundwater sampling data sheets for the reconnaissance groundwater sampling are included in Appendix E. The Laboratory Analytical Reports are included in Appendix F.

4.4 WELL INVENTORY ACTIVITIES

During the past quarter, URS personnel completed all remaining well inventory activities for the Atochem and Wacker properties. The results of the well inventory are summarized in the Monitoring Well Inventory Assessment report, which will be submitted to DEQ prior to conducting the first round of comprehensive sampling. Please refer to this report for a detailed description of well inventory activities.

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[redacted]

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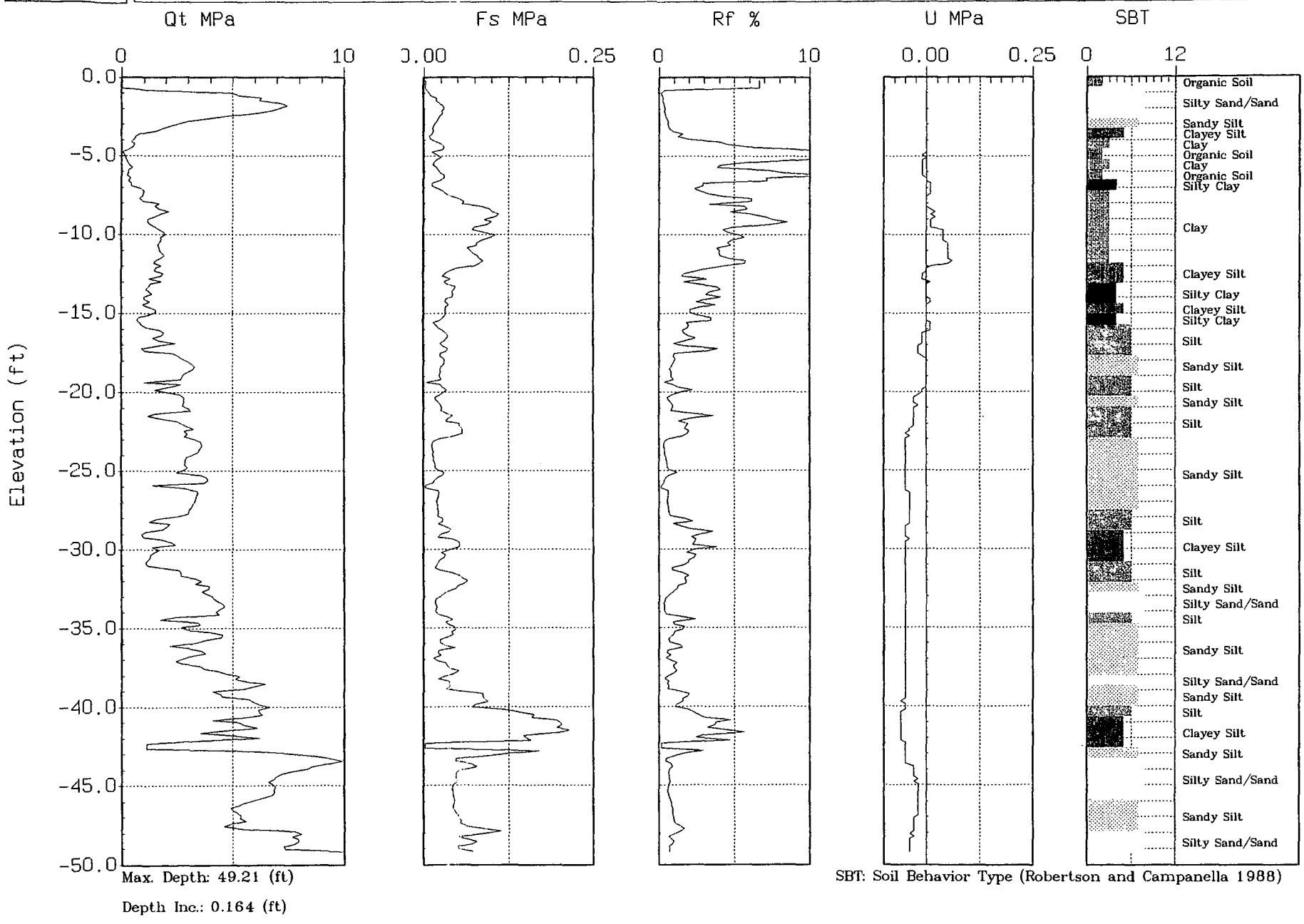
GREGG

RPAC

Site: CPT-01
Location: ATOCHEM

Cone: 3287
Date: 9/28/99



Max. Depth: 49.21 (ft)

Depth Inc.: 0.164 (ft)

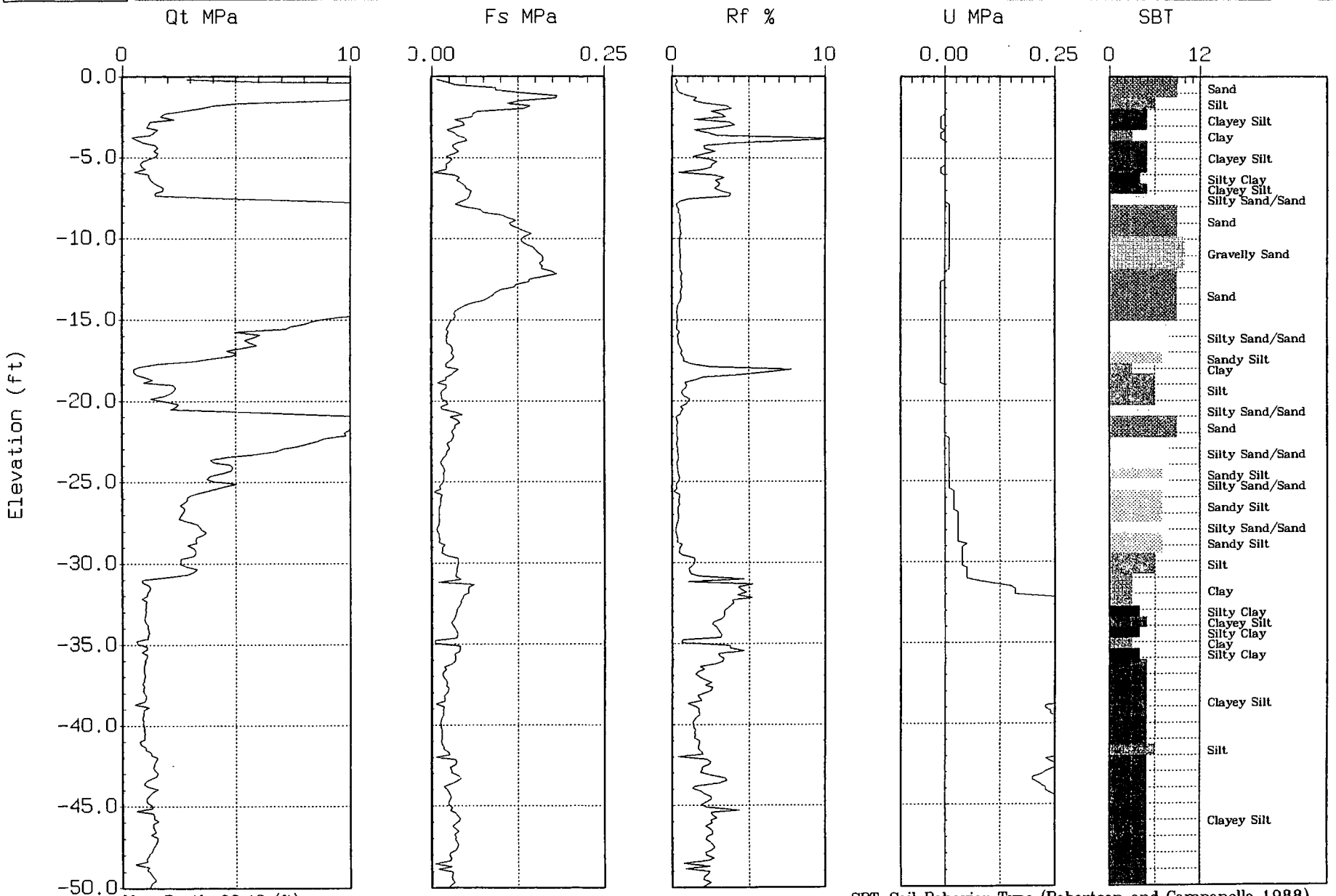
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

RPAC

Site: CPT-02
Location: WACKER

Cone: 3287
Date: 9/28/99



Max. Depth: 98.42 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson and Campanella 1988)

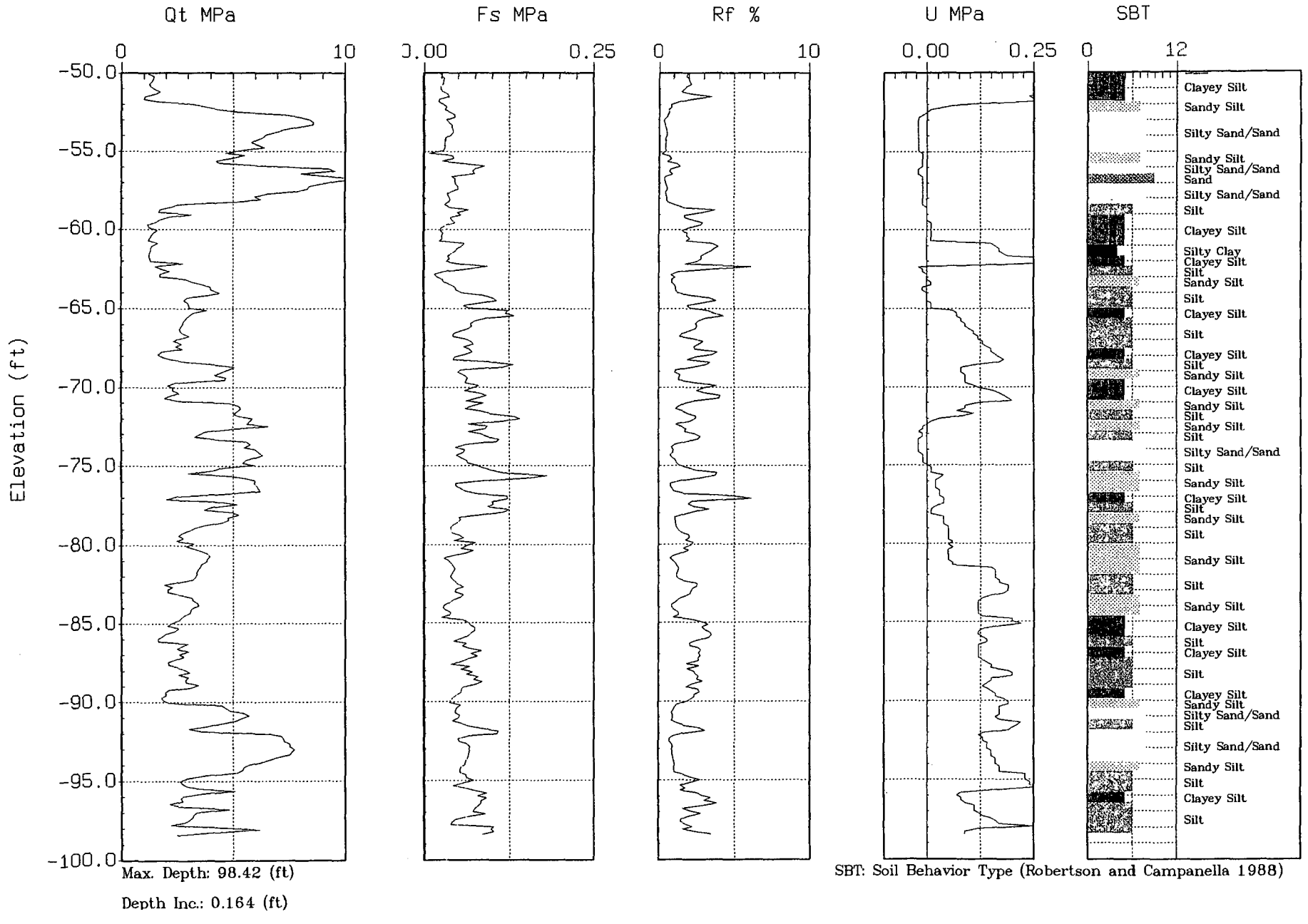
SCOEPA00008811

GREGG

RPAC

Site: CPT-02
Location: WACKER

Cone: 3287
Date: 9/28/99



Max. Depth: 98.42 (ft)

Depth Inc.: 0.164 (ft)

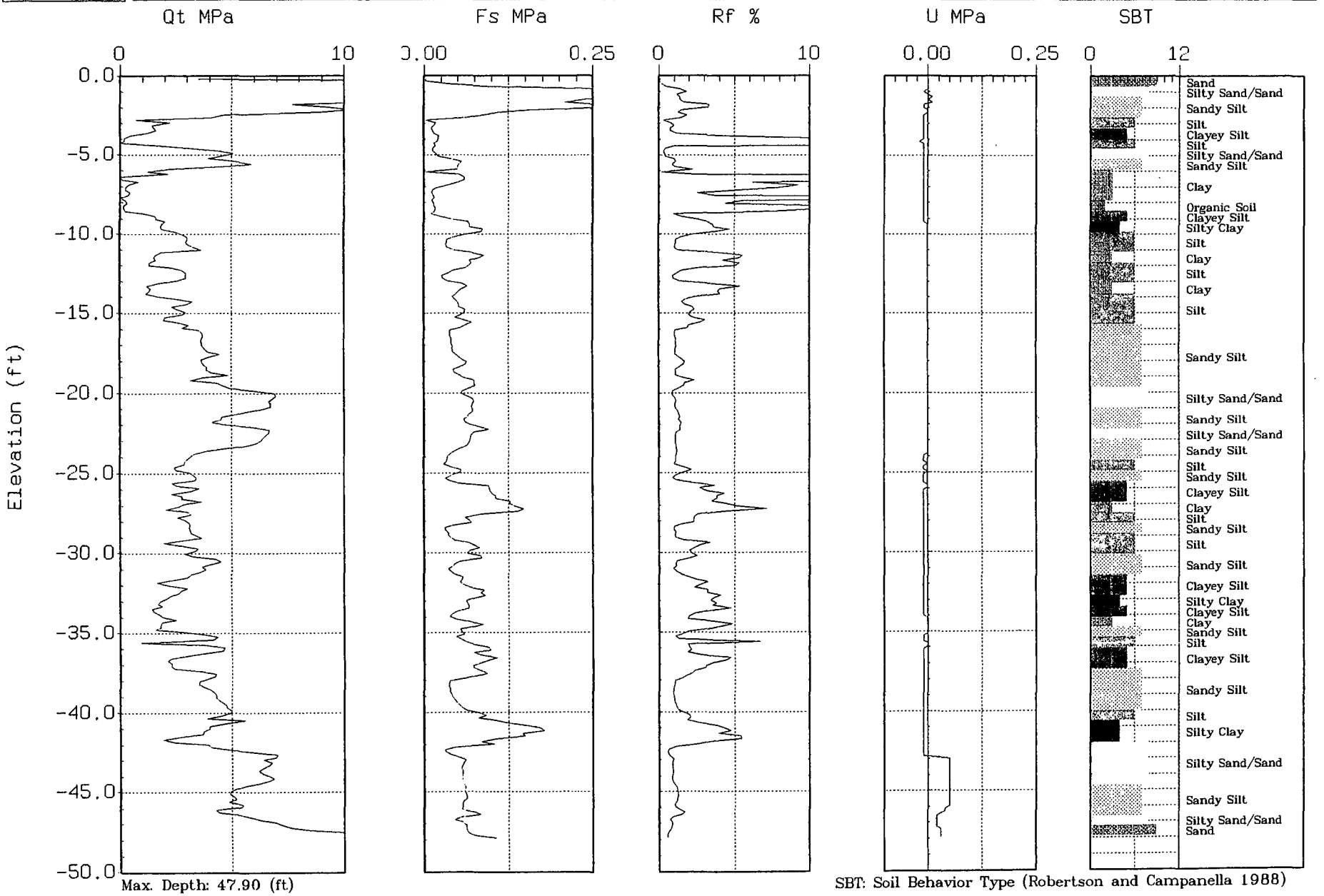
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

RPAC

Site: CPT-03
Location: ATOCHEM

Cone: 3287
Date: 9/29/99



Max. Depth: 47.90 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson and Campanella 1988)

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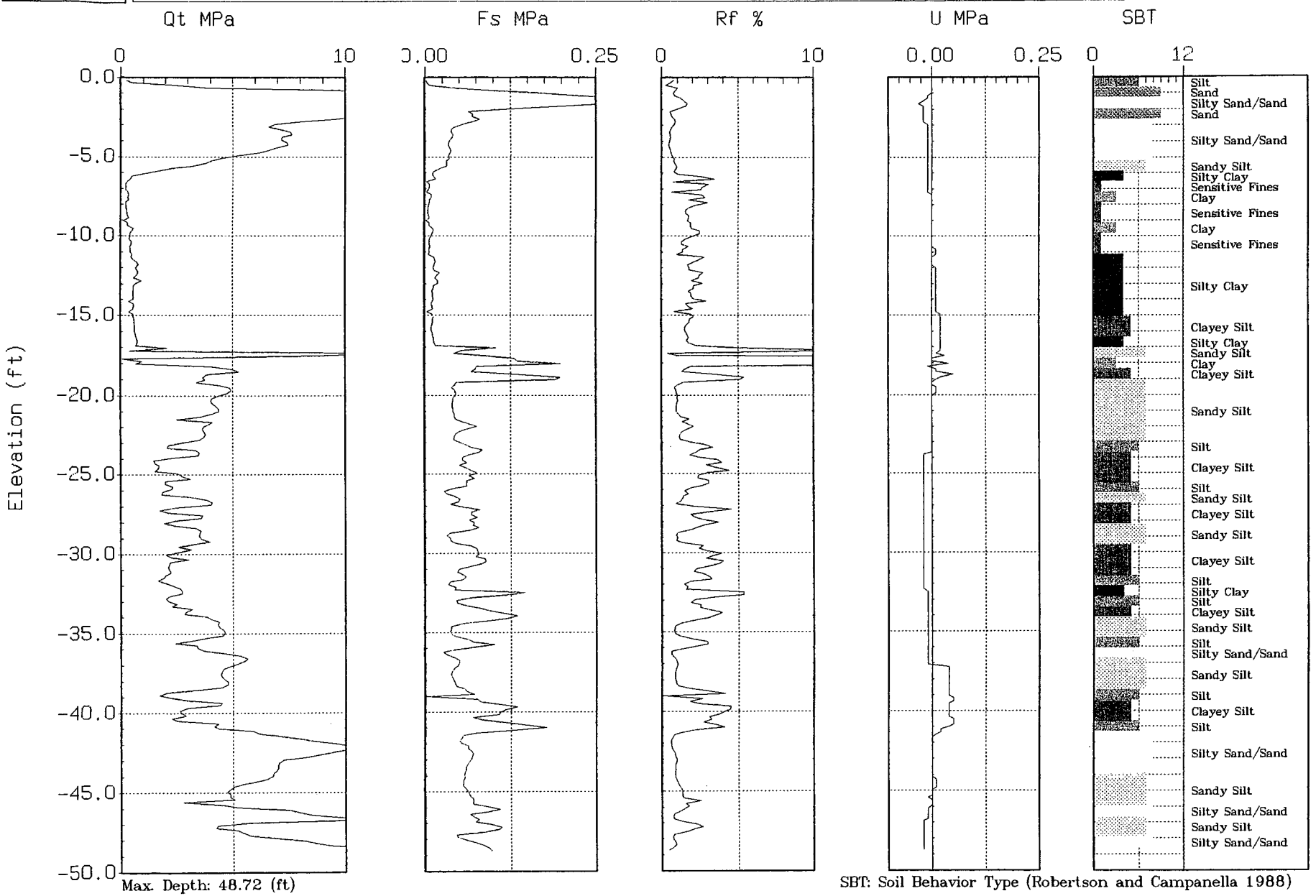
GREGG

RPAC

Site: CPT-04
Location: ATOCHEM

Cone: 3287
Date: 9/29/99



Max. Depth: 48.72 (ft)

Depth Inc.: 0.164 (ft)

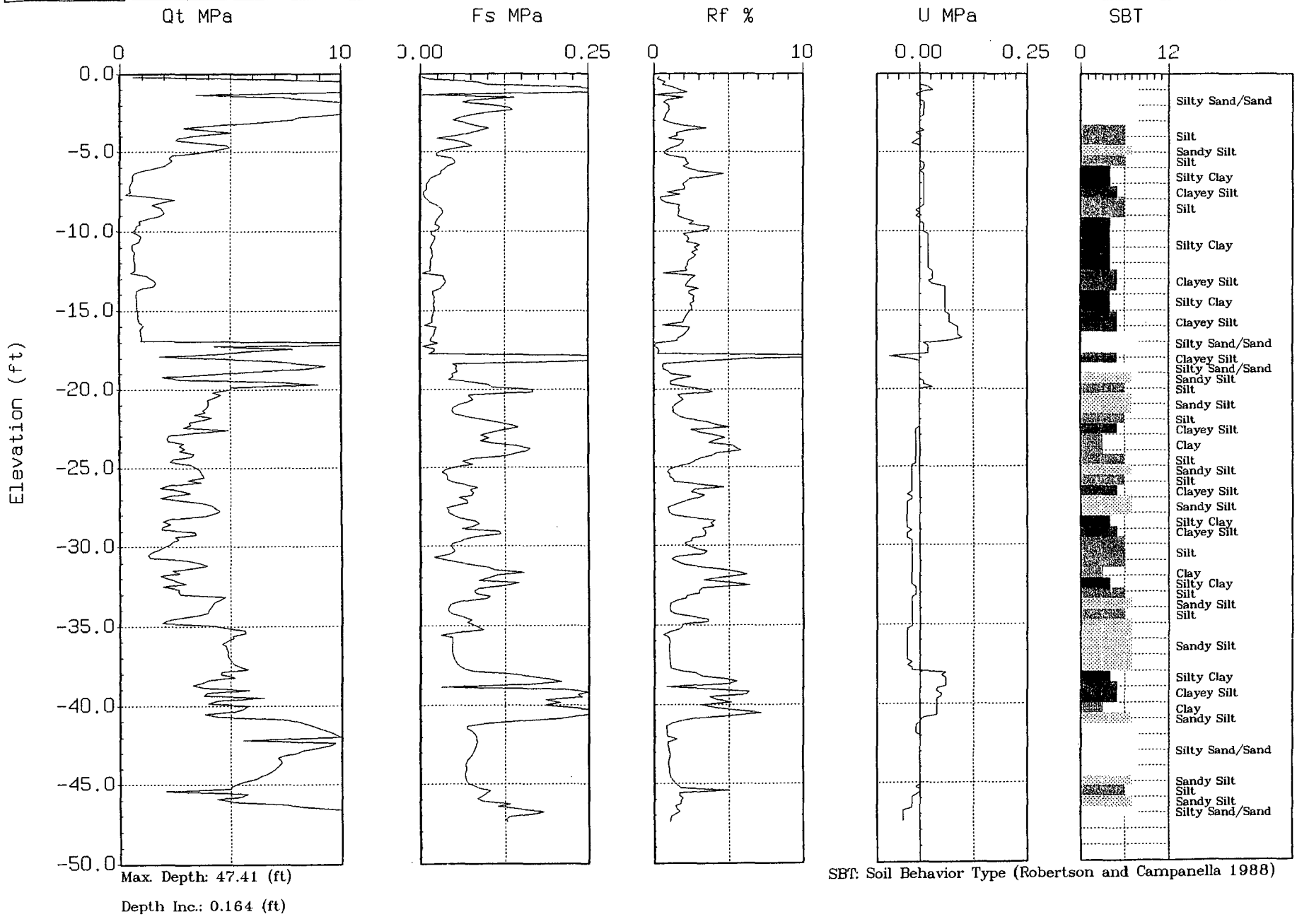
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

RPAC

Site: CPT-05
Location: ATOCHEM

Cone: 3287
Date: 9/29/99



Max. Depth: 47.41 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson and Campanella 1988)

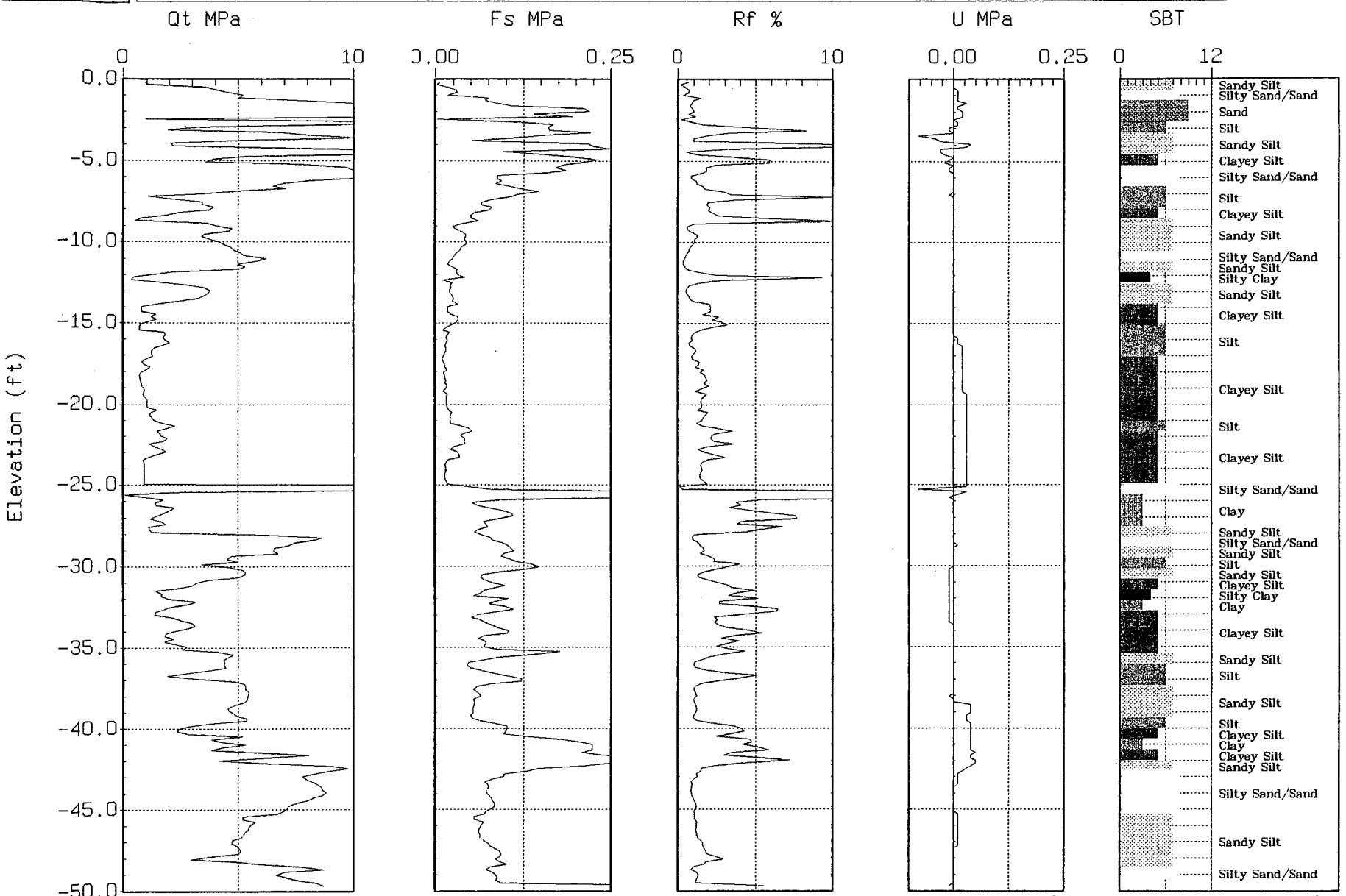
SCOEPA00008815

GREGG

RPAC

Site: CPT-06
Location: ATOCHEM

Cone: 3287
Date: 9/29/99



Max. Depth: 49.70 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson and Campanella 1988)

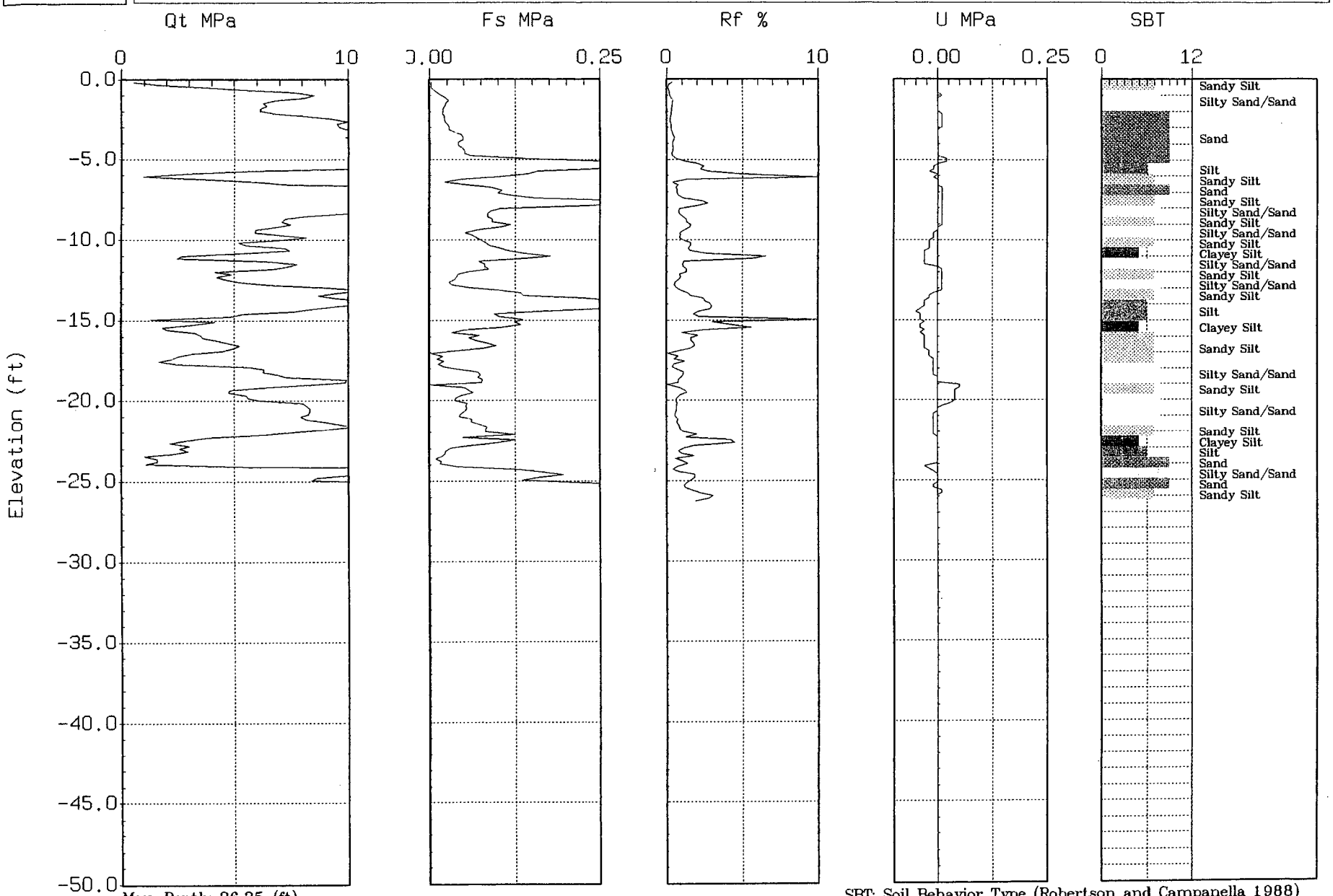
SCOEPA00008816

GREGG

RPAC

Site: CPT-07
Location: ATOCHEM

Cone: 3287
Date: 9/30/99



Max. Depth: 26.25 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson and Campanella 1988)

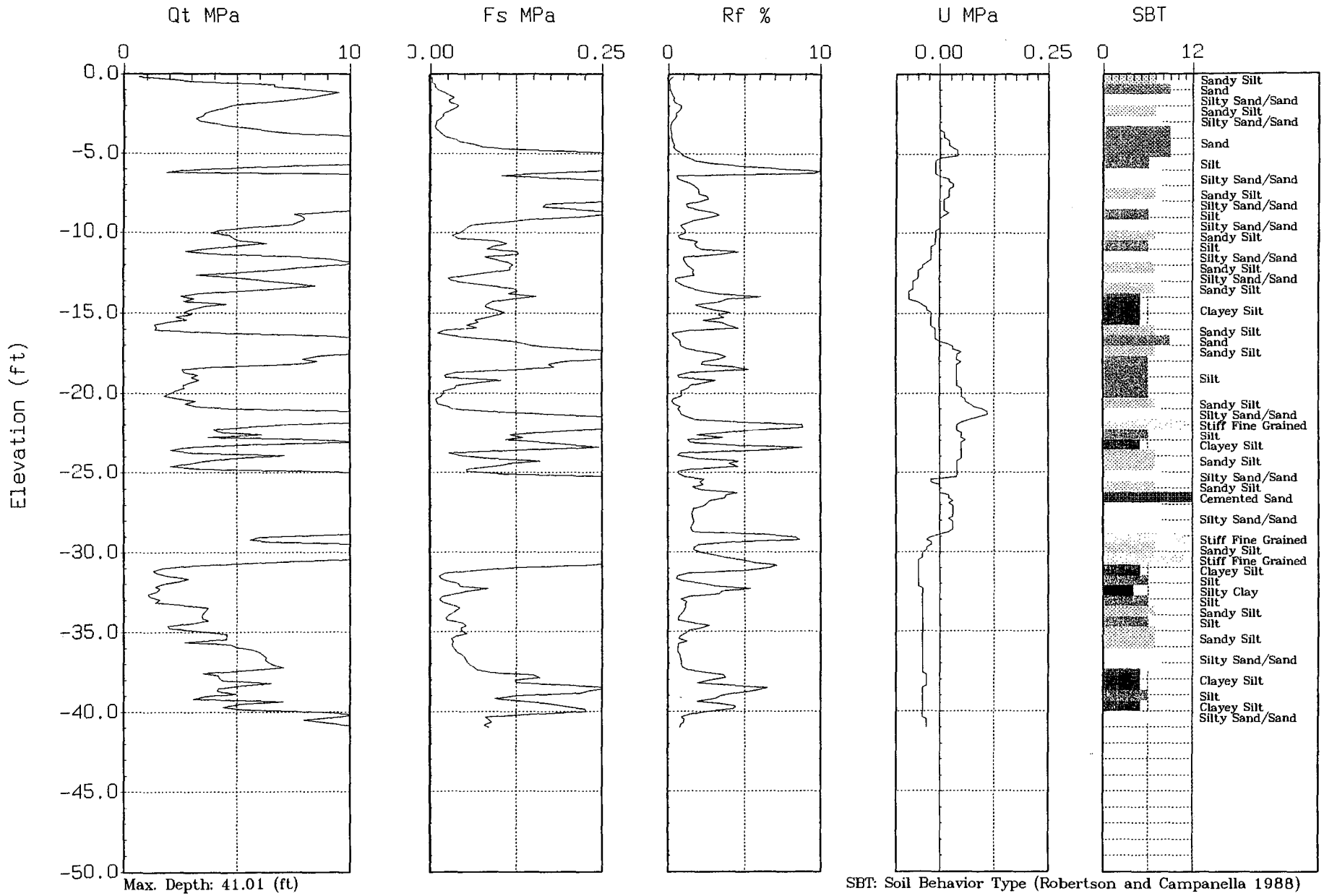
SCOEPA00008817

GREGG

RPAC

Site: CPT-07A
Location: ATOCHEM

Cone: 3287
Date: 9/30/99



Max. Depth: 41.01 (ft)

Depth Inc.: 0.164 (ft)

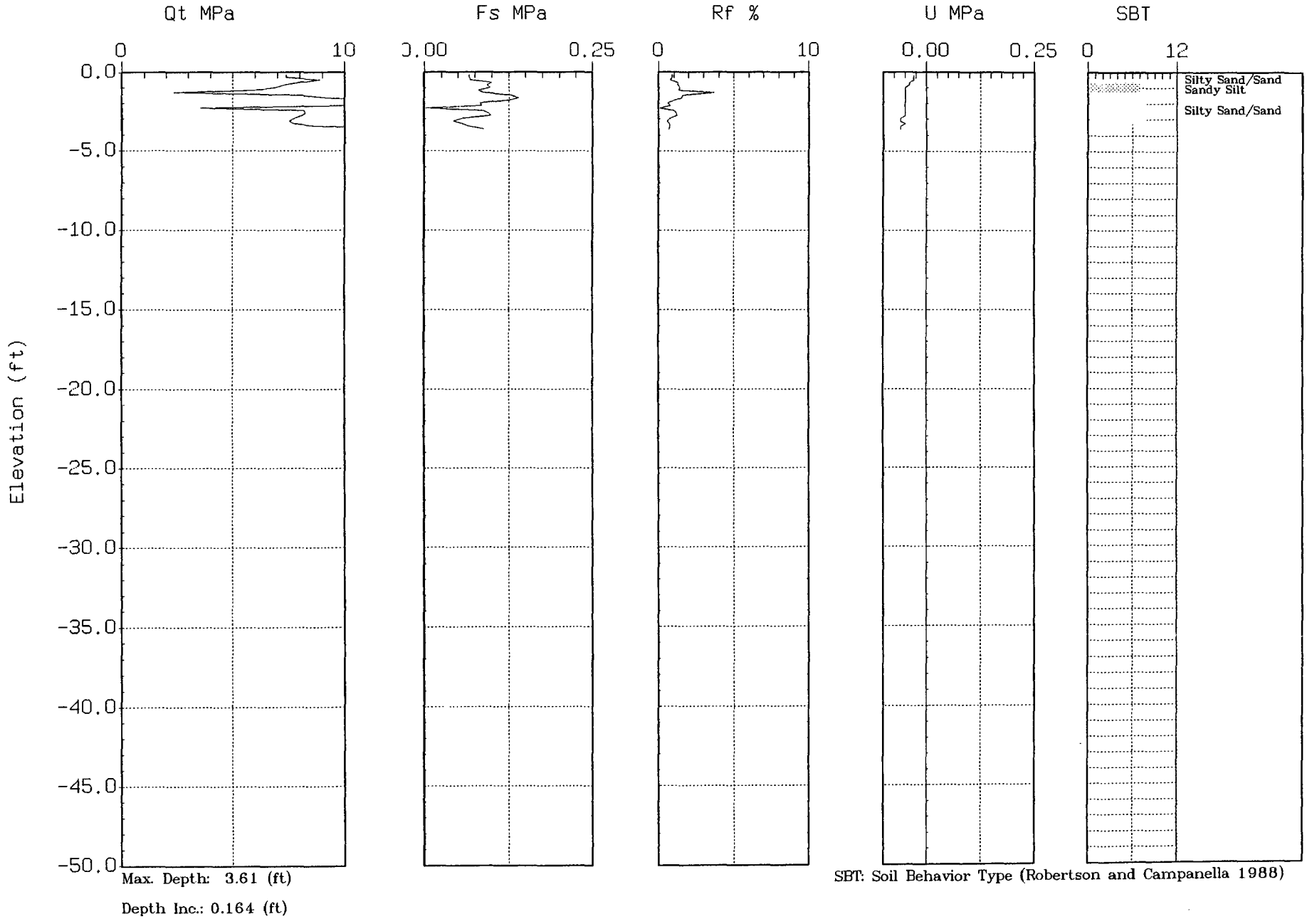
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

RPAC

Site: CPT-07B
Location: ATOCHEM

Cone: 3287
Date: 9/30/99



Max. Depth: 3.61 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson and Campanella 1988)

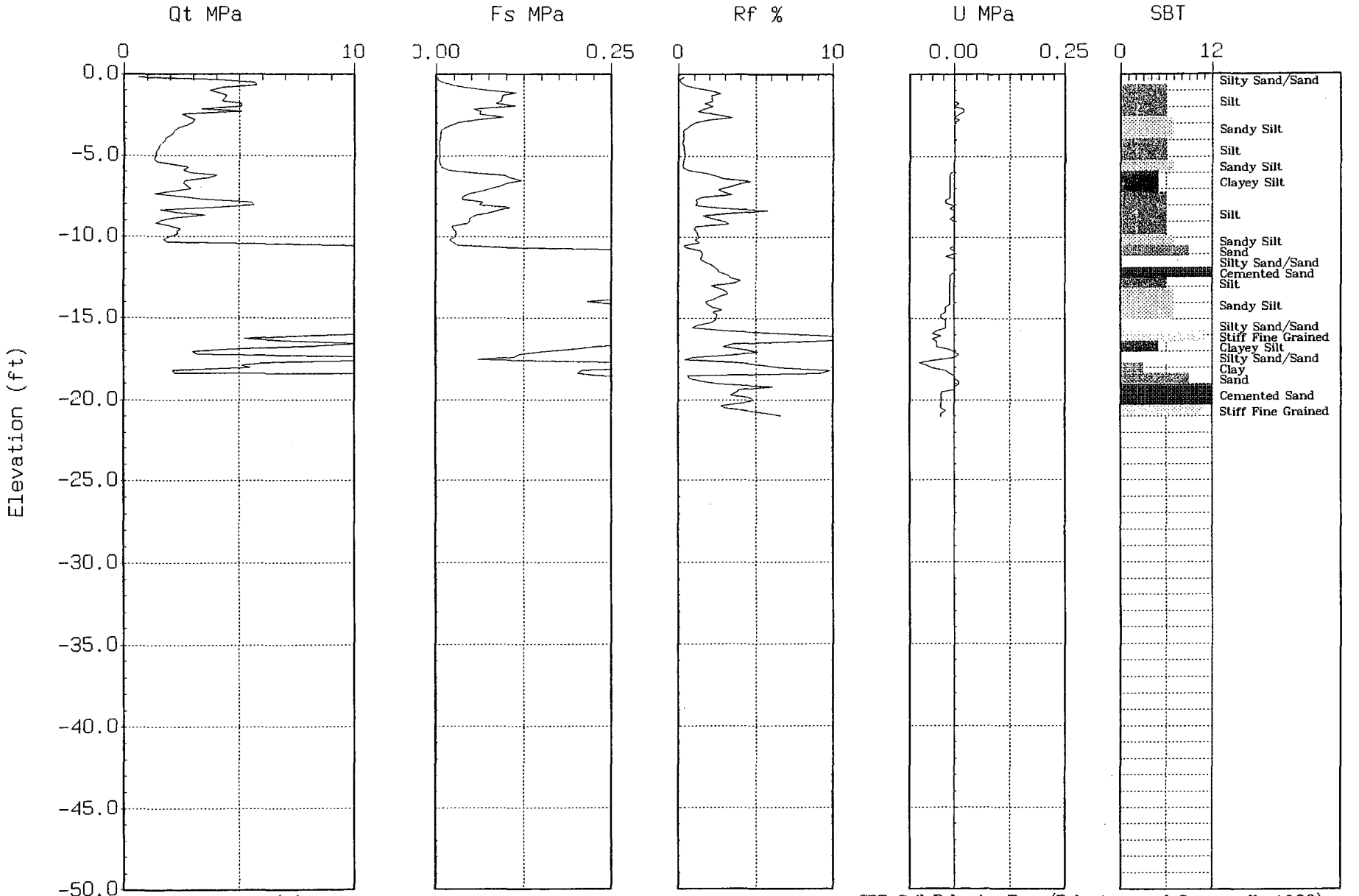
SCOEPA00008819

GREGG

RPAC

Site: CPT-08
Location: ATOCHEM

Cone: 3287
Date: 9/30/99



Max. Depth: 21.00 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson and Campanella 1988)

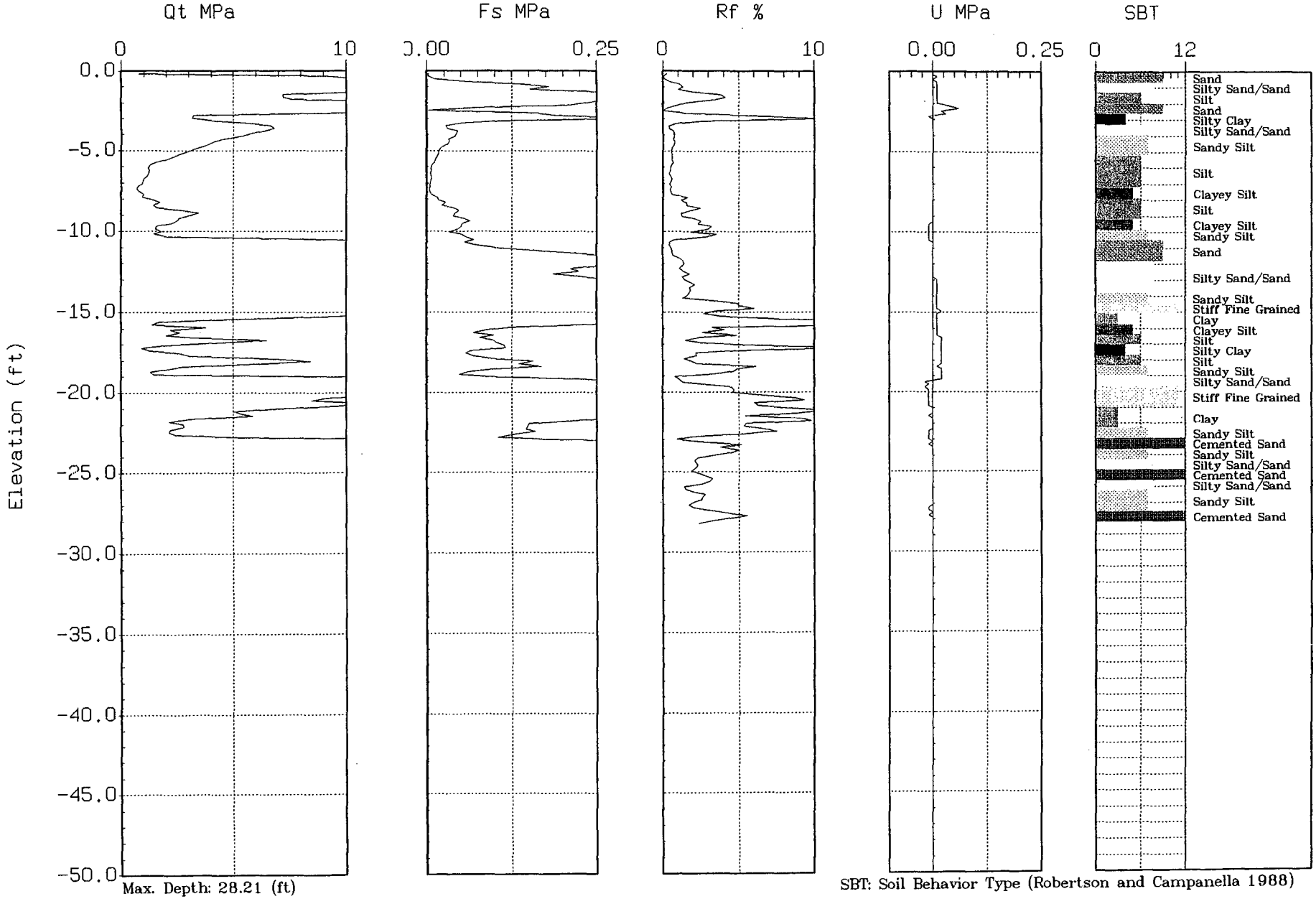
SCOEPA00008820

GREGG

RPAC

Site: CPT-08A
Location: ATOCHEM

Cone: 3287
Date: 9/30/99



Max. Depth: 28.21 (ft)

Depth Inc.: 0.164 (ft)

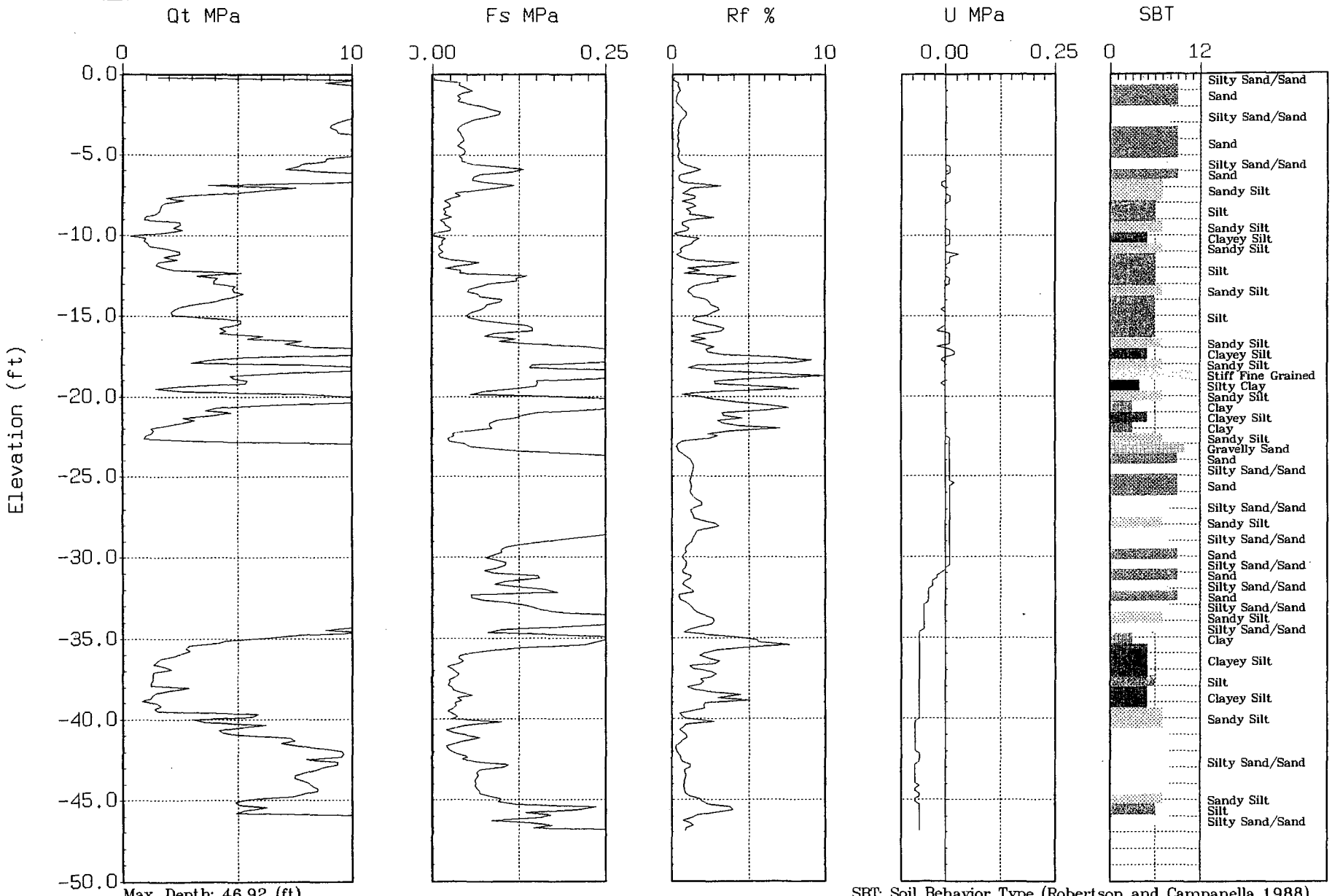
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

RPAC

Site: CPT-09
Location: ATOCHEM

Cone: 3287
Date: 9/30/99



Max. Depth: 46.92 (ft)

Depth Inc.: 0.164 (ft)

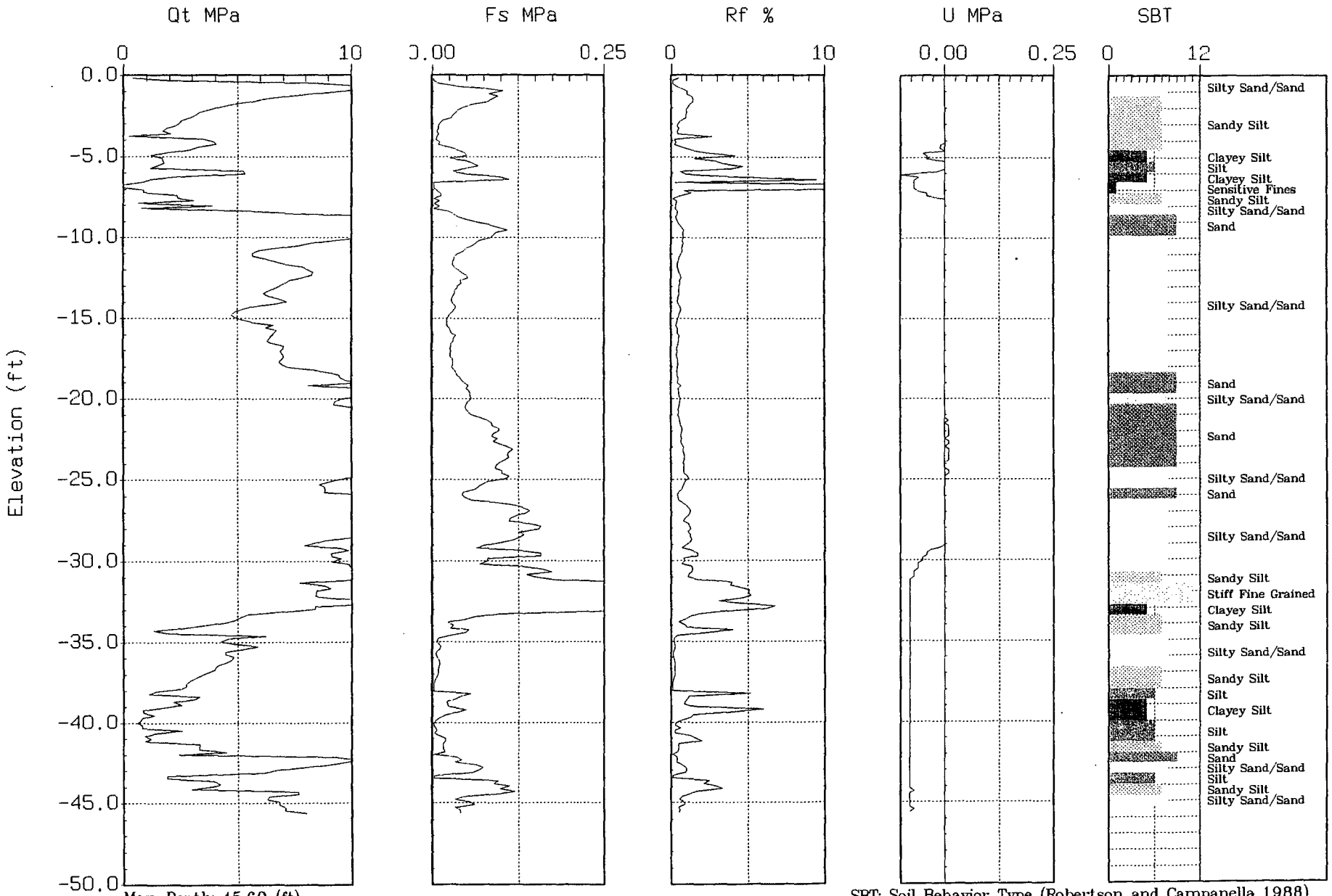
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

RPAC

Site: CPT-10
Location: ATOCHEM

Cone: 3287
Date: 9/30/99



Max. Depth: 45.60 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson and Campanella 1988)

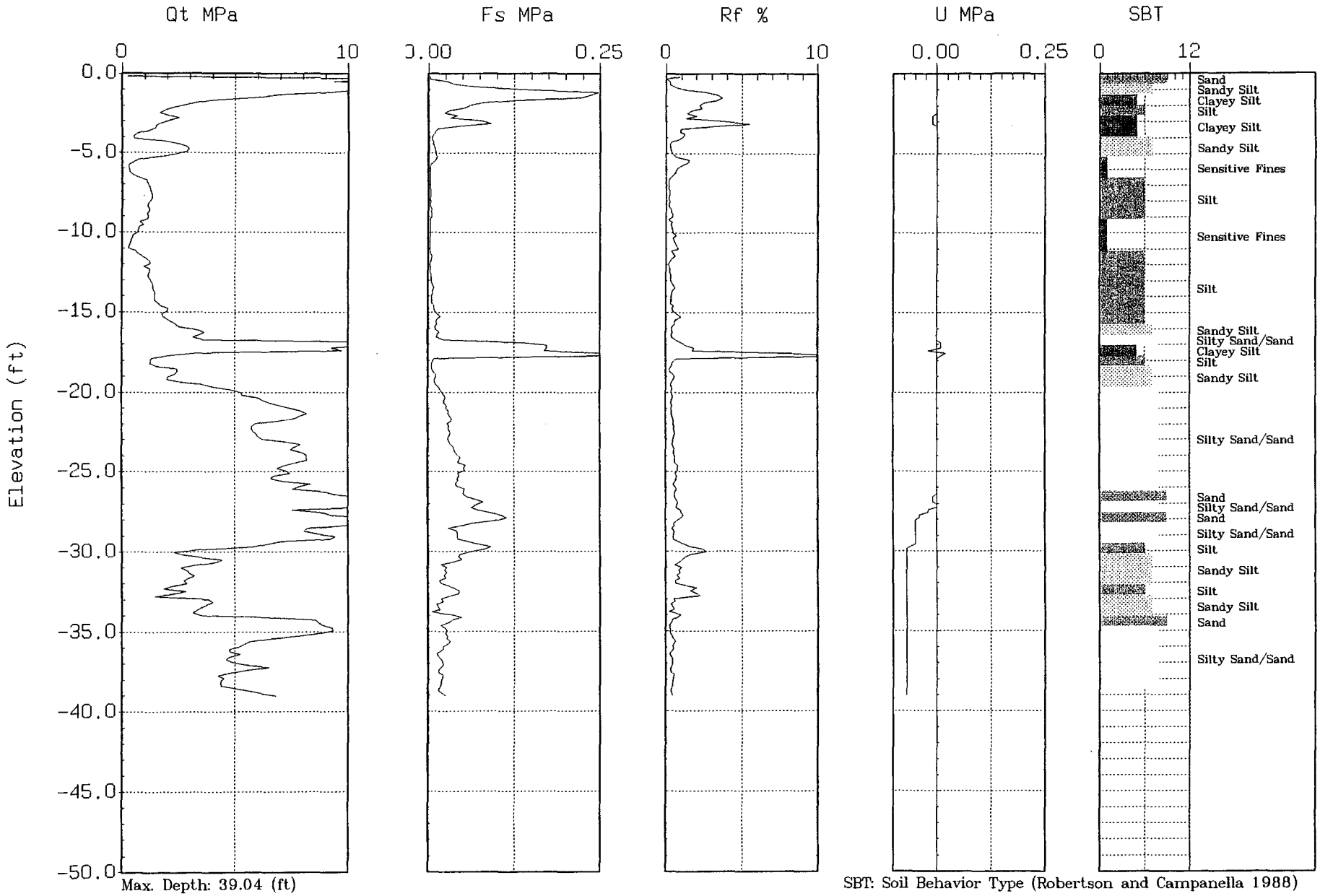
SCOEPA00008823

GREGG

RPAC

Site: CPT-11
Location: ATOCHEM

Cone: 3287
Date: 10/1/99



Max. Depth: 39.04 (ft)

Depth Inc.: 0.164 (ft)

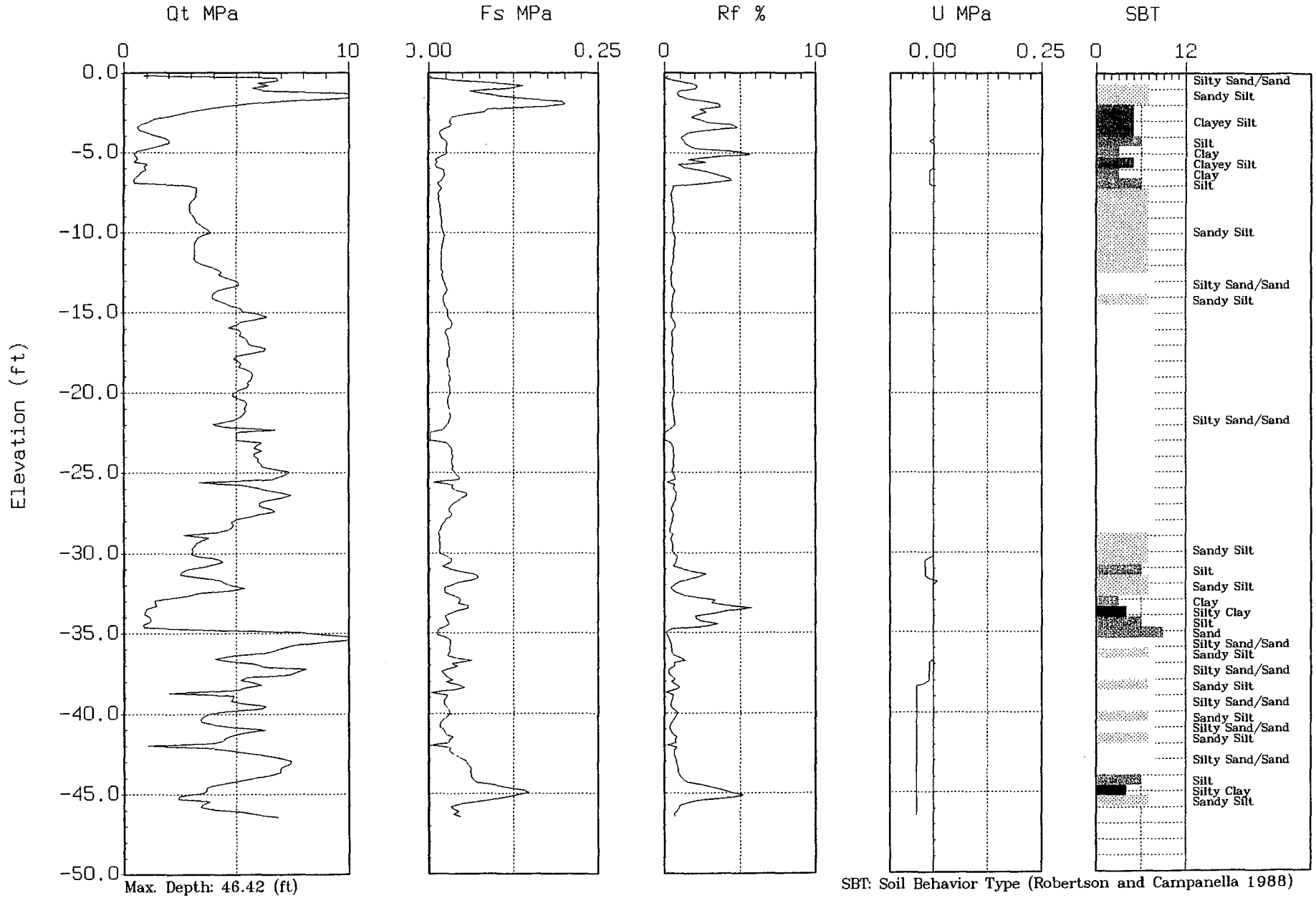
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

RPAC

Site: CPT-12
Location: ATOCHEM

Cone: 3287
Date: 10/1/99



Max. Depth: 46.42 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson and Campanella 1988)

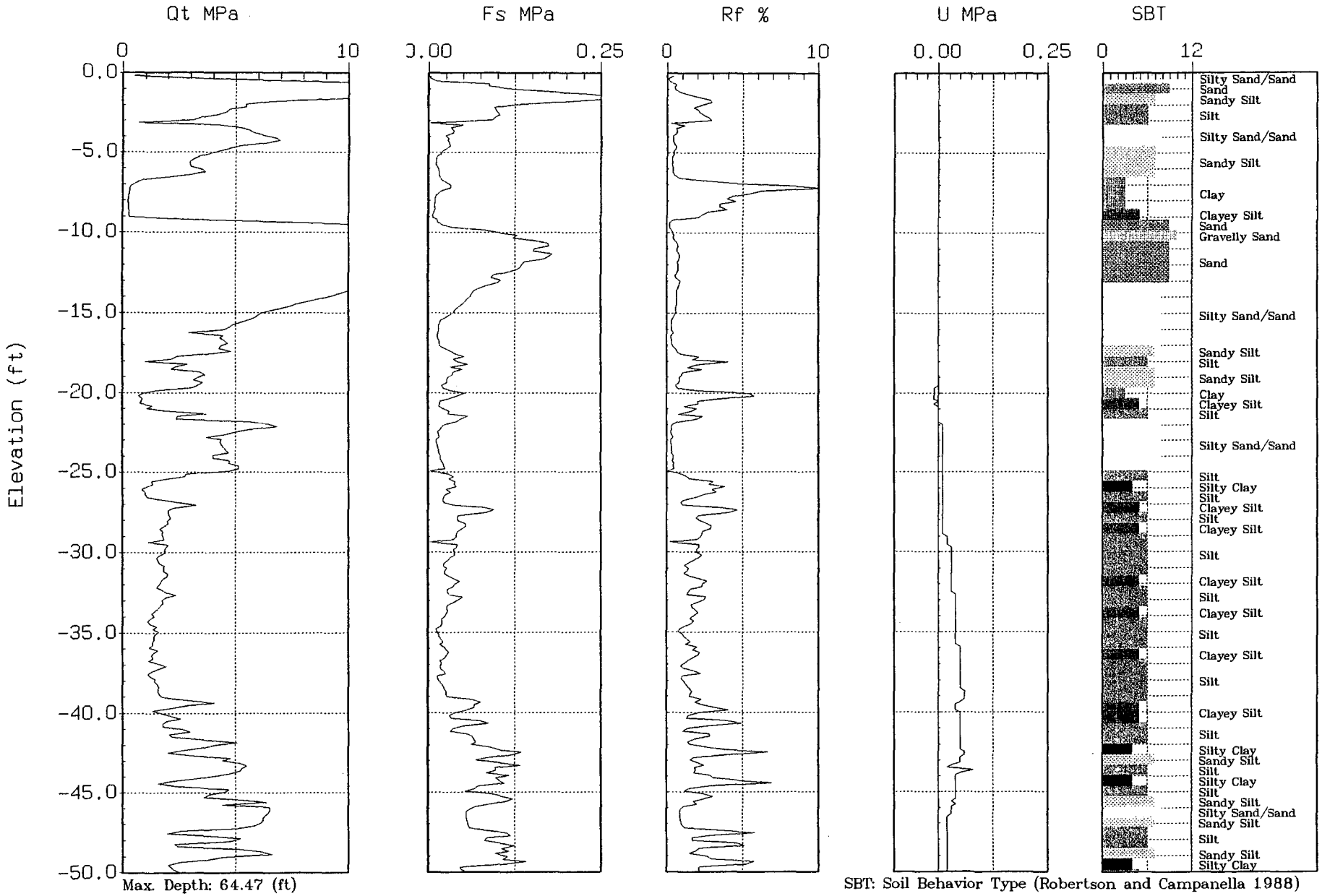
SCOEPA00008825

GREGG

RPAC

Site: CPT-13
Location: WACKER

Cone: 3287
Date: 10/1/99



Max. Depth: 64.47 (ft)

Depth Inc.: 0.164 (ft)

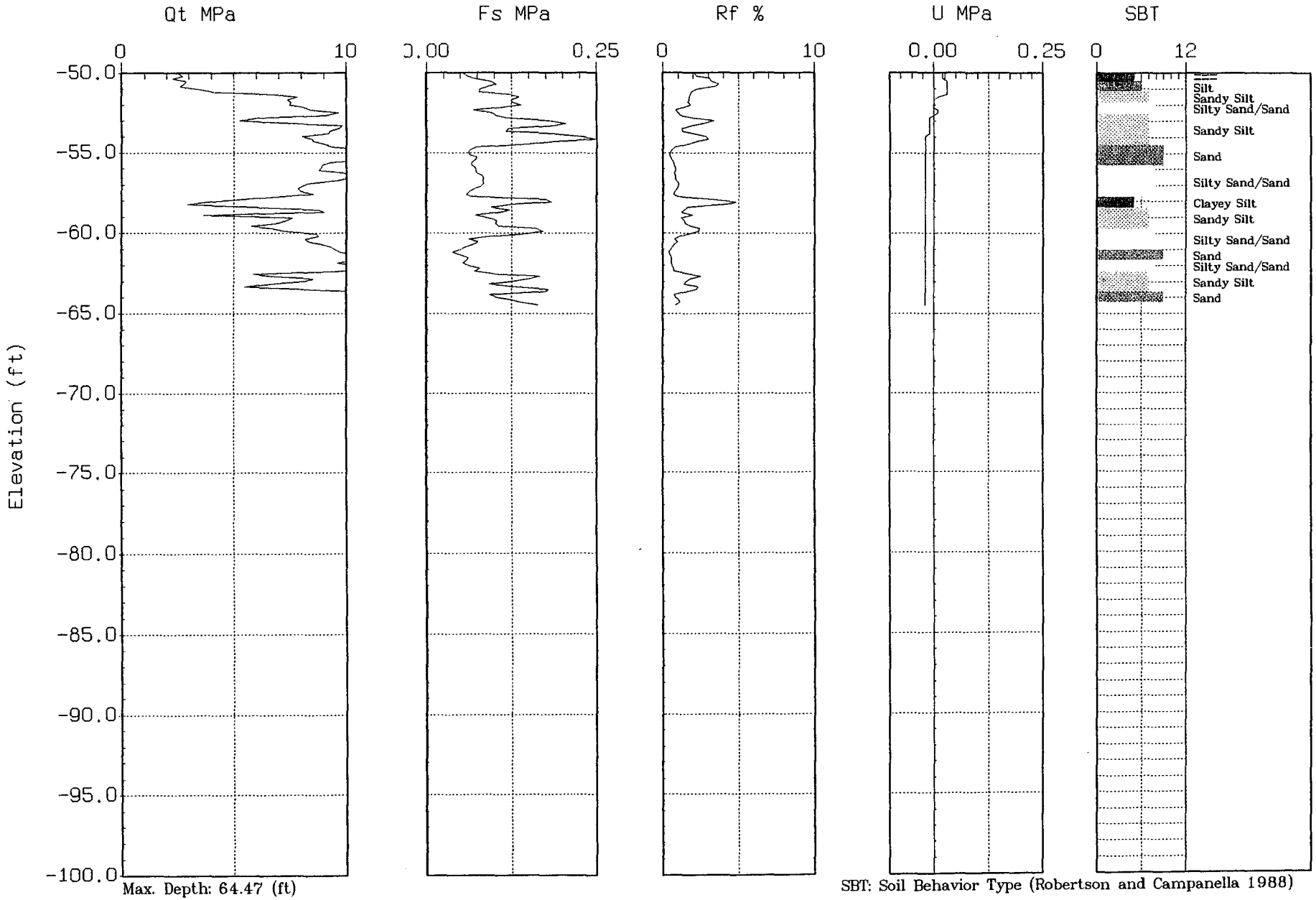
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

RPAC

Site: CPT-13
Location: WACKER

Cone: 3287
Date: 10/1/99



Max. Depth: 64.47 (ft)

Depth Inc.: 0.164 (ft)

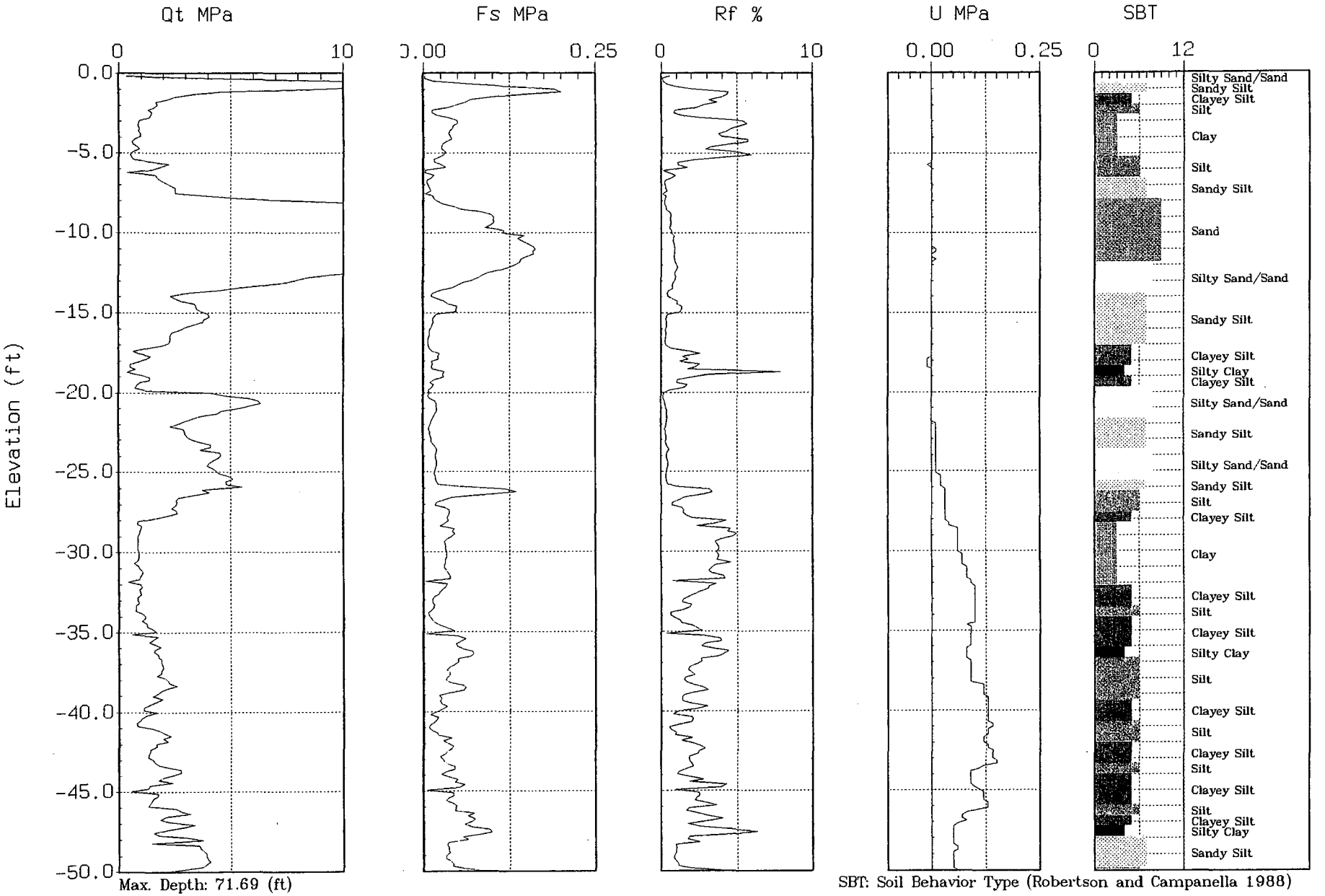
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

RPAC

Site: CPT-14
Location: WACKER

Cone: 3287
Date: 10/1/99



Max. Depth: 71.69 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson and Campanella 1988)

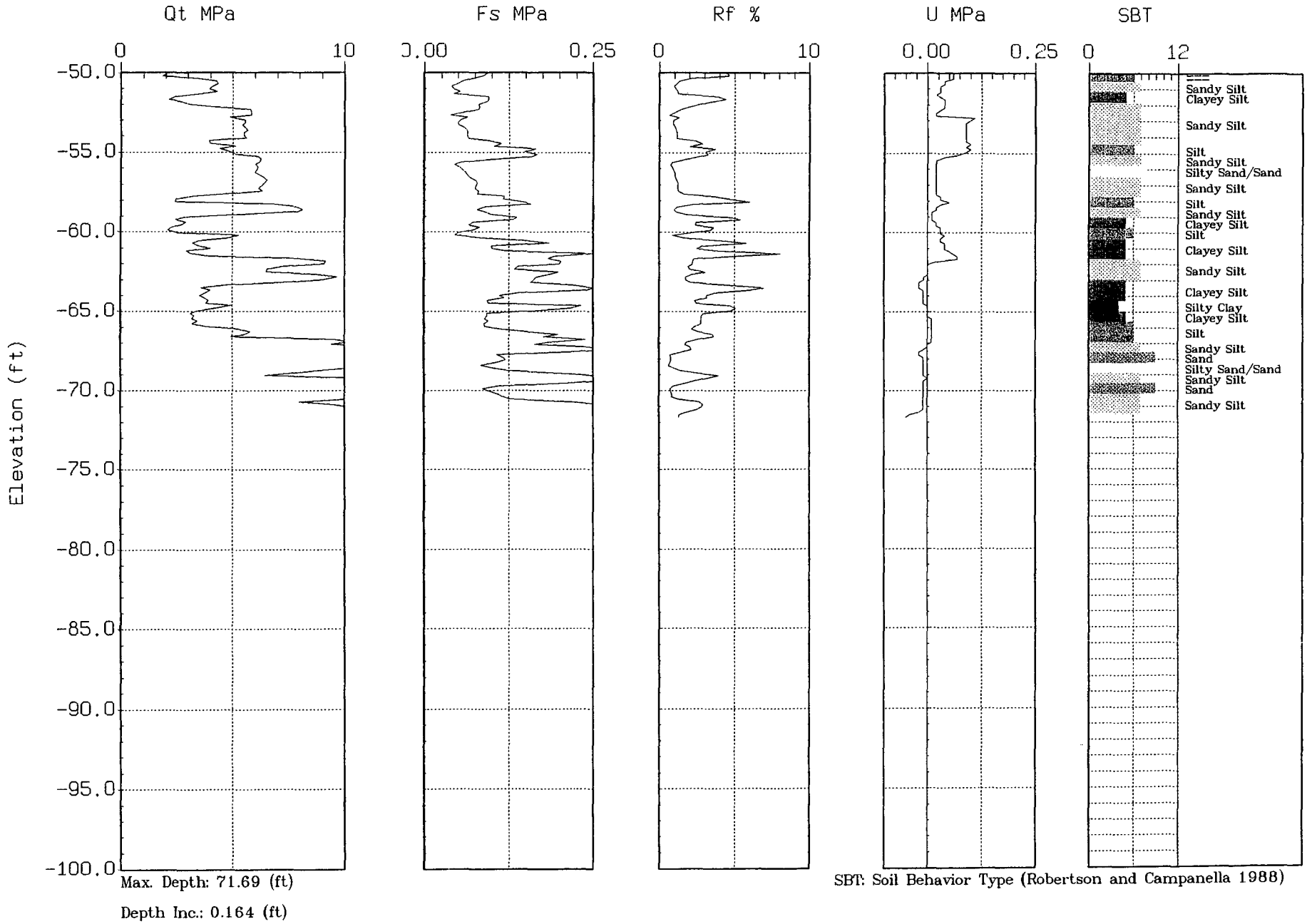
SCOEPA00008828

GREGG

RPAC

Site: CPT-14
Location: WACKER

Cone: 3287
Date: 10/1/99



Max. Depth: 71.69 (ft)

Depth Inc.: 0.164 (ft)

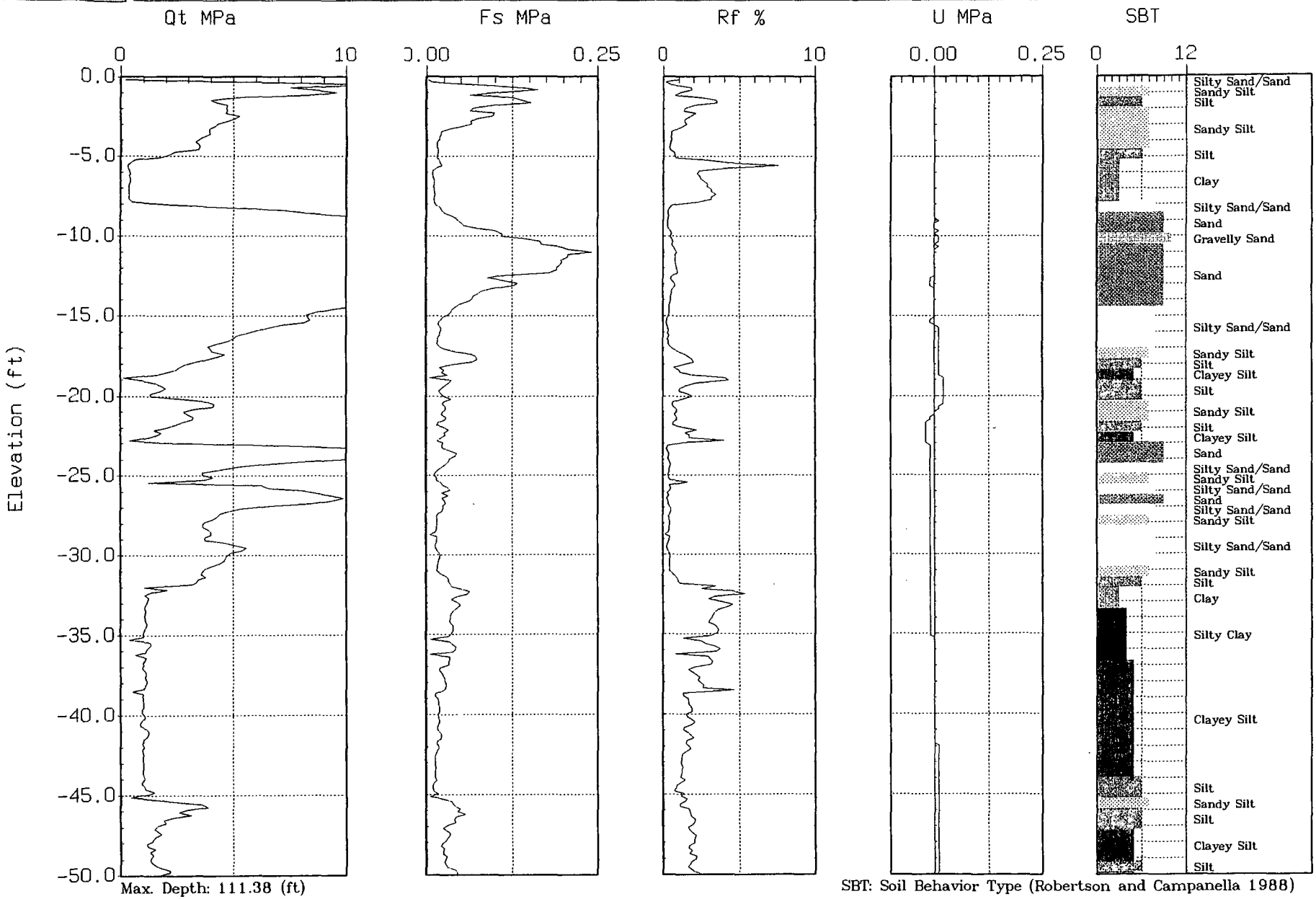
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

RPAC

Site: CPT-15
Location: WACKER

Cone: 3287
Date: 10/1/99



Max. Depth: 111.38 (ft)

Depth Inc.: 0.164 (ft)

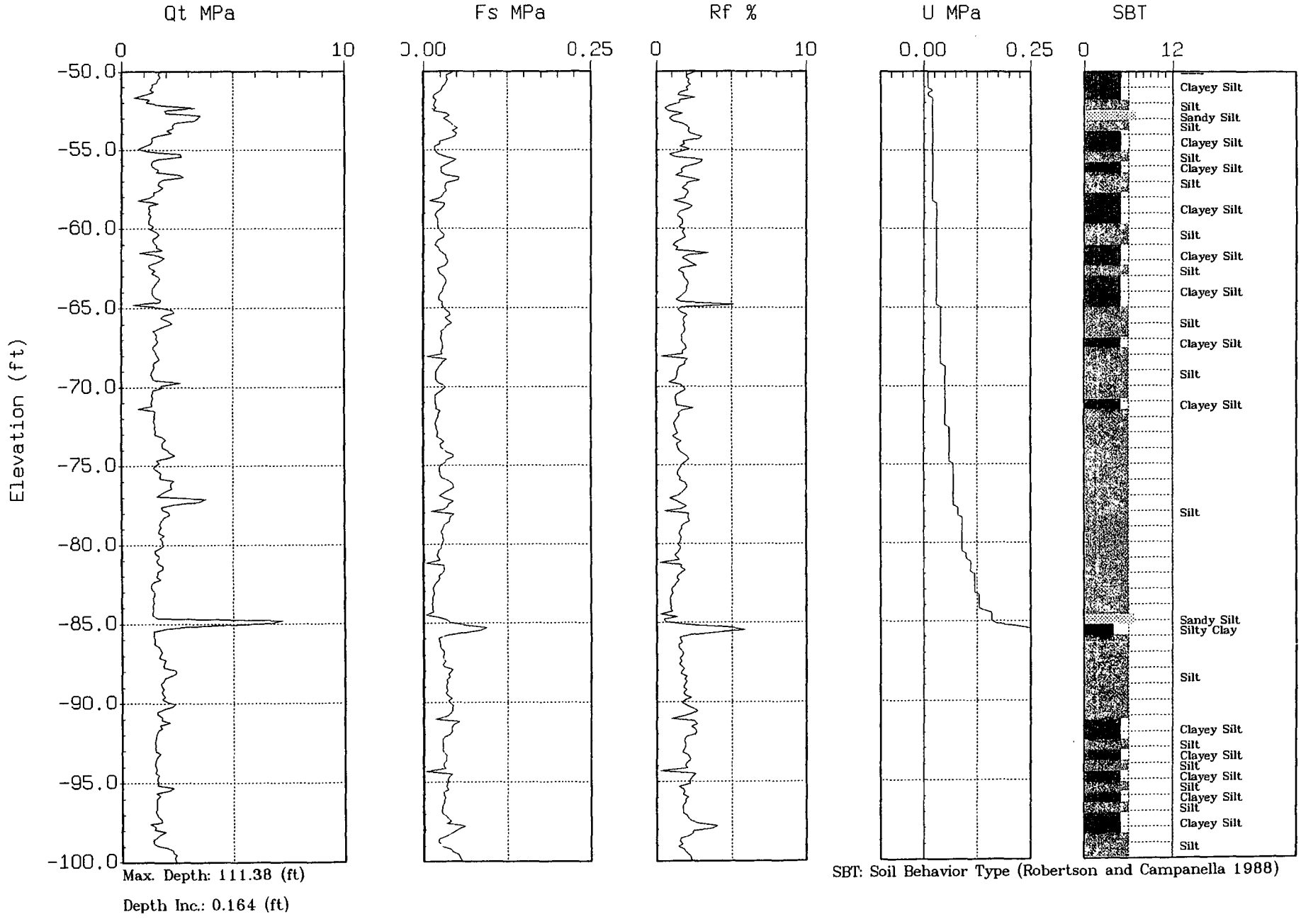
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

RPAC

Site: CPT-15
Location: WACKER

Cone: 3287
Date: 10/1/99



Max. Depth: 111.38 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson and Campanella 1988)

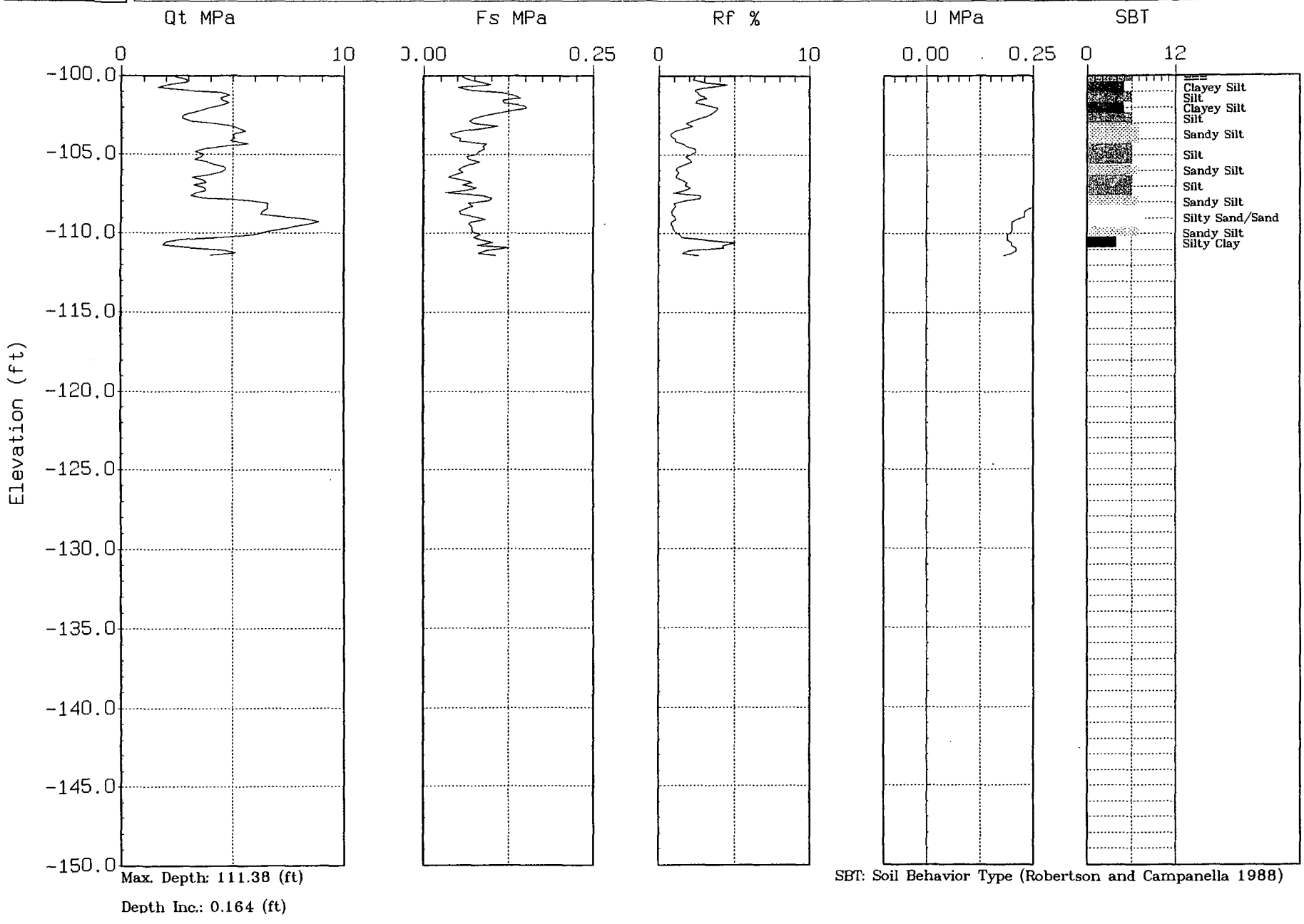
SCOEPA00008831

GREGG

RPAC

Site: CPT-15
Location: WACKER

Cone: 3287
Date: 10/1/99



Max. Depth: 111.38 (ft)

Depth Inc.: 0.164 (ft)

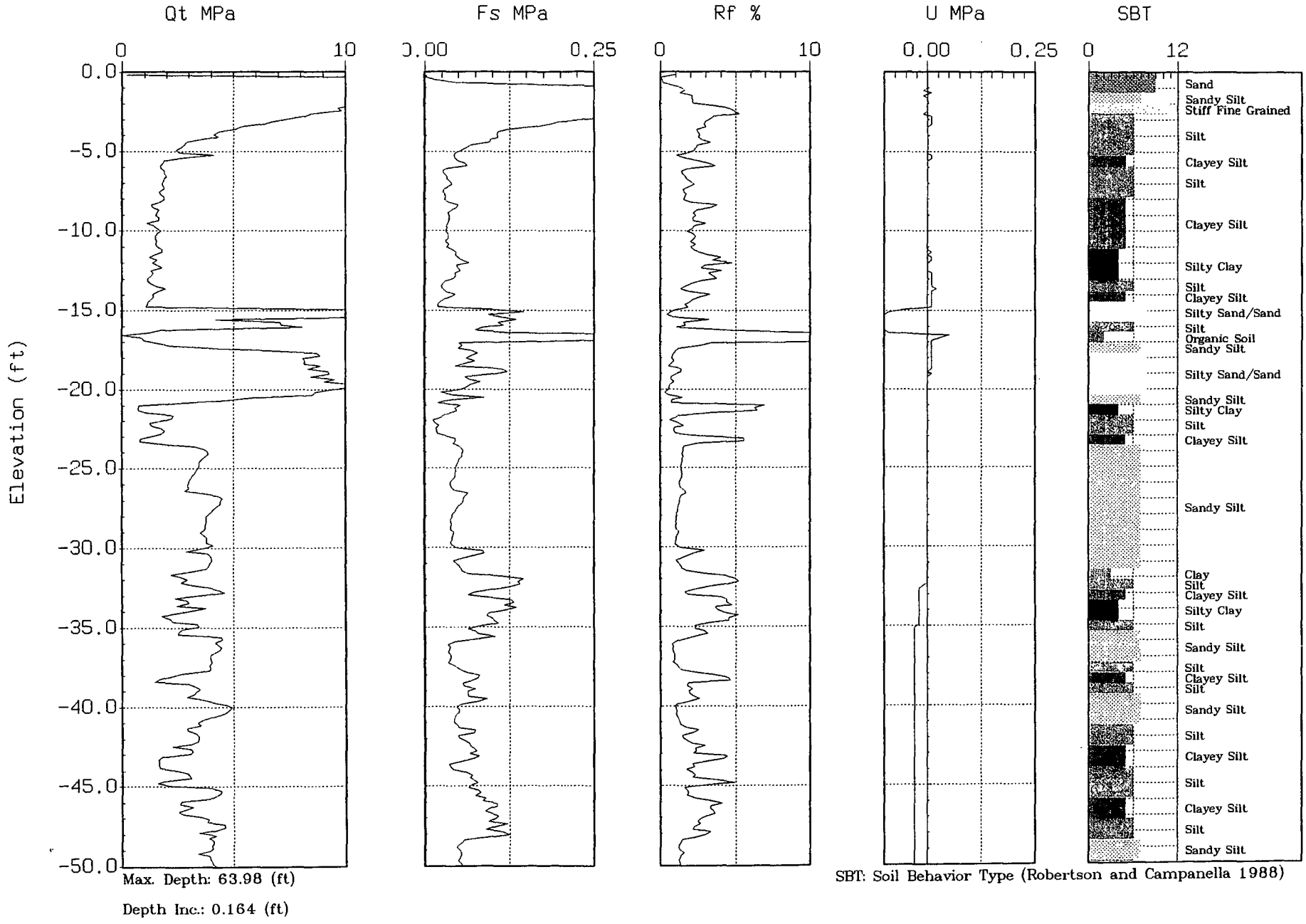
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

RPAC

Site: CPT-16
Location: WACKER

Cone: 3287
Date: 10/1/99



Max. Depth: 63.98 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson and Campanella 1988)

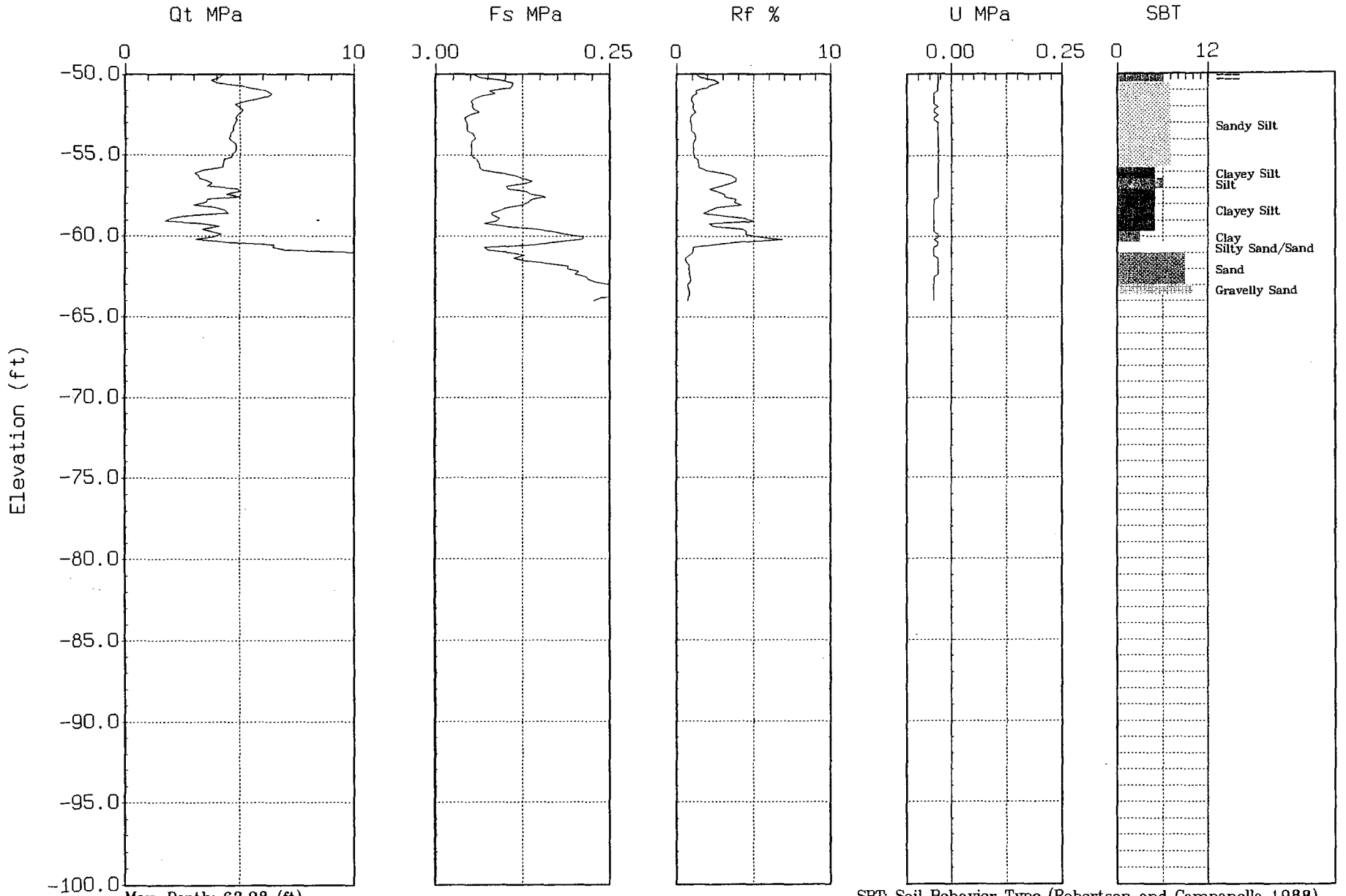
SCOEPA00008833

GREGG

RPAC

Site: CPT-16
Location: WACKER

Cone: 3287
Date: 10/1/99



Max. Depth: 63.98 (ft)

Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson and Campanella 1988)

SCOEPA00008835

SCOEPA00008836

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Key to Log of Boring

Elevation feet	Downhole Depth, feet	SAMPLES: Type	SAMPLES: Number	SAMPLES: Recovery, percent	SAMPLES: Headspace PID/FID, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
1	2	3	4	5	6	7	8	9	10

COLUMN DESCRIPTIONS

1. **Elevation:** Elevation in feet referenced to mean sea level (MSL) or site datum.
2. **Downhole Depth:** Depth in feet below the ground surface.
3. **Sample Type:** Type of soil sample collected at depth interval shown; sampler symbols are explained below.
4. **Sample Number:** Sample identification number.
5. **Recovery:** Length of sample in inches recovered in continuous sampling interval; "NA" indicates data not recorded.
6. **Headspace PID/FID:** Photo and/or flame ionization device sample headspace reading, in parts per million; "NA" indicates no reading.
7. **Graphic Log:** Graphic depiction of subsurface material encountered; typical symbols are explained below.
8. **USCS Code:** Unified Soil Classification System (USCS) group symbol code for associated soil strata.
9. **Material Description:** Description of material encountered; may include color, moisture, grain size, and density/consistency.
10. **Field Notes:** Observations regarding drilling or sampling made by driller or field personnel.

TYPICAL SOIL GRAPHIC SYMBOLS

- SAND (SP)
- SAND (SW)
- SAND with silt (SP-SM)
- CLAY (CL)
- Plastic CLAY (CH)
- Silty CLAY (CL/ML)
- SILT (ML)
- Plastic SILT (MH)
- Clayey SILT (ML/CL)
- GRAVEL (GP/GW)
- Silty SAND (SM)
- Clayey SAND (SC)

TYPICAL SAMPLER GRAPHIC SYMBOLS

- 2-inch-OD split spoon sampler (SPT)
- 2.5-inch-OD split spoon sampler (modified California)
- 3-inch-OD split spoon sampler (California)
- Continuous soil core sampler (1-inch-OD)
- Thin-wall, fixed-head tube sampler (Shelby tube)
- Portion of soil core submitted for analysis

OTHER GRAPHIC SYMBOLS

- First water encountered at time of drilling (ATD)
- Water level measured at specified time after drilling
- Change in material properties within a stratum
- Inferred contact or gradational change in soil type

GENERAL NOTES

1. Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive; actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
2. Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring GP-010

Sheet 1 of 2

Date(s) Drilled	9/27/99	Logged By	J. Peale	Reviewed By	
Drilling Method	Direct Push	Drilling Contractor	TEG Northwest	Total Depth of Borehole	47.8 feet
Drill Rig Type	Strataprobe	Drill Bit Size/Type	2-1/4-inch-dia. steel probe	Ground Surface Elevation	Not available
Groundwater Level(s)	Not measured	Sampling Method	1-inch-dia. dual tube	Hammer Data	Hydraulic hammer
Borehole Backfill	Bentonite grout to ground surface	Comments	Refer to site plan for boring location.		

Downhole Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace PID, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
0		01	24			SM	Silty SAND; brown, fine to medium, loose, dry	
						SP	SAND; gray to dark reddish brown (10R 3/6), no silt, loose, dry	
5		02	30			CH	Silty CLAY; dark gray, moist Becomes yellowish brown (5YR 4/6), damp	
10		03	48			CH/MH	Silty CLAY with SILT layers; yellowish brown (5YR 4/6), trace fine sand, damp	
		04	48				Increasing silt, grading to silty CLAY to clayey SILT, dark yellowish brown (10YR 4/6) Becomes moist	
15						SM	Silty SAND; dark yellowish brown (10YR 4/6), fine, trace clay, moist	
		05	48				Becomes wet	
20		06	48					
25		07	36					
						SM/MH	Silty SAND; dark yellowish brown (10YR 4/6), fine, some clay, wet	
		08	48			CH/MH	Silty CLAY; dark yellowish brown (10YR 4/6), trace sand, wet	
30								

Report: ENV_12AS_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 12/19/99

URS Greiner Woodward Clyde

SCOEPA00008838

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring GP-010

Sheet 2 of 2

Downhole Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace PID, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
30		08	48			CH/MH	Silty CLAY; dark yellowish brown (10YR 4/6), trace sand, wet (continued)	
		09	48			CL/ML	Silty CLAY; dark yellowish brown (10YR 4/6), low plasticity, trace sand, wet	
35		10	48			SM	Silty SAND; dark yellowish brown (10YR 4/6), fine to medium, trace clay, wet	
						MH/CH	Clayey SILT; dark yellowish brown (10YR 4/6), trace fine sand, wet	
40		11	48			SM	Silty SAND; dark yellowish brown (10YR 4/6), fine, trace clay, wet	
						SP-SM	SAND; dark yellowish brown (10YR 4/6), fine to medium, trace silt, moist to wet Becomes very dark grayish brown (10YR 3/2)	
45		10	46			SM	Silty SAND; dark grayish brown (10YR 3/2), fine, trace clay, moist to wet With black, angular basalt fragments	
							Boring terminated at 47.8 feet bgs due to refusal.	
50								
55								
60								
65								

Report: ENV_12AS_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 12/19/99

URS Greiner Woodward Clyde

SCOEPA00008839

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring GP-011

Sheet 1 of 2

Date(s) Drilled	9/28/99	Logged By	J. Peale	Reviewed By	
Drilling Method	Direct Push	Drilling Contractor	TEG Northwest	Total Depth of Borehole	60.0 feet
Drill Rig Type	Strataprobe	Drill Bit Size/Type	2-1/4-inch-dia. steel probe	Ground Surface Elevation	Not available
Groundwater Level(s)	Not measured	Sampling Method	1-inch-dia. dual tube	Hammer Data	Hydraulic hammer
Borehole Backfill	Bentonite grout to ground surface	Comments	Refer to site plan for boring location.		

Downhole Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace PID, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
0						ML	SILT; dark yellowish brown (10YR 4/6), hard, dry	
		01	24					
							← Becomes very dark brown (7.5YR 2.5/3)	
5							← Oxidized zone	
		02	36			MH/CH	Clayey SILT; very dark brown (7.5YR 2.5/3), hard, dry	
							← 1-cm-thick clay layer	
						SP-SM	SAND; dark brown (7.5YR 3/3), fine to medium, trace silt, loose, dry	
10		03	28					
						ML	Sandy SILT; dark brown (7.5YR 3/3), dense, dry	
						SP-SM	SAND; dark brown (7.5YR 2/3), fine to medium, trace silt, loose, dry	
		04	36				← Becomes moist to wet	
15							← Becomes very dark gray (5Y 3/1), wet, strong odor	
		05	48				← Sand grades medium to coarse, strong odor	
						ML	SILT; very dark gray (2.5Y 3/1), some very fine sand, wet	
20						SP	SAND; black (5Y 2.5/1), medium to coarse, wet	
		06	26				← 1-inch-thick clayey silt layer	
25		07	42					
		08	0					Heaving sands; no sample recovery from 28-32 ft.
30								

Report: ENV_12AS_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 12/19/99

URS Greiner Woodward Clyde

SCOEPA00008840

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring GP-011

Downhole Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace PID, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
30		08	0			SP	SAND; black (5Y 2.5/1), medium to coarse, wet (continued)	Heaving sands; no sample recovery from 28-32 ft.
		09	48			ML/CL	Clayey SILT; very dark brown (7.5YR 3/3), low plasticity, soft, wet	
35		10	48					
40		11	48					
45		12	48					
50		13	48					
		14	0			SP	SAND (no recovery due heaving sand)	Heaving sands; no sample recovery from 52-56 ft.
55		15	0					Heaving sands; no sample recovery from 56-60 ft.
60							**Boring terminated at 60.0 feet bgs.**	
65								

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring GP-025

Sheet 1 of 2

Date(s) Drilled	10/11/99	Logged By	J. Peale	Reviewed By	
Drilling Method	Direct Push	Drilling Contractor	TEG Northwest	Total Depth of Borehole	50.0 feet
Drill Rig Type	Strataprobe	Drill Bit Size/Type	2-1/4-inch-dia. steel probe	Ground Surface Elevation	Not available
Groundwater Level(s)	Not measured	Sampling Method	1-inch-dia. dual tube	Hammer Data	Hydraulic hammer
Borehole Backfill	Bentonite grout to ground surface	Comments	Refer to site plan for boring location.		

Downhole Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace PID [FID], ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
0							[No recovery in upper 2 feet]	
		01	26			SP	Gravelly SAND; dark gray, coarse, dry	
						ML	SILT; medium brown, some fine sand, dry	
						SP-SM	SAND; medium gray, fine, trace silt, damp	
5		02	30					
						SM	Silty SAND; medium gray, fine, damp	
							Becomes wet, slight fuel odor	
10		03	42					
		04	48	1.7 [10-15]		ML/MH	Clayey SILT; medium gray, trace fine sand, wet, fuel odor	
15						SP	SAND; reddish brown, coarse, loose, wet	
		05	48			SW	SAND; reddish brown, fine to coarse, moist to wet	
							With alternating layers of silty clay	
20							Dark gray, clayey silt layer	
		06	48	25-35 [--]		SM	Silty SAND; dark gray, trace clay, wet	
							Clay layer with some silt	
							Coarse sand layers, wet, fuel odor	
25		07	48				Greenish gray clay layer	
						CL/ML	Silty CLAY; brownish gray, very stiff, wet	
		08	NA			MH/CH	Layered CLAY and SILT; greenish gray, some sand, soft, wet	
30								

Report: ENV_12AS_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 12/19/99

URS Greiner Woodward Clyde

SCOEPA00008842

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring GP-025

Sheet 2 of 2

Downhole Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace PID [FID], ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
30		08	NA			MH/CH	Layered CLAY and SILT; greenish gray, some sand, soft, wet (continued)	
		09	48			SM	Silty SAND; greenish gray, fine, wet	
						ML/CL	Clayey SILT; greenish gray, wet	
35						ML	Sandy SILT; greenish gray, wet	
		10	48				← Becomes light grayish brown, trace clay	
40						SM	Silty SAND; light grayish brown, fine, wet	
		11	48					
45		12	48					
		13	24			ML/MH	Clayey SILT; light grayish brown, trace fine sand, wet	
50							**Boring terminated at 50.0 feet bgs due to refusal.**	Refusal, but no gravel in end of sampler.
55								
60								
65								

Report: ENV_12A5_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 12/19/99

URS Greiner Woodward Clyde

Project: Rhone Poulenc RI / FS Project Location: Portland, Oregon Project Number: 5292C0804A.00 00045	**Log of Boring GP-026** Sheet 1 of 2

Date(s) Drilled	10/11/99	Logged By	J. Peale	Reviewed By	
Drilling Method	Direct Push	Drilling Contractor	TEG Northwest	Total Depth of Borehole	50.0 feet
Drill Rig Type	Strataprobe	Drill Bit Size/Type	2-1/4-inch-dia. steel probe	Ground Surface Elevation	Not available
Groundwater Level(s)	Not measured	Sampling Method	1-inch-dia. dual tube	Hammer Data	Hydraulic hammer
Borehole Backfill	Bentonite grout to ground surface	Comments	Refer to site plan for boring location.		

Downhole Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace FID, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
0							[No recovery in upper 0.8 foot]	
		01	36			MH/CH	Clayey SILT; brown, stiff, dry	
						CH/MH	Silty CLAY; light gray, dry	
5		02	48	50+			Becomes dark gray, fuel odor	
						CH	CLAY; dark brownish red, dry Becomes light brown	
						SM	Silty SAND; light brown, fine, dry	
10		03	48				Becomes damp	
							Becomes moist	
		04	48					
15								
		05	48					
							Clayey silt layer	
20		06	48				Clay layer	
							Clay layer	
25		07	48					
		08	48					
30								

Report: ENV_12AS_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 12/19/99

URS Greiner Woodward Clyde

SCOEPA00008844

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring GP-026

Sheet 2 of 2

Downhole Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace FID, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
30		08	48			SM	Silty SAND; light brown, fine, moist (continued)	
		09	48			CH/MH	Silty CLAY; light brown, sticky, soft, wet Becomes stiff, with trace fine sand	
35		10	48			ML/CL	Clayey SILT; light brown, trace fine sand, wet	
						ML	SILT; light brown, some fine sand and clay, wet	
40		11	48			SM	Silty SAND; light brown, fine, trace clay, wet	
						ML/CL	Clayey SILT; light brown, trace fine sand, wet	
45		12	48			SM	Silty SAND; light brown, fine, trace clay, wet	
		13	24				Coarse, angular, dark brown to red basalt fragments	
50							**Boring terminated at 50.0 feet bgs due to refusal.**	
55								
60								
65								

Report: ENV_12AS_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 12/19/99

URS Greiner Woodward Clyde

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring GP-027

Sheet 1 of 3

Date(s) Drilled	10/12/99	Logged By	G. Lukert	Reviewed By	
Drilling Method	Direct Push	Drilling Contractor	TEG Northwest	Total Depth of Borehole	74.5 feet
Drill Rig Type	Strataprobe	Drill Bit Size/Type	2-1/4-inch-dia. steel probe	Ground Surface Elevation	Not available
Groundwater Level(s)	Not measured	Sampling Method	1-inch-dia. dual tube	Hammer Data	Hydraulic hammer
Borehole Backfill	Cement grout to ground surface	Comments	Refer to site plan for boring location.		

Downhole Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace PID [FID], ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
0						SM	Silty SAND; dark grayish brown (10YR 4/2), ~30% silt, dry(?)	
		01	30			ML	SILT; dark gray (2.5Y 4/1), medium plasticity, trace clay, damp	
5		02	36	0.0 [36.2]		SM	Silty SAND; dark gray (2.5Y 4/1), fine, ~15-20% silt, damp	
10		03	36	0.0 [0.0]		ML/CL	Clayey SILT; dark gray (2.5Y 4/1), medium plasticity, ~10% fine sand, moist	
		04	36	0.0 [86.3]				
15						GM	Silty GRAVEL with sand; dark gray (2.5Y 4/1), ~40% well-graded angular basalt gravel, ~40% sand, ~20% silt, wet	
		05	24	0.0 [5.8]		SP	SAND; very dark grayish brown (10YR 3/2), poorly graded, rounded to subrounded medium grains, very little fines, wet	
20		06	30	0.0 [0.0]				
25		07	18	0.0 [12.6]		CL/CH	CLAY: dark gray (2.5Y 4/1), medium to high plasticity, trace silt, wet	
						CL/ML	Silty CLAY; dark gray (2.5Y 4/1), medium plasticity, wet [description from cuttings]	
		08	0	–				
30								

Report: ENV_12AS_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 12/19/99

URS Greiner Woodward Clyde

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring GP-027

Downhole Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace PID [FID], ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
30		08	0	–		CL/ML	Silty CLAY; dark gray (2.5Y 4/1), medium plasticity, wet (continued)	
		09	48	0.0 [2.6]		ML	SILT; dark gray (2.5Y 4/1), medium plasticity, trace clay, moist	
35		10	24	0.5 [2.9]				
40		11	24	0.0 [10.8]				
		12	48	0.0 [48.7]			Becomes low to medium plasticity, damp to moist	
45							Becomes medium plasticity, moist	
50		13	48	0.0 [53.5]				
		14	48	0.0 [103]		ML	Sandy SILT; dark gray (2.5Y 4/1), low plasticity, very fine sand, damp	
55		15	48	0.0 [123]		SM	Silty SAND; dark gray (2.5Y 4/1), ~60% fine sand, ~40% low plasticity fines, slightly micaceous, damp	
60		16	48	0.0 [102]		SP-SM	SAND with silt; dark gray (2.5Y 4/1), very fine sand, ~10% silt, slightly micaceous, damp	
							Silt layer, trace sand	
65		17	36	NA		ML	SILT; dark gray (2.5Y 4/1), low to medium plasticity, ~30% very fine sand, wet	No PID/FID reading.

Report: ENV_12NS_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 12/19/99

SCOEPA00008847

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring GP-027

Sheet 3 of 3

Downhole Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace PID [FID], ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
65		17	36	NA		ML	SILT; dark gray (2.5Y 4/1), low to medium plasticity, ~30% very fine sand, wet (continued)	No PID/FID reading.
70		18	36	NA		ML	SILT; dark gray (2.5Y 4/1), medium plasticity, trace very fine sand, dry to damp	No PID/FID reading.
		19	30	NA		SP-SM	SAND with silt; dark grayish brown (2.5Y 4/2), fine sand, ~10% silt, micaceous, moist	No PID/FID reading.
75							**Boring terminated at 74.5 feet bgs due to refusal.**	
80								
85								
90								
95								
100								

Report: ENV_12AS_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 12/19/99

SCOEPA00008848

SCOEPA00008849

SCOEPA00008850

Thirty-nine groundwater, five field duplicates, and twenty-seven quality control (QC) samples (twenty-five trip and two equipment blanks) were collected by URS Greiner Woodward Clyde (URS) and analyzed by North Creek Analytical, Inc. (NCA) and Columbia Analytical Services, Inc. (CAS). This report presents a summary of analytical results and data validation results for reconnaissance ("Recon") groundwater samples that, for the purposes of this report, are divided into two "sampling rounds". Sampling Round 1 was collected between August 26 and September 2, 1999 and Sampling Round 2 was collected between October 18 and October 28, 1999. The groundwater samples were collected from RPAC Lake Area and from Atochem, BNSF, Gould, ESCO, and Wacker properties, adjacent to the RPAC site. The data quality review included an evaluation of precision (duplicate relative percent difference (RPD)), accuracy (spike and/or standard recoveries), representativeness (intended use of data), completeness (percent of usable data), sampling documentation, holding times, and instrument calibration verification. Full data validation was not performed. Raw data were reviewed when necessary.

NCA is located in Portland, Oregon and Bothell, Washington. CAS is located in Kelso, Washington and Houston, Texas. The Recon groundwater and QC samples were analyzed for one or more of the following: Isobutyl Alcohol (EPA SW-846 Method 8015B), Phenols (EPA SW-846 Method 8041), Organochlorinated Pesticides (EPA SW-846 Method 8081A), Polychlorinated Biphenyl's (EPA SW-846 Method 8082), Organophosphorous Pesticides (EPA SW-846 Method 8141A), Chlorinated Herbicides (EPA SW-846 Method 8151A), Volatile Organic Compounds (EPA SW-846 Method 8260B), Dioxin/Furans (EPA SW-846 Method 8290), Dissolved Metals (EPA SW-846 Method 6020), Mercury (EPA SW-846 Method 7470A), and Northwest Semivolatile Petroleum Products (NWTPH-Dx). Samples were analyzed in accordance with the DEQ-approved QAPP that RPAC submitted May 27, 1999 for the methods requested on the chain-of-custody forms submitted with the samples. A cross-reference of sample identification (ID), the laboratory sample ID, matrix, and sample type for Sampling Round 1 is provided in Table C-1. Sampling Round 2 cross-reference is provided in Table C-2.

SCOEPA00008851

TABLE C-1
SAMPLE ID CROSS REFERENCE
RECONNAISSANCE GROUNDWATER SAMPLING ROUND 1

SAMPLE ID	LABORATORY SAMPLE ID	MATRIX	SAMPLE TYPE
001-GG-01	P908517-01	Water	Primary
001-GG-01	E9901854-010	Water	Primary
002-GG-01	P908537-01	Water	Primary
002-GG-01	E9901854-001	Water	Primary
003-GG-01	P908537-02	Water	Primary
003-GG-01	E9901854-002	Water	Primary
004-GG-02	P908537-03	Water	Duplicate of 003-GG-01
004-GG-02	E9901854-003	Water	Duplicate of 003-GG-01
Trip Blank	P908537-04	Water	Trip Blank - 002, 003, 004
005-GG-01	P908536-01, P908562-02	Water	Primary
005-GG-01	E9901854-004	Water	Primary
006-GG-01	P908536-02	Water	Primary
006-GG-01	E9901854-005	Water	Primary
007-GG-01	P908536-03	Water	Primary
007-GG-01	E9901854-006	Water	Primary
Trip Blank	P908536-04	Water	Trip Blank - 005, 006, 007
008-GG-01	P908562-01	Water	Primary
008-GG-01	E9901854-007	Water	Primary
Trip Blank	P908562-03	Water	Trip Blank - 008
009-GG-01	P909001-01	Water	Primary
009-GG-01	E9901854-008	Water	Primary
010-GG-01	P909001-02	Water	Primary
010-GG-01	E9901854-009	Water	Primary
Trip Blank	P909001-03	Water	Trip Blank - 009, 010
011-GG-01	P909032-01	Water	Primary
011-GG-01	E9901856-001	Water	Primary
012-GG-01	P909032-02	Water	Primary
012-GG-01	E9901856-002	Water	Primary
013-GG-01	P909032-03	Water	Primary
013-GG-01	E9901856-003	Water	Primary
Trip Blank	P909032-04	Water	Trip Blank - 011, 012, 013
014-GG-01	P909058-01	Water	Primary
014-GG-01	E9901856-004	Water	Primary
Trip Blank	P909058-02	Water	Trip Blank - 014

SCOEPA00008852

TABLE C-2
SAMPLE ID CROSS REFERENCE
RECONNAISSANCE GROUNDWATER SAMPLING ROUND 2

SAMPLE ID	LABORATORY SAMPLE ID	MATRIX	SAMPLE TYPE
015-GG-01	P910342-01	Water	Primary
015-GG-01	E9901899-001	Water	Primary
015-GG-02	P910342-02	Water	Duplicate of 015-GG-01
015-GG-02	E9901899-002	Water	Duplicate of 015-GG-01
Trip Blank	P910342-03	Water	Trip Blank - 015 (1&2)
016-GG-01	P910341-01	Water	Primary
016-GG-01	E9901899-004	Water	Primary
017-GG-01	P910341-02	Water	Primary
017-GG-01	E9901899-005	Water	Primary
Trip Blank	P910341-03	Water	Trip Blank - 016, 017 (1)
017-GG-04	P910376-01	Water	Equipment Blank
017-GG-04	E9901899-007	Water	Equipment Blank
Trip Blank	P910376-02	Water	Trip Blank - 017 (4)
018-GG-01	P910374-01	Water	Primary
018-GG-01	E9901899-006	Water	Primary
Trip Blank	P910374-02	Water	Trip Blank - 018
019-GG-01	P910400-01, P910486-01	Water	Primary
019-GG-01	E9901906-001	Water	Primary
Trip Blank	P910486-02	Water	Trip Blank - 019
020-GG-01	P910377-01	Water	Primary
020-GG-01	E9901899-008	Water	Primary
Trip Blank	P910377-02	Water	Trip Blank - 020
021-GG-01	P910399-01	Water	Primary
021-GG-01	E9901906-002	Water	Primary
022-GG-01	P910399-02, P910400-02	Water	Primary
022-GG-01	E9901906-003	Water	Primary
022-GG-02	P910399-03	Water	Duplicate of 022-GG-01 (Pesticides Only)
Trip Blank	P910399-04	Water	Trip Blank - 021, 022 (1&2)
023-GG-01	P910431-01	Water	Primary
023-GG-01	E9901906-004	Water	Primary
024-GG-01	P910431-02, P910432-01	Water	Primary
024-GG-01	E9901906-005	Water	Primary
Trip Blank	P910431-03	Water	Trip Blank - 023, 024
025-GG-01	P910434-01, P91432-02	Water	Primary
025-GG-01	E9901906-006	Water	Primary
Trip Blank	P910434-02	Water	Trip Blank - 025
026-GG-01	P910434-03, P910433-01	Water	Primary
026-GG-01	E9901906-007	Water	Primary
027-GG-01	P910434-04, P910433-02	Water	Primary
027-GG-01	E9901906-008	Water	Primary
Trip Blank	P910434-05	Water	Trip Blank - 026, 027
028-GG-01	P910480-01	Water	Primary
028-GG-01	E9901906-009	Water	Primary
029-GG-01	P910480-02	Water	Primary
029-GG-01	E9901906-010	Water	Primary
Trip Blank	P910480-03	Water	Trip Blank - 028, 029
030-GG-01	P910491-01	Water	Primary
030-GG-01	E9901911-001	Water	Primary
030-GG-02	P910491-02	Water	Duplicate of 022-GG-01
030-GG-02	E9901911-002	Water	Duplicate of 022-GG-01
Trip Blank	P910491-03	Water	Trip Blank - 030 (1&2)
031-GG-01	P910542-01	Water	Primary
031-GG-01	E9901911-003	Water	Primary
032-GG-01	P910542-02, P910537-01	Water	Primary
032-GG-01	E9901916-001	Water	Primary
Trip Blank	P910542-03	Water	Trip Blank - 031, 032
033-GG-01	P910540-01	Water	Primary
033-GG-01	E9901916-002	Water	Primary

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TABLE C-2
SAMPLE ID CROSS REFERENCE
RECONNAISSANCE GROUNDWATER SAMPLING ROUND 2

SAMPLE ID	LABORATORY SAMPLE ID	MATRIX	SAMPLE TYPE
034-GG-01	P910540-02	Water	Primary
034-GG-01	E9901916-003	Water	Primary
035-GG-01	P910540-03, P910538-01	Water	Primary
035-GG-01	E9901916-004	Water	Primary
Trip Blank	P910540-04	Water	Trip Blank - 033, 034, 035
036-GG-04	P910561-01	Water	Equipment Blank
036-GG-04	E9901916-005	Water	Equipment Blank
Trip Blank	P910561-02	Water	Trip Blank - 036
037-GG-01	P910560-01	Water	Primary
037-GG-01	E9901916-006	Water	Primary
037-GG-02	P910560-02	Water	Duplicate of 037-GG-01 (Dioxins/Furans excluded)
Trip Blank	P910560-03	Water	Trip Blank - 037 (1&2)
038-GG-01	P910562-01	Water	Primary
038-GG-01	E9901916-007	Water	Primary
Trip Blank	P910562-02	Water	Trip Blank - 038
039-GG-01	P910604-01	Water	Primary
039-GG-01	E9901920-001	Water	Primary
040-GG-01	P910604-02	Water	Primary
040-GG-01	E9901920-002	Water	Primary
Trip Blank	P910604-03	Water	Trip Blank - 039, 040
041-GG-01	P910605-01	Water	Primary
041-GG-01	E9901920-003	Water	Primary
Trip Blank	P910605-02	Water	Trip Blank - 041

SCOEPA00008854

DATA QUALITY REVIEW

This report summarizes the laboratory performance in meeting the QC criteria outlined in the Early RI Activities - Quality Assurance Project Plan (QAPP) dated May 27, 1999. The data quality review process followed the procedures specified in *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review and Inorganic Review (Functional Guidelines) (EPA 1994)*, except for EPA SW-846 Method 8290 (Dioxins/Furans) and Northwest Semivolatile Petroleum Products (NWTPH-Dx). EPA SW-846 Method 8290 and NWTPH-Dx are not specified in the *Functional Guidelines* and were validated against their methods.

Qualifiers applied to the data as a result of this independent review will be limited to:

U The analyte was analyzed for but was not detected above the reporting limit.

J The analyte was positively identified; the associated numerical value is an estimate of the concentration of the analyte in the sample.

UJ The analyte was not detected above the reporting limit. However, the reporting limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R Sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence of absence of the analyte can not be verified.

Compliance with QAPP – Laboratory data packages meet the criteria specified in RPAC's QAPP (which was approved by DEQ) for content and are deemed acceptable for this data quality review.

Documentation – Each data package received by URS contained a signature by the laboratory manager or vice president that the data package was submitted in compliance with the method, both technically and for completeness. When appropriate, a case narrative accompanied the data package stating if any deviations from the QAPP and/or laboratory quality assurance (QA) plans were identified.

Sample Collection and Handling Procedures – No trip or temperature blank was submitted in the cooler to NCA containing sample 001-GG-01. The Field Manager was notified by the URS QA Officer. All other coolers submitted to the laboratories contained trip blanks, when required, and temperature blanks. No other anomalies were identified by the Field Manager regarding sample collection or handling in the field.

Chain-of-custody's (COCs) prepared by CAS-Kelso for CAS-Houston miss identified sample IDs for 001-GG-01 and 036-GG-04. Sample IDs were corrected by URS.

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Technical Holding Times (Temperature Blanks, Preservation, Extraction, and Analysis) – Samples received by NCA exceeded the temperature of 4°C±2°C when temperatures were taken the same day or less then 12-hours after samples were collected. The elevated temperatures are caused by the samples not being in the cooler long enough prior to the laboratory receiving and logging in the samples; therefore, no NCA data were qualified. Samples received by CAS-Kelso were at 4°C±2°C. Samples 001-GG-01 to 010-GG-01 transported from CAS-Kelso to CAS-Houston did not hold the 4°C±2°C. No data were qualified due to contractual temperature exceedance during sample transport.

Sample extractions and analysis were performed within specified holding times with the exceptions listed in Table C-3.

TABLE C-3
HOLDING TIME NONCONFORMANCES

METHOD	SAMPLE ID	REASON FOR NONCONFORMANCE	QUALIFIER
8015	015-GG-01	Analyzed after 14-day Holding Time	UJ
	015-GG-02	Analyzed after 14-day Holding Time	UJ
	016-GG-01	Analyzed after 14-day Holding Time	J
	017-GG-01	Analyzed after 14-day Holding Time	UJ
	017-GG-04	Analyzed after 14-day Holding Time	UJ
	018-GG-01	Analyzed after 14-day Holding Time	UJ
	019-GG-01	Analyzed after 14-day Holding Time	UJ
	020-GG-01	Analyzed after 14-day Holding Time	UJ
	021-GG-01	Analyzed after 14-day Holding Time	UJ
	022-GG-01	Analyzed after 14-day Holding Time	UJ
	023-GG-01	Analyzed after 14-day Holding Time	UJ
	024-GG-01	Analyzed after 14-day Holding Time	UJ
	025-GG-01	Analyzed after 14-day Holding Time	UJ
	026-GG-01	Analyzed after 14-day Holding Time	J
	027-GG-01	Analyzed after 14-day Holding Time	UJ
	028-GG-01	Analyzed after 14-day Holding Time	UJ
	029-GG-01	Analyzed after 14-day Holding Time	UJ
	030-GG-01	Analyzed after 14-day Holding Time	UJ
	030-GG-02	Analyzed after 14-day Holding Time	UJ
	031-GG-01	Analyzed after 14-day Holding Time	UJ
	032-GG-01	Analyzed after 14-day Holding Time	UJ
	033-GG-01	Analyzed after 14-day Holding Time	UJ
	034-GG-01	Analyzed after 14-day Holding Time	UJ
	035-GG-01	Analyzed after 14-day Holding Time	UJ
8041	009-GG-01	Extracted after 7-day Holding Time	UJ
8151	019-GG-01	Extracted after 7-day Holding Time	UJ
8260	002-GG-01	Analyzed after 14-day Holding Time	J, UJ
	003-GG-01	Analyzed after 14-day Holding Time	J, UJ
	004-GG-02	Analyzed after 14-day Holding Time	J, UJ
	Trip BK, P908537-04	Analyzed after 14-day Holding Time	J, UJ
	005-GG-01	Analyzed after 14-day Holding Time	J, UJ
	006-GG-01	Analyzed after 14-day Holding Time	J, UJ
	007-GG-01	Analyzed after 14-day Holding Time	J, UJ
	017-GG-01	Dilution analyzed after 14-day Holding Time	J
	Trip BK, P908536-04	Analyzed after 14-day Holding Time	J, UJ
	025-GG-01	Analyzed after 14-day Holding Time	J

- All samples for EPA SW-846 Method 8015B were properly preserved but the technical holding times exceeded the 14 days for non-aromatic volatile compounds; therefore, all results were qualified as estimated ("J", "UJ").

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- Sample 009-GG-01 for EPA SW-846 Method 8041 was extracted after 7-day holding time. Sample results were non-detect; therefore, results were qualified as estimated "UJ".
- Sample 019-GG-01 for EPA SW-846 Method 8151A was extracted after the 7-day holding time. The sample was non-detect for all analytes; therefore, the results were qualified as estimated ("UJ").
- Samples 002-GG-01, 003-GG-01, 004-GG-02, 005-GG-01, 006-GG-01, 007-GG-01, and corresponding Trip Blanks (P908537-04 and P908536-04) for EPA SW-846 Method 8260B were properly preserved but the technical holding times exceeded the 14 days; therefore, all results were qualified as estimated ("J", "UJ").
- EPA SW-846 Method 8260B sample 017-GG-01 dilution for 1,2-Dichlorobenzene was analyzed after the 14-day holding time. The diluted concentration for 1,2-Dichlorobenzene was reported and qualified "J" estimated.
- EPA SW-846 Method 8260B sample 025-GG-01 dilution for Naphthalene was analyzed after the 14-day holding time. The diluted concentration for Naphthalene was reported and qualified "J" estimated.

Field QC Results (Equipment Rinsate and Trip blanks) – No equipment rinsate blanks were collected during Sampling Round 1. Two equipment rinsate blanks (one per week) were collected and analyzed for Sampling Round 2. Twenty-five trip blanks were submitted to the laboratory and analyzed for Volatile Organic Compounds (EPA SW-846 Method 8260B). The equipment rinsate and trip blank results were within project-specific control limits with the exceptions listed in Table C-4.

Trip Blank (P910434-05) associated with samples 026-GG-01 and 027-GG-01 for EPA SW-846 Method 8260 was punctured by the laboratory at login. The Trip Blank was mistaken for the temperature blank - results of the Trip Blank were not used.

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TABLE C-4
FIELD QC NONCONFORMANCES

FIELD QC	SAMPLE ID	METHOD	REASON FOR NONCONFORMANCE	QUALIFIER
Equipment Rinsate Blank	017-GG-04	8290	OCDD at 94.6 pg/L	UJ
			2,3,7,8-TCDF at 68.4 pg/L	UJ
Equipment Rinsate Blank	036-GG-04	6020	Copper at 0.00414 mg/L	UJ

Field QC are qualified the same as method blanks. If an analyte is found in a blank but not found in the sample, no action is taken. If an analyte is detected in the blank and in the sample, the sample is qualified if the concentration is less than five times the blank concentration.

- Equipment rinsate blank 017-GG-04 for EPA SW-846 Method 8290 had detectable OCDD and 2,3,7,8-TCDF at a level above the analytes method reporting limit. 017-GG-04 was collected the first week of sampling and effects all samples collected between October 18 and October 22, 1999. Sample results greater than the method reporting limit but less than 5 times the amount found in 017-GG-04 were qualified as estimated ("UJ").
- Equipment rinsate blank 036-GG-04 for EPA SW-846 Method 6020 had detectable copper at of a level above the analytes method reporting limit. 036-GG-04 was collected the second week of sampling and effects all samples collected between October 25 and October 28, 1999. Sample results greater than the method reporting limit but less than 5 times the amount found in the 036-GG-04 were qualified as estimated ("UJ").

Method Reporting Limits (MRLs) - The method reporting limits are acceptable. The MRLs are summarized in Table C-5 and meet the project needs.

TABLE C-5
SAMPLE REPORTING LIMITS

METHOD	ANALYTE	REPORTING LIMITS
8015	Isobutyl Alcohol	10.0 mg/l
8041	Phenols	25 to 62.5 µg/l
8081A	Organochlorinated Pesticides	0.1 to 2.5 µg/l
8082	Polychlorinated Biphenyl's	0.50 to 1.0 µg/l
8141A	Organophosphorus Pesticides	1.0 to 3.0 µg/l
8151A	Chlorinated Herbicides	1.0 to 200.0 µg/l
8260B	Volatile Organic Compounds	1.0 to 25.0 µg/l
8290	Dioxins/Furans	10.0 to 50.0 pg/l
6020	As, Cd, Cu, Cr, Pb, Ni, V, Zn	0.001 to 0.005 mg/l
7470A	Mercury	0.0002 mg/l
NWTPH-Dx	Northwest Semivolatile Petroleum Products	0.250 to 0.500 mg/l

Reporting limits were raised due to dilutions necessary for analysis. Samples contained either high levels of a reported analyte, a non-target analyte, and/or matrix interference.

Laboratory Blank Analysis – Method blanks were reported for each method. Results for all methods were within control limits; therefore, no sample data were qualified.

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Instrument Calibration Verification (initial and continuing) – Initial and continuing instrument calibration verification were reported. Results were within the control limits for all project and quality control samples.

Field Duplicate – Field duplicate precision is evaluated based on the relative percent difference (RPD) between the primary and field duplicate sample results. The RPDs are only calculated when both the primary and duplicate results are greater than five times the reporting. Five field duplicates were collected between the two rounds. Primary and duplicate sample RPDs were within project-specific control limits, i.e. less than 30%, with the exceptions listed in Table C-6 and C-7.

TABLE C-6
003-GG-01 and 004-GG-02
FIELD DUPLICATE NONCONFORMANCES

METHOD	ANALYTE	003-GG-01 RESULT	004-GG-02 RESULT	RPD	QUALIFIER
NWTPH-Dx	Diesel Range Organics	20.0	36.3	58	J
8260	1,2,4-Trimethylbenzene	1140	825	32	J
8290	2,3,7,8-TCDD	279.6	70.5	119	J
	OCDD	1417.2	419.0	109	J
	2,3,7,8-TCDF	5428.4	1611.5	108	J

- Sample 003-GG-01 and 004-GG-02 for NWTPH-Dx analyte Diesel Range Organics, EPA SW-846 Method 8260 analyte 1,2,4-Trimethylbenzene, and EPA SW-846 Method 8290 analytes 2,3,7,8-TCDD, OCDD, and 2,3,7,8-TCDF exceeded the RPD for field duplicates. Results associated with the corresponding analytes were qualified as estimated ("J").

TABLE C-7
015-GG-01 and 015-GG-02
FIELD DUPLICATE NONCONFORMANCES

METHOD	ANALYTE	015-GG-01 RESULT	015-GG-02 RESULT	RPD	QUALIFIER
8290	OCDD	1020.9	639.1	46	J
	2,3,7,8-TCDF	1784.1	951.1	61	J

- Sample 015-GG-01 and 015-GG-02 for EPA SW-846 Method 8290 analytes OCDD and 2,3,7,8-TCDF exceeded the RPD for field duplicates. Results associated with the corresponding analytes were qualified as estimated ("J").

Spike/Spike Duplicates (Matrix and Blank) and RPDs – Matrix Spike/Matrix Spike Duplicate (MS/MSD) or Blank Spike/Blank Spike Duplicate (LCS/LCS duplicate) percent recoveries (%Rs) and RPDs are within project-specific control limits with the exception listed in Table C-8.

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TABLE C-8
MS/MSD or LCS/LCS DUPLICATE NONCONFORMANCES

METHOD	QC SAMPLE	ANALYTE	REASON FOR NONCONFORMANCE	QUALIFIER
6020	MS (015-GG-01)	Arsenic	%R low (30%)	None
	MSD (015-GG-01)	Arsenic	%R low (40%)	None
	RPD (015-GG-01)	Arsenic	40%	None
	MSD (037-GG-01)	Vanadium	%R high (128%)	None

- EPA SW-846 Method 6020 Arsenic MS/MSD for 015-GG-01 %R were below project-specific control limits and outside RPD limits due to high analyte concentration and dilutions necessary to quantitate the sample. Sample concentration exceeded the spike concentration by a factor of 4 or greater; therefore, no data were qualified.
- EPA SW-846 Method 6020 Vanadium MSD for 037-GG-01 %R was above project-specific control limits due to sample matrix interference. Sample result for this analyte was non-detect and deemed acceptable for use.
- EPA SW-846 Method 8041, batch 0990228, did not have a LCS extracted or analyzed with it. According to NCA, the LCS was broken during the extraction process - no sample was recoverable. MS/MSD were analyzed with the batch – data deemed acceptable for use, no data were qualified due to missing LCS.

Surrogate Spike Percent Recoveries – Surrogate spike percent recoveries (%R) were reported for Northwest Semivolatile Petroleum Products (NWTPH-Dx), Phenols (EPA SW-846 Method 8041), Organochlorinated Pesticides/Polychlorinated Biphenyl's (EPA SW-846 Method 8081A/8082), Organophosphorous Pesticides (EPA SW-846 Method 8141A), Chlorinated Herbicides (EPA SW-846 Method 8151A), and Volatile Organic Compounds (EPA SW-846 Method 8260B). Results were within project-specific control limits with the exceptions listed in Tables C-9 to C-12.

Based on the *Functional Guidelines*, no action is taken on MS/MSD data alone; therefore, the primary sample will not qualified due to nonconformance of surrogate spike recovery associated with the MS/MSD. However, if the primary samples surrogate spike recovery is out, data may be qualified.

TABLE C-9
NWTPH-Dx SURROGATE SPIKE NONCONFORMANCES

METHOD	SAMPLE ID	SURROGATE	REASON FOR NONCONFORMANCE	QUALIFIER
NWTPH-Dx	001-GG-01	1-Chlorooctadecane	%R low (31.2%)	J

- Sample 001-GG-01 surrogate recovery for 1-Chlorooctadecane was outside the control limits (low bias). The surrogate recovery was below project-specific control limits due to

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matrix interference (heavy oil overlap) caused by weathered diesel at an elevated amount; therefore, the data were qualified as estimated ("J").

TABLE C-10
EPA METHOD 8081/8082 SURROGATE SPIKE NONCONFORMANCES

METHOD	SAMPLE ID	SURROGATE	REASON FOR NONCONFORMANCE	QUALIFIER
8081/8082	020-GG-01	Decachlorobiphenyl	%R low (33.7%)	UJ
	021-GG-01	Decachlorobiphenyl	%R low (43.9%)	UJ
	022-GG-01	Decachlorobiphenyl	%R low (33.1%)	UJ
	022-GG-02	Decachlorobiphenyl	%R low (45.3%)	UJ
	023-GG-01	Decachlorobiphenyl	%R low (45.1%)	UJ
	024-GG-01	Decachlorobiphenyl	%R low (32.1%)	UJ
	025-GG-01	Decachlorobiphenyl	%R low (34.7%)	UJ
	026-GG-01	Decachlorobiphenyl	%R low (29.0%)	UJ
	027-GG-01	Decachlorobiphenyl	%R low (28.0%)	UJ
	028-GG-01	Decachlorobiphenyl	%R low (51.3%)	UJ
	029-GG-01	Decachlorobiphenyl	%R low (38.1%)	UJ
	031-GG-01	Decachlorobiphenyl	%R low (17.5%)	UJ
	032-GG-01	Decachlorobiphenyl	%R low (33.1%)	UJ
	034-GG-01	Decachlorobiphenyl	%R low (29.2%)	UJ
	035-GG-01	Decachlorobiphenyl	%R low (25.6%)	UJ
	036-GG-04	Decachlorobiphenyl	%R low (47.0%)	UJ
	037-GG-01	Decachlorobiphenyl	%R low (33.6%)	UJ
	037-GG-02	Decachlorobiphenyl	%R low (30.9%)	UJ
	038-GG-01	Decachlorobiphenyl	%R low (37.3%)	UJ
	039-GG-01	Decachlorobiphenyl	%R low (35.4%)	UJ
	040-GG-01	Decachlorobiphenyl	%R low (20.3%)	UJ
	041-GG-01	Decachlorobiphenyl	%R low (20.3%)	UJ

- Samples listed in Table C-10 were non-detect for all analytes. Results were qualified as estimated ("UJ").

TABLE C-11
EPA METHOD 8141 SURROGATE SPIKE NONCONFORMANCES

METHOD	SAMPLE ID	SURROGATE	REASON FOR NONCONFORMANCE	QUALIFIER
8141	019-GG-01	Tributylphosphate (TBP)	%R low (60.6%)	UJ
	026-GG-01	Triphenylphosphate (TPP)	%R low (26.9%)	UJ

- 019-GG-01 and 026-GG-01 surrogate recoveries were outside project-specific control limits (low bias). Both samples were non-detect; therefore, sample data were qualified as estimated ("UJ").

TABLE C-12
EPA METHOD 8151 SURROGATE SPIKE NONCONFORMANCES

METHOD	SAMPLE ID	SURROGATE	REASON FOR NONCONFORMANCE	QUALIFIER
8151	LCS (0990409-BS1)	2,4-DCAA for 2,4-D & 2,4,5-TP	%R high (141%)	J
	041-GG-01	2,4-DCAA	%R low (21%)	UJ

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- LCS 0990409-BS1 surrogate recovery exceeded the upper control limit (high bias). All associated detected analytes were qualified as estimated ("J"); non-detect analytes require no qualification. All samples except 013-GG-01 required no qualification.
- 041-GG-01 surrogate recovery was outside project-specific control limits (low bias). Sample was non-detect for all analytes and therefore qualified as estimated ("UJ").

Carbon-Labeled Internal Standards – Carbon-Labeled Internal Standards were reported for EPA SW-846 Method 8290. Carbon-Labeled Internal Standards are added to each sample and quality control sample prior to extraction. Results were within project-specific control limits with the exceptions listed in Table C-13.

TABLE C-13
CARBON-LABELED INTERNAL STANDARDS NONCONFORMANCES

SAMPLE ID	ANALYTE	REASON FOR NONCONFORMANCE	QUALIFIER
004-GG-02	$^{13}C_{12}$- OCDD	%R high (136.4%)	J
008-GG-01	$^{13}C_{12}$- OCDD	%R low (35.4%)	J
012-GG-01	$^{13}C_{12}$- 1,2,3,4,7,8-HxCDD	%R low (34.3%)	UJ
	$^{13}C_{12}$- 1,2,3,4,6,7,8-HpCDD	%R low (27.2%)	J
	$^{13}C_{12}$- OCDD	%R low (36.2%)	J
	$^{13}C_{12}$- 1,2,3,4,6,7,8-HpCDF	%R low (29.5%)	UJ
	$^{13}C_{12}$- 1,2,3,4,7,8,9-HpCDF	%R low (29.9%)	J
014-GG-01	$^{13}C_{12}$- OCDD	%R low (18.2%)	J
	$^{13}C_{12}$- 1,2,3,4,7,8,9-HpCDF	%R low (39.6%)	UJ
030-GG-01	$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	%R low (37.7%)	UJ
	$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	%R low (39.1%)	UJ
032-GG-01	$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	%R low (7.2%)	UJ

EPA SW-846 Method 8290 is not specified in the *Functional Guidelines*; therefore, no action is taken on carbon-labeled internal standard results alone. However, the data reviewer may use the carbon-labeled internal standard results in conjunction with other QC criteria and determine the need for some qualification of the data. Since MS/MSD is not required based on *Functional Guidelines*, the same will be implied here; therefore, no action is taken on MS/MSD data alone. The primary sample will not qualified due to nonconformance of carbon-labeled internal standards associated with the MS/MSD. However, if the primary samples carbon-labeled internal standards are out of project-specific control limits, data may be qualified.

If any of the carbon-labeled internal standards percent recoveries are below the control limits, the individual isomers for that sample will be qualified as estimated ("J" or "UJ"). If any of the carbon-labeled internal standards percent recoveries exceed the upper control limits, the individual isomers for that sample will be qualified as estimated ("J") for results greater than the reporting limit and not qualified for results below the reporting limit.

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- Samples 004-GG-02, 008-GG-01, 012-GG-01, 014-GG-01, 030-GG-01, and 032-GG-01 were outside the control limits for the carbon-labeled internal standards specified in Table C-13. Samples were qualified based on individual sample results.

Cleanup Standard – Cleanup Standard ($^{37}Cl_4$ – TCDD) was reported for EPA SW-846 Method 8290. Cleanup Standards are added to the sample after extraction and prior to cleanup. The purpose of the standard is to show if there are any problems during the cleanup process. Results were within the laboratory control limits for all project and quality control samples with the exceptions listed in Table C-14.

TABLE C-14
CLEANUP STANDARD NONCONFORMANCES

SAMPLE ID	REASON FOR NONCONFORMANCE	QUALIFIER
026-GG-01	%R low (34.6%)	J, UJ

EPA SW-846 Method 8290 is not specified in the Functional Guidelines; therefore, no action is taken on cleanup standard results alone. However, the data reviewer may use the cleanup standard results in conjunction with other QC criteria and determine the need for some qualification of the data.

- 026-GG-01 for EPA SW-846 Method 8290 %R was low indicating a problem during the cleanup procedure. Failure to meet QC limits may result in measurement values being qualified as estimated ("J" or "UJ"). Since the labeled compounds for this sample were also below recovery, sample will be considered compromised during cleanup and qualified as estimated.

Recovery Standards – Recovery Standards ($^{13}C_{12}$ – 1,2,3,4-TCDD and $^{13}C_{12}$ – 1,2,3,7,8,9-HxCDD) were reported for EPA SW-846 Method 8290. The purpose of adding recovery standards prior to injecting sample extracts and standards into the Gas Chromatography/Mass Spectrometry (GC/MS) is to determine the recovery efficiency of the extract and cleanup procedures, to determine if the GC/MS sensitivity and response are stable during every analytical run, and to determine if the same amount of extract was injected into the GC/MS. Results were within the laboratory control limits for all project samples and quality control samples. No data were qualified.

Summary – Samples were collected, handled, and analyzed according to the procedures specified in the FSP and the QAPP. No data were rejected during this data quality review; therefore, 100% completeness was achieved for this sampling and analysis effort. All data for the Recon Groundwater sampling rounds (August to November 1999) are acceptable for use. Sample results detected greater than the reporting limits are summarized in the Detections Only Tables, which are provided in Appendix D by Sample ID.

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Sample results greater than the reporting limit:

TABLE D-1

001-GG-01 {GGW-02 @ 73 – 76'} RPAC-LA

METHOD	ANALYTE	RESULT	MRL[2]	UNITS
NWTPH-Dx	Diesel Range Organics	1.23 [1]	0.250	mg/L
	Heavy Oil Range Hydrocarbons	2.57	0.500	mg/L
6020	Arsenic	0.0117	0.00100	mg/L
	Copper	0.00271	0.00200	mg/L
	Nickel	0.00302	0.00200	mg/L
	Vanadium	0.00597	0.00500	mg/L
8151	2,4-D	32.5	5.0 [3]	µg/L
8260	n-Butylbenzene	3.72	1.00	µg/L
	sec-Butylbenzene	1.80	1.00	µg/L
	tert-Butylbenzene	1.38	1.00	µg/L
	p-Isopropyltoluene	1.38	1.00	µg/L
	n-Propylbenzene	1.27	1.00	µg/L
	1,2,4-Trimethylbenzene	2.69	1.00	µg/L
	1,3,5-Trimethylbenzene	2.28	1.00	µg/L
8290	2,3,7,8-TCDD	74.1	10	pg/L
	1,2,3,7,8-PeCDD	69.6	25	pg/L
	1,2,3,4,7,8-HxCDD	83.9	25	pg/L
	1,2,3,6,7,8-HxCDD	651.2	25	pg/L
	1,2,3,7,8,9-HxCDD	260.9	25	pg/L
	1,2,3,4,6,7,8-HpCDD	8286.4	25	pg/L
	OCDD	44592.7	1000 [4]	pg/L
	2,3,7,8-TCDF	1658.5	10	pg/L
	2,3,4,7,8-PeCDF	25.3	25	pg/L
	1,2,3,4,7,8-HxCDF	74.9	25	pg/L
	1,2,3,6,7,8-HxCDF	48.6	25	pg/L
	2,3,4,6,7,8-HxCDF	95.1	25	pg/L
	1,2,3,4,6,7,8-HpCDF	2040.0	25	pg/L
	1,2,3,4,7,8,9-HpCDF	127.4	25	pg/L
	OCDF	11609.0	50	pg/L

[1]ANALYTE APPEARS TO BE WEATHERED DIESEL AT AN ELEVATED AMOUNT DUE TO HEAVY OIL RANGE OVERLAP
[2]MRL – METHOD REPORTING LIMIT
[3]SAMPLE DILUTED 1:5 – HIGH ANALYTE CONCENTRATION AND/0R NON-TARGET MATRIX INTERFERENCE
[4]SAMPLE DILUTED 1:20 – SAMPLE EXCEED UPPER CALIBRATION RANGE

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Sample results greater than the reporting limit:

TABLE D-2
002-GG-01 {GGW-03 @ 66 – 69'} RPAC-LA

METHOD	ANALYTE	RESULT	MRL[2]	UNITS
NWTPH-Dx	Diesel Range Organics	0.430 [1]	0.250	mg/L
	Heavy Oil Range Hydrocarbons	0.604	0.500	mg/L
6020	Arsenic	0.00379	0.00100	mg/L
	Nickel	0.0191	0.00200	mg/L
	Zinc	0.0148	0.00500	mg/L
8151	2,4-D	4.28	4.00 [3]	µg/L
8260	Benzene	12.9	1.00	µg/L
	Chlorobenzene	189	1.00	µg/L
	1,2-Dichlorobenzene	59.6	1.00	µg/L
	1,3-Dichlorobenzene	1.51	1.00	µg/L
	1,4-Dichlorobenzene	24.4	1.00	µg/L
	Vinyl Chloride	2.11	1.00	µg/L
8290	1,2,3,4,6,7,8-HpCDD	30.3	25	pg/L
	OCDD	202.0	50	pg/L

[1]ANALYTE CONCENTRATION APPEARS TO BE DUE TO OVERLAP OF THE HEAVY OIL RANGE AS WELL AS A TRACE OF WEATHERED DIESEL AND POSSIBLY SOME BIOGENIC INTERFERENCE
[2]MRL – METHOD REPORTING LIMIT
[3]SAMPLE DILUTED 1:4 – HIGH ANALYTE CONCENTRATION AND/0R NON-TARGET MATRIX INTERFERENCE

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Sample results greater than the reporting limit:

TABLE D-3
003-GG-01 {GGW-04 @ 53 - 56'} RPAC-LA

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
NWTPH-Dx	Diesel Range Organics	20.0	0.250	mg/L
	Heavy Oil Range Hydrocarbons	0.708	0.500	mg/L
6020	Nickel	0.0122	0.00200	mg/L
	Zinc	0.0127	0.00500	mg/L
8041	2,4-Dichlorophenol	16100	2500[2]	µg/L
	2,6-Dichlorophenol	458	125[3]	µg/L
	2,4,5-Trichlorophenol	487	125[3]	µg/L
	2,4,6-Trichlorophenol	923	125[3]	µg/L
8151	2,4-D	633	600[4]	µg/L
	2,4,5-T	46.0	40.0[5]	µg/L
8260	Benzene	53.0	10.0[6]	µg/L
	Chlorobenzene	761	10.0[6]	µg/L
	2-Chlorotoluene	16.6	10.0[6]	µg/L
	4-Chlorotoluene	17.7	10.0[6]	µg/L
	1,3-Dichlorobenzene	1120	10.0[6]	µg/L
	Ethylbenzene	1520	10.0[6]	µg/L
	Isopropylbenzene	29.1	10.0[6]	µg/L
	n-Propylbenzene	95.3	10.0[6]	µg/L
	Toluene	19.6	10.0[6]	µg/L
	1,2,4-Trichlorobenzene	61.3	10.0[6]	µg/L
	1,2,4-Trimethylbenzene	1140	10.0[6]	µg/L
	1,3,5-Trimethylbenzene	289	10.0[6]	µg/L
	o-Xylene	1680	10.0[6]	µg/L
	m,p-Xylene	943	20.0[6]	µg/L
	1,2-Dichlorobenzene	26100	1000[7]	µg/L
	1,4-Dichlorobenzene	8840	1000[7]	µg/L
8290	2,3,7,8-TCDD	279.6	10	pg/L
	1,2,3,4,6,7,8-HpCDD	210.1	25	pg/L
	OCDD	1417.2	50	pg/L
	2,3,7,8-TCDF	5428.4	10	pg/L
	1,2,3,4,6,7,8-HpCDF	104.3	25	pg/L
	OCDF	327.8	50	pg/L

[1]MRL - METHOD REPORTING LIMIT
[2]SAMPLE DILUTED 1:100 - HIGH ANALYTE CONCENTRATION AND/0R NON-TARGET MATRIX INTERFERENCE
[3]SAMPLE DILUTED 1:5 - HIGH ANALYTE CONCENTRATION AND/0R NON-TARGET MATRIX INTERFERENCE
[4]SAMPLE DILUTED 1:600 - HIGH ANALYTE CONCENTRATION AND/0R NON-TARGET MATRIX INTERFERENCE
[5]SAMPLE DILUTED 1:40 - HIGH ANALYTE CONCENTRATION AND/0R NON-TARGET MATRIX INTERFERENCE
[6]SAMPLE DILUTED 1:10 - HIGH ANALYTE CONCENTRATION AND/0R NON-TARGET MATRIX INTERFERENCE
[7]SAMPLE DILUTED 1:1000 - HIGH ANALYTE CONCENTRATION AND/0R NON-TARGET MATRIX INTERFERENCE

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Sample results greater than the reporting limit:

TABLE D-4

004-GG-02 {duplicate of 003-GG-01, GGW-04 @ 53 – 56'} RPAC-LA

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
NWTPH-Dx	Diesel Range Organics	36.3	0.250	mg/L
6020	Chromium	0.00112	0.00100	mg/L
	Nickel	0.0117	0.00200	mg/L
	Zinc	0.00990	0.00500	mg/L
8041	2,4-Dichlorophenol	12600	2500[2]	µg/L
	2,6-Dichlorophenol	510	250[3]	µg/L
	2,4,5-Trichlorophenol	408	250[3]	µg/L
	2,4,6-Trichlorophenol	1150	250[3]	µg/L
8151	2,4-D	933	900[4]	µg/L
	2,4,5-T	30.7	30.0[5]	µg/L
8260	Benzene	45.8	10.0[3]	µg/L
	Chlorobenzene	656	10.0[3]	µg/L
	2-Chlorotoluene	15.0	10.0[3]	µg/L
	4-Chlorotoluene	15.2	10.0[3]	µg/L
	1,3-Dichlorobenzene	909	10.0[3]	µg/L
	Ethylbenzene	1290	10.0[3]	µg/L
	Isopropylbenzene	23.7	10.0[3]	µg/L
	n-Propylbenzene	73.2	10.0[3]	µg/L
	Toluene	17.8	10.0[3]	µg/L
	1,2,4-Trichlorobenzene	39.4	10.0[3]	µg/L
	1,2,4-Trimethylbenzene	825	10.0[3]	µg/L
	1,3,5-Trimethylbenzene	226	10.0[3]	µg/L
	o-Xylene	1420	10.0[3]	µg/L
	m,p-Xylene	778	20.0[3]	µg/L
	1,2-Dichlorobenzene	20300	1000[6]	µg/L
	1,4-Dichlorobenzene	6750	1000[6]	µg/L
8290	2,3,7,8-TCDD	70.5	10	pg/L
	1,2,3,4,6,7,8-HpCDD	52.8	25	pg/L
	OCDD	419.0	50	pg/L
	2,3,7,8-TCDF	1611.5	10	pg/L
	1,2,3,4,6,7,8-HpCDF	33.6	25	pg/L
	OCDF	108.0	50	pg/L

[1]MRL – METHOD REPORTING LIMIT
[2]SAMPLE DILUTED 1:100 – HIGH ANALYTE CONCENTRATION AND/0R NON-TARGET MATRIX INTERFERENCE
[3]SAMPLE DILUTED 1:10 – HIGH ANALYTE CONCENTRATION AND/0R NON-TARGET MATRIX INTERFERENCE
[4]SAMPLE DILUTED 1:900 – HIGH ANALYTE CONCENTRATION AND/0R NON-TARGET MATRIX INTERFERENCE
[5]SAMPLE DILUTED 1:30 – HIGH ANALYTE CONCENTRATION AND/0R NON-TARGET MATRIX INTERFERENCE
[6]SAMPLE DILUTED 1:1000 – HIGH ANALYTE CONCENTRATION AND/0R NON-TARGET MATRIX INTERFERENCE

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Sample results greater than the reporting limit:

TABLE D-5
005-GG-01 {GGW-03 @ 22 – 25'} RPAC-LA

METHOD	ANALYTE	RESULT	MRL[2]	UNITS
NWTPH-Dx	Diesel Range Organics	2.49[1]	0.250	mg/L
	Heavy Oil Range Hydrocarbons	1.15[1]	0.500	mg/L
6020	Chromium	0.00108	0.00100	mg/L
	Nickel	0.00945	0.00200	mg/L
	Vanadium	0.00737	0.00500	mg/L
	Zinc	0.00571	0.00500	mg/L
8151	2,4-D	6.24	2.0[3]	µg/L
8260	Benzene	1.24	1.00	µg/L
	Chlorobenzene	5.32	1.00	µg/L
	1,2-Dichlorobenzene	9.03	1.00	µg/L
	1,4-Dichlorobenzene	5.29	1.00	µg/L
	Ethylbenzene	2.20	1.00	µg/L
	n-Propylbenzene	1.91	1.00	µg/L
	Toluene	14.2	1.00	µg/L
	1,2,4-Trimethylbenzene	20.2	1.00	µg/L
	1,3,5-Trimethylbenzene	4.79	1.00	µg/L
	o-Xylene	3.88	1.00	µg/L
	m,p-Xylene	9.90	2.00	µg/L
8290	OCDD	137.4	50	pg/L

[1]HYDROCARBON PATTERN IS CONSISTENT WITH TRANSFORMER OIL OR SIMILAR PRODUCT
[2]MRL – METHOD REPORTING LIMIT
[3]SAMPLE DILUTED 1:2 – HIGH ANALYTE CONCENTRATION AND/OR NON-TARGET MATRIX INTERFERENCE

Sample results greater than the reporting limit:

TABLE D-6
006-GG-01 {GGW-06 @ 47 – 50'} RPAC-LA

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Arsenic	0.00807	0.00100	mg/L
	Chromium	0.00179	0.00100	mg/L
	Copper	0.00377	0.00200	mg/L
	Nickel	0.0616	0.00500	mg/L
	Zinc	0.0281	0.00500	mg/L
8151	2,4-D	3.03	2.0[2]	µg/L
8260	1,2-Dichlorobenzene	1.18	1.00	µg/L
	Toluene	1.56	1.00	µg/L
	1,2,4-Trimethylbenzene	1.59	1.00	µg/L

[1]MRL – METHOD REPORTING LIMIT
[2]SAMPLE DILUTED 1:2 – HIGH ANALYTE CONCENTRATION AND/OR NON-TARGET MATRIX INTERFERENCE

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Sample results greater than the reporting limit:

TABLE D-7
007-GG-01 {GGW-06 @ 36 – 39'} RPAC-LA

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
NWTPH-Dx	Diesel Range Organics	45.1	0.250	mg/L
	Heavy Oil Range Hydrocarbons	1.00	0.500	mg/L
6020	Arsenic	0.00321	0.00100	mg/L
	Chromium	0.00175	0.00100	mg/L
	Nickel	0.0345	0.00200	mg/L
	Zinc	0.0109	0.00500	mg/L
8015	Isobutyl Alcohol	46.8	10.0	mg/L
8041	2,4-Dichlorophenol	32300	7500[2]	µg/L
	2,6-Dichlorophenol	4540	2500[3]	µg/L
	2,3,4,6-Tetrachlorophenol	348	50.0[4]	µg/L
	2,4,5-Trichlorophenol	389	250[5]	µg/L
	2,4,6-Trichlorophenol	10100	2500[3]	µg/L
8151	2,4-D	567	500[6]	µg/L
8260	Chloroform	1.23	1.00	µg/L
	2-Chlorotoluene	2.11	1.00	µg/L
	Isopropylbenzene	9.53	1.00	µg/L
	Naphthalene	1.34	1.00	µg/L
	n-Propylbenzene	23.7	1.00	µg/L
	Tetrachloroethene	1.64	1.00	µg/L
	Toluene	23.5	1.00	µg/L
	1,2,3-Trichlorobenzene	1.31	1.00	µg/L
	1,2,4-Trichlorobenzene	8.13	1.00	µg/L
	Trichloroethene	17.1	1.00	µg/L
	Acetone	1380	250[5]	µg/L
	Benzene	785	10.0[5]	µg/L
	Chlorobenzene	239	10.0[5]	µg/L
	1,3-Dichlorobenzene	284	10.0[5]	µg/L
	Ethylbenzene	1210	10.0[5]	µg/L
	1,2,4-Trimethylbenzene	1470	10.0[5]	µg/L
	1,3,5-Trimethylbenzene	326	10.0[5]	µg/L
	o-Xylene	1600	10.0[5]	µg/L
	1,2-Dichlorobenzene	6860	100[3]	µg/L
	1,4-Dichlorobenzene	2450	100[3]	µg/L
	m,p-Xylene	3640	200[3]	µg/L
8290	2,3,7,8-TCDD	22.1	10	pg/L
	1,2,3,4,6,7,8-HpCDD	130.7	25	pg/L
	OCDD	1102.0	50	pg/L
	2,3,7,8-TCDF	779.9	10	pg/L
	1,2,3,4,6,7,8-HpCDF	46.6	25	pg/L
	OCDF	172.5	50	pg/L

[1]MRL – METHOD REPORTING LIMIT
[2]SAMPLE DILUTED 1:300 – HIGH ANALYTE CONCENTRATION AND/0R NON-TARGET MATRIX INTERFERENCE
[3]SAMPLE DILUTED 1:100 – HIGH ANALYTE CONCENTRATION AND/0R NON-TARGET MATRIX INTERFERENCE
[4]SAMPLE DILUTED 1:2 – HIGH ANALYTE CONCENTRATION AND/0R NON-TARGET MATRIX INTERFERENCE
[5]SAMPLE DILUTED 1:10 – HIGH ANALYTE CONCENTRATION AND/0R NON-TARGET MATRIX INTERFERENCE
[6]SAMPLE DILUTED 1:500 – HIGH ANALYTE CONCENTRATION AND/0R NON-TARGET MATRIX INTERFERENCE

SCOEPA00008871

Sample results greater than the reporting limit:

TABLE D-8
008-GG-01 {GGW-01 @ 82 – 85'} RPAC-LA

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Arsenic	0.00491	0.00100	mg/L
	Copper	0.00345	0.00200	mg/L
	Nickel	0.00554	0.00200	mg/L
	Zinc	0.00585	0.00500	mg/L
8260	1,2-Dichlorobenzene	2.05	1.00	µg/L
	cis-1,2-Dichlorobenzene	4.00	1.00	µg/L
	trans-1,2-Dichlorobenzene	2.06	1.00	µg/L
	Trichloroethene	1.32	1.00	µg/L
	1,2,4-Trimethylbenzene	1.56	1.00	µg/L
8290	2,3,7,8-TCDD	15.1	10	pg/L
	1,2,3,4,6,7,8-HpCDD	288.2	25	pg/L
	OCDD	2462.1	50	pg/L
	2,3,7,8-TCDF	340.9	10	pg/L
	1,2,3,4,6,7,8-HpCDF	98.4	25	pg/L
	OCDF	202.4	50	pg/L

[1]MRL – METHOD REPORTING LIMIT

Sample results greater than the reporting limit:

TABLE D-9
009-GG-01 {GGW-01 @ 95 – 98'} RPAC-LA

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
NWTPH-Dx	Diesel Range Organics	5.82	0.750[2]	mg/L
	Heavy Oil Range Hydrocarbons	4.74	1.50[2]	mg/L
6020	Arsenic	0.0793	0.00100	mg/L
	Chromium	0.00170	0.00100	mg/L
	Copper	0.00302	0.00200	mg/L
	Lead	0.00139	0.00100	mg/L
	Nickel	0.00469	0.00200	mg/L
	Zinc	0.00995	0.00500	mg/L
8260	Benzene	2.03	1.00	µg/L
	Chlorobenzene	2.50	1.00	µg/L
	1,2-Dichlorobenzene	19.9	1.00	µg/L
	1,3-Dichlorobenzene	2.81	1.00	µg/L
	cis-1,2-Dichloroethene	1.40	1.00	µg/L
	Ethylbenzene	1.00	1.00	µg/L
	Toluene	2.03	1.00	µg/L
	Trichloroethene	2.31	1.00	µg/L
	1,2,4-Trimethylbenzene	1.73	1.00	µg/L
	o-Xylene	1.28	1.00	µg/L
	m,p-Xylene	3.28	2.00	µg/L
8290	2,3,7,8-TCDD	13.6	10	pg/L
	1,2,3,6,7,8-HpCDD	86.6	25	pg/L
	1,2,3,4,6,7,8-HpCDD	755.0	25	pg/L
	OCDD	3996.5	50	pg/L
	2,3,7,8-TCDF	305.1	10	pg/L
	1,2,3,4,6,7,8-HpCDF	104.0	25	pg/L
	OCDF	159.7	50	pg/L

[1]MRL – METHOD REPORTING LIMIT
[2]SAMPLE DILUTED 1:3 – BIOGENIC INTERFERENCE

SCOEPA00008872

Sample results greater than the reporting limit:

TABLE D-10
010-GG-01 {GGW-09 @ 25 – 28'} GOULD

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Arsenic	0.00181	0.00100	mg/L
	Chromium	0.00237	0.00100	mg/L
	Copper	0.00355	0.00200	mg/L
	Nickel	0.0487	0.00200	mg/L
	Zinc	0.0736	0.00500	mg/L
8260	Toluene	1.15	1.00	µg/L
8290	OCDD	79.3	50	pg/L

[1]MRL – METHOD REPORTING LIMIT

Sample results greater than the reporting limit:

TABLE D-11
011-GG-01 {GGW-08 @ 51 – 54'} GOULD

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Arsenic	0.00160	0.00100	mg/L
	Chromium	0.00133	0.00100	mg/L
	Copper	0.00344	0.00200	mg/L
	Lead	0.00111	0.00100	mg/L
	Nickel	0.0138	0.00200	mg/L
	Zinc	0.0291	0.00500	mg/L
8260	1,2-Dichlorobenzene	1.61	1.00	µg/L
8290	1,2,3,4,6,7,8-HpCDD	65.4	25	pg/L
	OCDD	586.9	50	pg/L
	2,3,7,8-TCDF	17.4	10	pg/L
	OCDF	105.0	50	pg/L

[1]MRL – METHOD REPORTING LIMIT

Sample results greater than the reporting limit:

TABLE D-12
012-GG-01 {GGW-09 @ 65 – 68'} GOULD

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Copper	0.00397	0.00200	mg/L
	Lead	0.00334	0.00100	mg/L
	Nickel	0.00250	0.00200	mg/L
	Zinc	0.0110	0.00500	mg/L
8260	Toluene	6.08	1.00	µg/L
	1,2,4-Trimethylbenzene	1.15	1.00	µg/L
	o-Xylene	1.88	1.00	µg/L
	m,p-Xylene	3.36	2.00	µg/L
8290	2,3,7,8-TCDD	69.0	10	pg/L
	1,2,3,4,6,7,8-HpCDD	145.6	25	pg/L
	OCDD	1356.5	50	pg/L
	2,3,7,8-TCDF	695.7	10	pg/L
	1,2,3,4,7,8-HxCDF	46.9	25	pg/L
	1,2,3,4,6,7,8-HpCDF	65.9	25	pg/L
	OCDF	179.3	50	pg/L

[1]MRL – METHOD REPORTING LIMIT

SCOEPA00008873

Sample results greater than the reporting limit:

TABLE D-13
013-GG-01 {GGW-05 @ 56 – 59'} RPAC-LA

METHOD	ANALYTE	RESULT	MRL[2]	UNITS
NWTPH-Dx	Diesel Range Organics	0.457 [1]	0.250	mg/L
6020	Arsenic	0.00228	0.00100	mg/L
	Chromium	0.00133	0.00100	mg/L
	Lead	0.00126	0.00100	mg/L
	Nickel	0.00657	0.00200	mg/L
	Zinc	0.0132	0.00500	mg/L
8151	2.4.5-TP (Silvex)	7.00	5.00 [3]	µg/L
8260	Benzene	10.3	1.00	µg/L
	1,2-Dichlorobenzene	151	1.00	µg/L
	1,3-Dichlorobenzene	7.32	1.00	µg/L
	1,4-Dichlorobenzene	121	1.00	µg/L
	1,2-Dichloroethane	2.17	1.00	µg/L
	trans-1,2-Dichloroethene	1.06	1.00	µg/L
	Ethylbenzene	2.11	1.00	µg/L
	Toluene	6.71	1.00	µg/L
	1,2,4-Trimethylbenzene	1.79	1.00	µg/L
	o-Xylene	1.23	1.00	µg/L
	m,p-Xylene	2.72	2.00	µg/L
	Chlorobenzene	287	2.00 [4]	µg/L
8290	OCDD	54.9	50	pg/L
	2,3,7,8-TCDF	27.5	10	pg/L

[1]HYDROCARBON CONCENTRATION IS PARTIALLY DUE TO AN INDIVIDUAL PEAK (S) ELUTING IN THE DIESEL/MOTOR OIL CARBON RANGE
[2]MRL – METHOD REPORTING LIMIT
[3]SAMPLE DILUTED 1:5 – HIGH ANALYTE CONCENTRATION AND/0R NON-TARGET MATRIX INTERFERENCE
[4]SAMPLE DILUTED 1:2 – HIGH ANALYTE CONCENTRATION AND/0R NON-TARGET MATRIX INTERFERENCE

Sample results greater than the reporting limit:

TABLE D-14
014-GG-01 {GGW-09 @ 88 – 91'} RPAC-LA

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Arsenic	0.00335	0.00100	mg/L
	Zinc	0.0126	0.00500	mg/L
8260	Chlorobenzene	4.58	1.00	µg/L
	1,2-Dichlorobenzene	5.31	1.00	µg/L
	1,4-Dichlorobenzene	2.11	1.00	µg/L
8290	2,3,7,8-TCDD	63.3	10	pg/L
	1,2,3,4,6,7,8-HpCDD	131.2	25	pg/L
	OCDD	1138.7	50	pg/L
	2,3,7,8-TCDF	1024.0	10	pg/L
	1,2,3,7,8-PeCDF	27.7	25	pg/L
	2,3,4,7,8-PeCDF	13.3	25	pg/L
	1,2,3,4,7,8-HxCDF	55.4	25	pg/L
	1,2,3,6,7,8-HxCDF	13.8	25	pg/L
	1,2,3,4,6,7,8-HpCDF	132.3	25	pg/L

[1]MRL – METHOD REPORTING LIMIT

SCOEPA00008874

Sample results greater than the reporting limit:

TABLE D-15

015-GG-01 {GGW-028 @ 12 – 15'} RPAC-LA [1]

METHOD	ANALYTE	RESULT	MRL[3]	UNITS
NWTPH-Dx	Diesel Range Organics	180	5.00 [4]	mg/L
6020	Arsenic	1.07	0.0100 [5]	mg/L
	Chromium	0.00341	0.00100	mg/L
	Lead	0.00103	0.00100	mg/L
	Nickel	0.0597	0.00200	mg/L
	Vanadium	0.0105	0.00500	mg/L
	Zinc	0.00709	0.00500	mg/L
8041	2,4-Dichlorophenol	4100	2500 [6,7]	µg/L
	2,6-Dichlorophenol	9340	2500 [6,7]	µg/L
	2,4,6-Trichlorophenol	2890	500 [8]	µg/L
8151	2,4-D	37100	10000 [9]	µg/L
	2,4-DB	1600	804 [10]	µg/L
8260	1,2-Dichlorobenzene	406	50.0 [11]	µg/L
	1,4-Dichlorobenzene	93.5	50.0 [11]	µg/L
	Ethylbenzene	1180	50.0 [11]	µg/L
	Isopropylbenzene	109	50.0 [11]	µg/L
	Methylene Chloride	393 [2]	250 [11]	µg/L
	n-Propylbenzene	217	50.0 [11]	µg/L
	1,2,4-Trimethylbenzene	773	50.0 [11]	µg/L
	1,3,5-Trimethylbenzene	390	50.0 [11]	µg/L
	o-Xylene	915	50.0 [11]	µg/L
	m,p-Xylene	3450	100 [11]	µg/L
8290	2,3,7,8-TCDD	63.4	10.0	pg/L
	1,2,3,4,6,7,8-HpCDD	102.9	25.0	pg/L
	OCDD	1020.9	50.0	pg/L
	2,3,7,8-TCDF	1784.1	10.0	pg/L

[1]SAMPLE CONTAINS 2-ETHYLISOHEXANOL (TIC)
[2]RESULT DUE TO SUSPECTED LAB CONTAMINATION
[3]MRL – METHOD REPORTING LIMIT
[4]SAMPLE DILUTED 1:20 – DETECTED HYDROCARBON DOES NOT HAVE PATTERN AND RANGE CONSISTENT WITH TYPICAL PETROLEUM PRODUCTS AND MAY BE DUE TO BIOGENIC INTERFERENCES
[5]SAMPLE DILUTED 1:10 – HIGH ANALYTE CONCENTRATION
[6]SAMPLE DILUTED 1:100 – HIGH ANALYTE CONCENTRATION
[7]ESTIMATED DUE TO CO-ELUTING NON-TARGET ANALYTES
[8]SAMPLE DILUTED 1:20 – HIGH ANALYTE CONCENTRATION
[9]SAMPLE DILUTED 1:10000 – HIGH ANALYTE CONCENTRATION
[10]SAMPLE DILUTED 1:201 – HIGH ANALYTE CONCENTRATION
[11]SAMPLE DILUTED 1:50 – HIGH ANALYTE CONCENTRATION

SCOEPA00008875

Sample results greater than the reporting limit:

TABLE D-16

015-GG-02 {duplicate of 015-GG-01, GGW-028 @ 12 – 15'} RPAC-LA [1]

METHOD	ANALYTE	RESULT	MRL[3]	UNITS
NWTPH-Dx	Diesel Range Organics	190	12.5 [4]	mg/L
6020	Arsenic	0.993	0.0100 [5]	mg/L
	Chromium	0.00308	0.00100	mg/L
	Nickel	0.0602	0.00200	mg/L
	Vanadium	0.0109	0.00500	mg/L
8041	2,4-Dichlorophenol	9910	2500 [6,7]	µg/L
	2,4,6-Trichlorophenol	1690	500 [8]	µg/L
8151	2,4-D	25300	10000[9]	µg/L
	2,4-DB	983	804[10]	µg/L
8260	1,2-Dichlorobenzene	980	100 [6]	µg/L
	1,4-Dichlorobenzene	237	100 [6]	µg/L
	Ethylbenzene	3050	100 [6]	µg/L
	Isopropylbenzene	272	100 [6]	µg/L
	Methylene Chloride	866 [2]	500 [6]	µg/L
	n-Propylbenzene	591	100 [6]	µg/L
	Toluene	106	100 [6]	µg/L
	1,2,4-Trimethylbenzene	2110	100 [6]	µg/L
	1,3,5-Trimethylbenzene	1050	100 [6]	µg/L
	o-Xylene	2460	100 [6]	µg/L
	m,p-Xylene	9120	200 [6]	µg/L
8290	2,3,7,8-TCDD	26.8	10.0	pg/L
	1,2,3,4,6,7,8-HpCDD	64.7	25.0	pg/L
	OCDD	639.1	50.0	pg/L
	2,3,7,8-TCDF	951.1	10.0	pg/L

[1]SAMPLE CONTAINS 2-ETHYLISOHEXANOL (TIC)
[2]RESULT DUE TO SUSPECTED LAB CONTAMINATION
[3]MRL – METHOD REPORTING LIMIT
[4]SAMPLE DILUTED 1:5 – DETECTED HYDROCARBON DOES NOT HAVE PATTERN AND RANGE CONSISTENT WITH TYPICAL PETROLEUM PRODUCTS AND MAY BE DUE TO BIOGENIC INTERFERENCES
[5]SAMPLE DILUTED 1:10 – HIGH ANALYTE CONCENTRATION
[6]SAMPLE DILUTED 1:100 – HIGH ANALYTE CONCENTRATION
[7]ESTIMATED DUE TO CO-ELUTING NON-TARGET ANALYTES
[8]SAMPLE DILUTED 1:20 – HIGH ANALYTE CONCENTRATION
[9]SAMPLE DILUTED 1:10000 – HIGH ANALYTE CONCENTRATION
[10]SAMPLE DILUTED 1:201 – HIGH ANALYTE CONCENTRATION

SCOEPA00008876

Sample results greater than the reporting limit:

TABLE D-17
016-GG-01 {GGW-028 @ 36 – 39'} RPAC-LA

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
NWTPH-Dx	Diesel Range Organics	41.9	2.50 [2]	mg/L
6020	Arsenic	0.0217	0.00100	mg/L
	Chromium	0.00286	0.00100	mg/L
	Copper	0.00939	0.00200	mg/L
	Lead	0.0137	0.00100	mg/L
	Nickel	0.0237	0.00200	mg/L
	Vanadium	0.00669	0.00500	mg/L
	Zinc	0.0179	0.00500	mg/L
8015	Isobutyl Alcohol	27.2	10.0	mg/L
8041	2-Chlorophenol	13800	5000 [3,4]	µg/L
	Cresols	2920	2500 [4,5]	µg/L
	2,4-Dichlorophenol	33000	5000 [3]	µg/L
	2,6-Dichlorophenol	11100	2500 [4,5]	µg/L
	2,4,5-Trichlorophenol	3270	2500 [5]	µg/L
	2,4,6-Trichlorophenol	13100	2500 [5]	µg/L
8151	Bromoxynil	1950	201 [6]	µg/L
	2,4-D	33400	10000 [7]	µg/L
8260	Benzene	313	100 [5]	µg/L
	Chlorobenzene	419	100 [5]	µg/L
	1,2-Dichlorobenzene	8120	100 [5]	µg/L
	1,3-Dichlorobenzene	262	100 [5]	µg/L
	1,4-Dichlororbenzene	2250	100 [5]	µg/L
	Ethylbenzene	4300	100 [5]	µg/L
	Methylene Chloride	2610	500 [5]	µg/L
	n-Propylbenzene	113	100 [5]	µg/L
	Toluene	888	100 [5]	µg/L
	Trichloroethene	2170	100 [5]	µg/L
	1,2,4-Trimethylbenzene	790	100 [5]	µg/L
	1,3,5-Trimethylbenzene	261	100 [5]	µg/L
	o-Xylene	3600	100 [5]	µg/L
	m,p-Xylene	11500	200 [5]	µg/L
8290	2,3,7,8-TCDD	154.0	10.0	pg/L
	2,3,7,8-TCDF	303.5	10.0	pg/L

[1]MRL – METHOD REPORTING LIMIT
[2]SAMPLE DILUTED 1:10 – DETECTED HYDROCARBON PATTERN DOES NOT HAVE PATTERN AND RANGE CONSISTENT WITH TYPICAL PETROLEUM PRODUCTS AND MAY BE DUE TO BIOGENIC INTERFERENCES
[3]SAMPLE DILUTED 1:200 – HIGH ANALYTE CONCENTRATION
[4]ESTIMATED DUE TO CO-ELUTING NON-TARGET ANALYTES
[5]SAMPLE DILUTED 1:100 – HIGH ANALYTE CONCENTRATION
[6]SAMPLE DILUTED 1:100.5 - HIGH ANALYTE CONCENTRATION
[7]SAMPLE DILUTED 1:10000 – HIGH ANALYTE CONCENTRATION

SCOEPA00008877

Sample results greater than the reporting limit:

TABLE D-18
017-GG-01 {GGW-028 @ 50 – 53'} RPAC-LA

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Arsenic	0.0104	0.00100	mg/L
	Chromium	0.00444	0.00100	mg/L
	Copper	0.0566	0.00200	mg/L
	Lead	0.00293	0.00100	mg/L
	Nickel	0.0197	0.00200	mg/L
	Vanadium	0.0254	0.00500	mg/L
	Zinc	0.00732	0.00500	mg/L
8041	2-Chlorophenol	4790	4000 [2,3]	µg/L
	Cresols	3080	2500 [3,4]	µg/L
	2,4-Dichlorophenol	14800	2500 [3]	µg/L
	2,6-Dichlorophenol	19400	5000 [3,5]	µg/L
	Phenol	10200	5000 [3,5]	µg/L
	2,4,5-Trichlorophenol	409	400 [6]	µg/L
	2,4,6-Trichlorophenol	1920	500 [7]	µg/L
8151	Bromoxynil	305	201 [8]	µg/L
	2,4-D	5880	1000 [9]	µg/L
8260	Acetone	75.4	25.0	µg/L
	Benzene	18.7	1.00	µg/L
	Chlorobenzene	28.3	1.00	µg/L
	1,2-Dichlorobenzene	449	5.00 [10]	µg/L
	1,3-Dichlorobenzene	11.2	1.00	µg/L
	1,4-Dichlororbenzene	83.5	1.00	µg/L
	cis-1,2-Dichloroethene	2.51	1.00	µg/L
	Ethylbenzene	193	1.00	µg/L
	Isopropylbenzene	2.48	1.00	µg/L
	Methylene Chloride	97.4	5.00	µg/L
	Naphthalene	1.03	1.00	µg/L
	n-Propylbenzene	4.95	1.00	µg/L
	Toluene	8.58	1.00	µg/L
	1,2,4-Trichlorobenzene	3.70	1.00	µg/L
	Trichloroethene	97.0	1.00	µg/L
	1,2,4-Trimethylbenzene	36.0	1.00	µg/L
	1,3,5-Trimethylbenzene	9.05	1.00	µg/L
	o-Xylene	150	1.00	µg/L
	m,p-Xylene	69.7	2.00	µg/L

[1]MRL – METHOD REPORTING LIMIT
[2]SAMPLE DILUTED 1:160 – HIGH ANALYTE CONCENTRATION
[3]ESTIMATED VALUE DUE TO CO-ELUTING NON-TARGET ANALYTES
[4]SAMPLE DILUTED 1:100 – HIGH ANALYTE CONCENTRATION
[5]SAMPLE DILUTED 1:200 – HIGH ANALYTE CONCENTRATION
[6]SAMPLE DILUTED 1:16 – HIGH ANALYTE CONCENTRATION
[7]SAMPLE DILUTED 1:20 – HIGH ANALYTE CONCENTRATION
[8]SAMPLE DILUTED 1:100.5 – HIGH ANALYTE CONCENTRATION
[9]SAMPLE DILUTED 1:1000 – HIGH ANALYTE CONCENTRATION
[10]SAMPLE DILUTED 1:5 – HIGH ANALYTE CONCENTRATION

Sample results greater than the reporting limit:

TABLE D-19
017-GG-04 {Equipment Blank}

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
8290	OCDD	94.6	50.0	pg/L
	2,3,7,8-TCDF	68.4	10.0	pg/L

[1]MRL – METHOD REPORTING LIMIT

SCOEPA00008878

Sample results greater than the reporting limit:

TABLE D-20
018-GG-01 {GGW-07 @ 27 – 30'} ESCO

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Arsenic	0.00519	0.00100	mg/L
	Chromium	0.00114	0.00100	mg/L
	Lead	0.00369	0.00100	mg/L
	Nickel	0.00483	0.00200	mg/L
	Vanadium	0.0111	0.00500	mg/L
8151	2,4-D	46.9	11.0 [2]	µg/L
8260	Benzene	3.87	1.00	µg/L
	1,2-Dichlorobenzene	1.16	1.00	µg/L
	Naphthalene	1.13	1.00	µg/L
	Toluene	1.19	1.00	µg/L
	1,2,4-Trimethylbenzene	4.22	1.00	µg/L
	1,3,5-Trimethylbenzene	1.67	1.00	µg/L
	o-Xylene	2.26	1.00	µg/L
	m,p-Xylene	3.97	2.00	µg/L
8290	OCDD	58.4	10.0	pg/L
	2,3,7,8-TCDF	64.0	10.0	pg/L

[1]MRL – METHOD REPORTING LIMIT
[2]SAMPLE DILUTED 1:11 – ANALYTE CONCENTRATION

Sample results greater than the reporting limit:

TABLE D-21
019-GG-01 {GGW-026 @ 27 – 30'} BNSF

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Arsenic	0.00716	0.00100	mg/L
	Chromium	0.00216	0.00100	mg/L
	Copper	0.00480	0.00200	mg/L
	Lead	0.00101	0.00100	mg/L
	Nickel	0.00946	0.00200	mg/L
	Vanadium	0.0522	0.00500	mg/L
	Zinc	0.00855	0.00500	mg/L

[1]MRL – METHOD REPORTING LIMIT

Sample results greater than the reporting limit:

TABLE D-22
020-GG-01 {GGW-026 @ 48 – 51'} BNSF

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Arsenic	0.00147	0.00100	mg/L
	Chromium	0.00144	0.00100	mg/L
	Nickel	0.0335	0.00200	mg/L
	Vanadium	0.0130	0.00500	mg/L
	Zinc	0.0287	0.00500	mg/L
8151	2,4-D	15.2	5.00 [2]	µg/L
	2,4,5-TP (Silvex)	6.11	1.00	µg/L
8260	Chlorobenzene	18.4	1.00	µg/L
	1,2-Dichlorobenzene	179	1.00	µg/L
	1,3-Dichlorobenzene	5.03	1.00	µg/L
	1,4-Dichlororbenzene	45.6	1.00	µg/L
	cis-1,2-Dichloroethene	4.13	1.00	µg/L
	Toluene	1.34	1.00	µg/L
	Trichloroethene	5.84	1.00	µg/L
	Vinyl Chloride	3.59	1.00	µg/L

[1]MRL – METHOD REPORTING LIMIT
[2]SAMPLE DILUTED 1:5 – ANALYTE CONCENTRATION

SCOEPA00008879

Sample results greater than the reporting limit:

TABLE D-23
021-GG-01 {GGW-027 @ 72 – 75'} BNSF

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Arsenic	0.272	0.00695 [2]	mg/L
	Copper	0.00433	0.00200	mg/L
	Nickel	0.00793	0.00200	mg/L
	Zinc	0.0127	0.00500	mg/L
8151	2,4-D	8.68	1.00	µg/L
8260	Trichloroethene	1.33	1.00	µg/L

[1]MRL – METHOD REPORTING LIMIT
[2]SAMPLE DILUTED 1:6.95 – HIGH ANALYTE CONCENTRATION

Sample results greater than the reporting limit:

TABLE D-24
022-GG-01 {GGW-027 @ 21 – 24'} BNSF

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Arsenic	0.00118	0.00100	mg/L
	Chromium	0.00122	0.00100	mg/L
	Copper	0.00678	0.00200	mg/L
	Vanadium	0.0182	0.00500	mg/L
8151	2,4-D	13.1	5.00 [2]	µg/L
8290	OCDD	56.3	50.0	pg/L

[1]MRL – METHOD REPORTING LIMIT
[2]SAMPLE DILUTED 1:5 – ANALYTE CONCENTRATION

Sample results greater than the reporting limit:

TABLE D-25
023-GG-01 {GGW-025 @ 25 – 28'} BNSF

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Arsenic	0.00371	0.00100	mg/L
	Nickel	0.00343	0.00200	mg/L
8151	2,4-D	22.6	5.00 [2]	µg/L

[1]MRL – METHOD REPORTING LIMIT
[2]SAMPLE DILUTED 1:5 – ANALYTE CONCENTRATION

Sample results greater than the reporting limit:

TABLE D-26
024-GG-01 {GGW-025 @ 43 – 46'} BNSF

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Chromium	0.00101	0.00100	mg/L
	Copper	0.0120	0.00200	mg/L
	Nickel	0.00681	0.00200	mg/L
	Vanadium	0.00650	0.00500	mg/L
8151	2,4-D	2.38	1.00	µg/L

[1]MRL – METHOD REPORTING LIMIT

SCOEPA00008880

Sample results greater than the reporting limit:

TABLE D-27
025-GG-01 {GGW-023 @ 14 – 17'} Wacker

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Nickel	0.00215	0.00200	mg/L
	Zinc	0.00761	0.00500	mg/L
7470A	Mercury	0.000397	0.000200	mg/L
8151	2,4-D	6.11	1.00	µg/L
8260	Benzene	89.1	5.00[2]	µg/L
	Isopropylbenzene	12.8	5.00[2]	µg/L
	Naphthalene	1560	10.0[3]	µg/L

[1]MRL – METHOD REPORTING LIMIT
[2]SAMPLE DILUTED 1:5 – HIGH ANALYTE CONCENTRATION
[3]SAMPLE DILUTED 1:10 – HIGH ANALYTE CONCENTRATION

Sample results greater than the reporting limit:

TABLE D-28
026-GG-01 {GGW-022 @ 22 – 25'} Wacker

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Arsenic	0.00610	0.00100	mg/L
	Chromium	0.00166	0.00100	mg/L
	Nickel	0.00271	0.00200	mg/L
8015	Isobutyl Alcohol	15.3	10.0	mg/L
8041	2,4-Dimethylphenol	598	250[2]	µg/L
8151	2,4-D	53.9	21.0[3]	µg/L
8260	Benzene	219	50.0[4]	µg/L
	Ethylbenzene	220	50.0[4]	µg/L
	Naphthalene	9770	50.0[4]	µg/L
	1,2,4-Trimethylbenzene	60.5	50.0[4]	µg/L
	o-Xylene	94.5	50.0[4]	µg/L
	m,p-Xylene	179	100[4]	µg/L
8290	OCDD	217.8	50.0	pg/L

[1]MRL – METHOD REPORTING LIMIT
[2]SAMPLE DILUTED 1:10 – HIGH ANALYTE CONCENTRATION
[3] SAMPLE DILUTED 1:21 – HIGH ANALYTE CONCENTRATION
[4]SAMPLE DILUTED 1:50 – HIGH ANALYTE CONCENTRATION

Sample results greater than the reporting limit:

TABLE D-29
027-GG-01 {GGW-022 @ 62 – 65'} Wacker

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Arsenic	0.00702	0.00100	mg/L
	Nickel	0.00734	0.00200	mg/L
	Zinc	0.0164	0.00500	mg/L
8015	Isobutyl Alcohol	11.9	10.0	mg/L
8260	Benzene	142	1.00	µg/L
	Chlorobenzene	28.6	1.00	µg/L
	1,2-Dichlorobenzene	22.4	1.00	µg/L
	1,3-Dichlorobenzene	1.56	1.00	µg/L
	1,4-Dichlorobenzene	17.4	1.00	µg/L
	Naphthalene	19.6	1.00	µg/L
	Toluene	1.45	1.00	µg/L

[1]MRL – METHOD REPORTING LIMIT

SCOEPA00008881

Sample results greater than the reporting limit:

TABLE D-30
028-GG-01 {GGW-011 @ 54 – 57'} Wacker

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Arsenic	0.00611	0.00100	mg/L
	Copper	0.00236	0.00200	mg/L
	Nickel	0.00671	0.00200	mg/L
	Zinc	0.0478	0.00500	mg/L
8260	Toluene	2.93	1.00	µg/L

[1]MRL – METHOD REPORTING LIMIT

Sample results greater than the reporting limit:

TABLE D-31
029-GG-01 {GGW-011 @ 87.2 – 90.5'} Wacker

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Arsenic	0.00182	0.00100	mg/L
	Copper	0.00219	0.00200	mg/L
	Nickel	0.00838	0.00200	mg/L
	Zinc	0.00737	0.00500	mg/L
8260	Benzene	5.08	1.00	µg/L
	sec-Butylbenzene	1.30	1.00	µg/L
	Chlorobenzene	2.19	1.00	µg/L
	1,2-Dichlorobenzene	1.42	1.00	µg/L
	Isopropylbenzene	1.43	1.00	µg/L
	Naphthalene	87.3	1.00	µg/L
	Toluene	3.61	1.00	µg/L

[1]MRL – METHOD REPORTING LIMIT

Sample results greater than the reporting limit:

TABLE D-32
030-GG-01 {GGW-024 @ 25 – 28'} Wacker

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Arsenic	0.0294	0.00100	mg/L
	Nickel	0.00280	0.00200	mg/L
8260	Chlorobenzene	6.51	1.00	µg/L
	1,4-Dichlorobenzene	1.74	1.00	µg/L
8290	OCDD	67.8	50.0	pg/L

[1]MRL – METHOD REPORTING LIMIT

Sample results greater than the reporting limit:

TABLE D-33
030-GG-02 {duplicate of 030-GG-01, GGW-024 @ 25 – 28'} Wacker

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Arsenic	0.0294	0.00100	mg/L
	Nickel	0.00276	0.00200	mg/L
8260	Chlorobenzene	7.06	1.00	µg/L
	1,4-Dichlorobenzene	1.90	1.00	µg/L

[1]MRL – METHOD REPORTING LIMIT

SCOEPA00008882

Sample results greater than the reporting limit:

TABLE D-34
031-GG-01 {GGW-024 @ 82 – 85'} Wacker

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Chromium	0.00250	0.00100	mg/L
	Lead	0.00113	0.00100	mg/L
	Nickel	0.0104	0.00200	mg/L
	Zinc	0.00560	0.00500	mg/L
8260	Benzene	1.23	1.00	µg/L
	Toluene	5.34	1.00	µg/L
8290	OCDD	246.5	50.0	pg/L
	2,3,7,8-TCDF	11.8	10.0	pg/L

[1]MRL – METHOD REPORTING LIMIT

Sample results greater than the reporting limit:

TABLE D-35
032-GG-01 {GGW-010 @ 27 – 30'} Atochem

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Arsenic	0.00408	0.00100	mg/L
	Chromium	0.0108	0.00100	mg/L
	Copper	0.00296	0.00200	mg/L
	Lead	0.00421	0.00100	mg/L
	Nickel	0.00541	0.00200	mg/L
	Vanadium	0.0346	0.00500	mg/L
	Zinc	0.0146	0.00500	mg/L

[1]MRL – METHOD REPORTING LIMIT

Sample results greater than the reporting limit:

TABLE D-36
033-GG-01 {GGW-010 @ 36 – 39'} Atochem

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Arsenic	0.00169	0.00100	mg/L
	Chromium	0.00230	0.00100	mg/L
	Copper	0.00642	0.00200	mg/L
	Lead	0.00140	0.00100	mg/L
	Nickel	0.00800	0.00200	mg/L
	Vanadium	0.0269	0.00500	mg/L
	Zinc	0.00870	0.00500	mg/L

[1]MRL – METHOD REPORTING LIMIT

SCOEPA00008883

Sample results greater than the reporting limit:

TABLE D-37
034-GG-01 {GGW-010 @ 47 – 50'} Atochem

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Cadmium	0.00327	0.00100	mg/L
	Chromium	0.00166	0.00100	mg/L
	Copper	0.00574	0.00200	mg/L
	Nickel	0.0616	0.00200	mg/L
	Vanadium	0.00583	0.00500	mg/L
	Zinc	0.0142	0.00500	mg/L
7470A	Mercury	0.000200	0.000200	mg/L
8151	2,4,5-TP (Silvex)	8.98	1.00	µg/L
	Dichlorprop	1.43	1.00	µg/L
8260	Chlorobenzene	32.2	1.00	µg/L
	1,2-Dichlorobenzene	216	2.00[2]	µg/L
	1,3-Dichlorobenzene	6.03	1.00	µg/L
	1,4-Dichlorobenzene	57.7	1.00	µg/L
	1,1-Dichloroethene	1.51	1.00	µg/L
	cis-1,2-Dichloroethene	6.07	1.00	µg/L
	Trichloroethene	4.05	1.00	µg/L
	Vinyl Chloride	13.4	1.00	µg/L

[1]MRL – METHOD REPORTING LIMIT
[2]SAMPLE DILUTED 1:2 – HIGH ANALYTE CONCENTRATION

Sample results greater than the reporting limit:

TABLE D-38
035-GG-01 {GGW-015 @ 44 – 47'} Atochem

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Cadmium	0.00822	0.00575[2]	mg/L
	Nickel	0.107	0.0115[2]	mg/L
	Zinc	0.0231	0.00500	mg/L
8151	2,4,5-TP (Silvex)	5.51	1.00	µg/L
	Dichlorprop	1.00	1.00	µg/L
8260	Benzene	4.71	1.00	µg/L
	Chlorobenzene	6.89	1.00	µg/L
	1,2-Dichlorobenzene	20.9	1.00	µg/L
	1,4-Dichlorobenzene	4.09	1.00	µg/L
	cis-1,2-Dichloroethene	3.58	1.00	µg/L
	Toluene	12.1	1.00	µg/L
	Vinyl Chloride	9.65	1.00	µg/L
	m,p-Xylene	2.35	2.00	µg/L

[1]MRL – METHOD REPORTING LIMIT
[2]SAMPLE DILUTED 1:5.75 – MATRIX INTERFERENCE

Sample results greater than the reporting limit:

TABLE D-39
036-GG-04 {Equipment Blank}

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Copper	0.00414	0.00200	mg/L

[1]MRL – METHOD REPORTING LIMIT

SCOEPA00008884

Sample results greater than the reporting limit:

TABLE D-40
037-GG-01 {GGW-014 @ 46 – 49'} Atochem

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Arsenic	0.0113	0.0100 [2]	mg/L
	Cadmium	0.0151	0.0100 [2]	mg/L
	Copper	0.0466	0.0200 [2]	mg/L
	Nickel	0.281	0.0200 [2]	mg/L
	Zinc	0.0513	0.0500 [2]	mg/L
8151	2,4-DB	4.54	4.00	µg/L
	2,4,5-TP (Silvex)	4.37	1.00	µg/L
8260	Benzene	4.02	1.00	µg/L
	Chlorobenzene	8.74	1.00	µg/L
	1,2-Dichlorobenzene	30.7	1.00	µg/L
	1,4-Dichlorobenzene	6.04	1.00	µg/L
	cis-1,2-Dichloroethene	4.70	1.00	µg/L
	Toluene	8.92	1.00	µg/L
	Trichloroethene	1.05	1.00	µg/L
	Vinyl Chloride	11.5	1.00	µg/L

[1]MRL – METHOD REPORTING LIMIT
[2]SAMPLE DILUTED 1:10 – MATRIX INTERFERENCE

Sample results greater than the reporting limit:

TABLE D-41
037-GG-02 {duplicate of 037-GG-01 except for EPA Method 8290, GGW-014 @ 46 – 49'} Atochem

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Cadmium	0.0140	0.00629 [2]	mg/L
	Copper	0.0131	0.0126 [2]	mg/L
	Nickel	0.286	0.0126 [2]	mg/L
	Zinc	0.0589	0.0315 [2]	mg/L
8151	2,4,5-TP (Silvex)	4.88	1.00	µg/L
8260	Benzene	4.06	1.00	µg/L
	Chlorobenzene	8.89	1.00	µg/L
	1,2-Dichlorobenzene	31.1	1.00	µg/L
	1,4-Dichlorobenzene	5.83	1.00	µg/L
	1,1-Dichloroethene	1.00	1.00	µg/L
	cis-1,2-Dichloroethene	5.00	1.00	µg/L
	Toluene	8.94	1.00	µg/L
	Trichloroethene	1.13	1.00	µg/L
	Vinyl Chloride	12.2	1.00	µg/L

[1]MRL – METHOD REPORTING LIMIT
[2]SAMPLE DILUTED 1:6.29 – MATRIX INTERFERENCE

Sample results greater than the reporting limit:

TABLE D-42
038-GG-01 {GGW-013 @ 36 – 39'} Atochem

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Nickel	0.103	0.0127 [2]	mg/L
	Zinc	0.0379	0.0317 [2]	mg/L
8260	Benzene	2.94	1.00	µg/L
	1,2-Dichlorobenzene	1.00	1.00	µg/L
	Toluene	6.41	1.00	µg/L

[1]MRL – METHOD REPORTING LIMIT
[2]SAMPLE DILUTED 1:6.35 – MATRIX INTERFERENCE

SCOEPA00008885

Sample results greater than the reporting limit:

TABLE D-43
039-GG-01 {GGW-016 @ 27 – 30'} Atochem

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Cadmium	0.0185	0.00100	mg/L
	Chromium	0.00203	0.00100	mg/L
	Lead	0.0229	0.00200	mg/L
	Nickel	0.160	0.00200	mg/L
	Vanadium	0.00551	0.00500	mg/L
	Zinc	0.0492	0.00500	mg/L
8260	Acetone	27.9	25.0	µg/L
	Benzene	1.41	1.00	µg/L
	Chlorobenzene	1.29	1.00	µg/L
	1,2-Dichlorobenzene	11.5	1.00	µg/L
	1,4-Dichlorobenzene	1.83	1.00	µg/L
	Toluene	3.73	1.00	µg/L

[1]MRL – METHOD REPORTING LIMIT

Sample results greater than the reporting limit:

TABLE D-44
040-GG-01 {GGW-016 @ 42 – 45'} Atochem

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Chromium	0.00404	0.00100	mg/L
	Copper	0.00579	0.00200	mg/L
	Nickel	0.0604	0.00200	mg/L
	Zinc	0.0276	0.00500	mg/L
8081/8082	4,4'-DDT	0.844	0.200[2]	µg/L
8260	Benzene	2.33	1.00	µg/L
	Chloroform	1.62	1.00	µg/L
	Toluene	5.63	1.00	µg/L
	Trichlorofluoromethane	26.4	1.00	µg/L

[1]MRL – METHOD REPORTING LIMIT
[2]SAMPLE DILUTED 1:2 – HIGH LEVELS OF NON-TARGET ANALYTE AND/OR MATRIX INTERFERENCE

Sample results greater than the reporting limit:

TABLE D-45
041-GG-01 {GGW-015 @ 30 – 33'} Atochem

METHOD	ANALYTE	RESULT	MRL[1]	UNITS
6020	Arsenic	0.0160	0.00100	mg/L
	Chromium	0.00263	0.00100	mg/L
	Copper	0.00602	0.00200	mg/L
	Nickel	0.0347	0.00200	mg/L
	Zinc	0.0158	0.00500	mg/L
8260	Benzene	1.39	1.00	µg/L
	Toluene	3.02	1.00	µg/L

[1]MRL – METHOD REPORTING LIMIT

SCOEPA00008886

SCOEPA00008887

SCOEPA00008888

RECONNAISSANCE GROUNDWATER SAMPLING DATA SHEET

Well Number: GP-027 Sample Number: 022-66-01 Date: 10/20/99

Project: RPAC Project Number: 52920804A.00 Task: 4/5

Weather Conditions: Sunny 70°F Well Developer's Name:

Date, Time Start: Date, Time Finish Well Development Co.:

PID/FID Backgd: N/A / N/A ppm In-pipe N/A / N/A ppm

% LEL / % O_2 Backgd: ___/___% In-pipe___/___%

P.I.D. Standard Calibration Used: N/A

P.I.D./FID Calibration Date : N/A

Well Depth: feet BTOC or bgs

Water Depth: 16' feet BTOC or (bgs)

Feet of Water: feet

Gallons per Foot: gallons/feet

Well Volume: gallons

Purge Volume: gallons

Observation for sheen or LNAPL:

Observation for DNAPL:

Observation and condition of the well: poor satisfactory new

If poor, note deficiencies: N/A

Pump hoses and/or bailer ropes were new, cleaned or (dedicated?)

Approx Pump Rate:

Measuring Point (MP): ____ TOC gs; PVC or stainless

Elevation of MP: feet

Elevation of Water: feet

Well Diameter: inches

Well Diameter	Gallons per casing foot
2 inches	0.16
3 inches	0.367
4 inches	0.65

pH meter: N/A

Conductivity meter: N/A

Calibration Date: N/A

# of Purge Volumes Reqired:

# of Purge Volumes Removed:

Purge Method:

Sample Method: Peristaltic pump

Water Disposal: RPAC Treatment System

Sampler(s): G. Lukert

General Comments: Sample interval: 21-24'. Hydrolab and PID/FID unavailable (in truck)

Field Parameters	Before Purging	Volume 1	Volume 2	Volume 3	Volume 4	Volume 5	Volume 6
Volume (gallons)							
24- hour Time							
pH							NA
Conductivity ( )							N/A
Temp. °C or °F							NA
Color							
Turbidity							
Diss. Oxy. (mg/L)							

Field Parameters	Volume 7	Volume 8	Volume 9	Volume 10	Volume 11	Volume 12	
Volume (gallons)							
24- hour Time							
pH							
Conductivity ( )							
Temp. °C or °F							
Color							
Turbidity							
Diss. Oxy. (mg/L)							

SCOEPA00008889

RECONNAISSANCE GROUNDWATER SAMPLING DATA SHEET

Well Number: CPT-010 Sample Number: 032-GG-01 Date: 10/25/99

Project: RPAC Project Number: 52920804A.00 Task: 4/5

Weather Conditions: Overcast, 50°F Well Developer's Name:

Date, Time Start: Date, Time Finish 1520 Well Development Co.:

PID/FID Backgd: 0.1/0.2 ppm In-pipe 0.0 / 0.0 ppm Measuring Point (MP): TOC gs; PVC or stainless

% LEL / % O_2 Backgd: /% In-pipe / % Elevation of MP: feet

P.I.D. Standard Calibration Used: Isobutylene/Methane Elevation of Water: feet

P.I.D./FID Calibration Date : 10/25/99 Well Diameter: inches

Well Depth: feet BTOC or bgs

Water Depth: 25.1 feet BTOC or (bgs)

Feet of Water: feet

Gallons per Foot: gallons/feet

Well Diameter	Gallons per casing foot
2 inches	0.16
3 inches	0.367
4 inches	0.65

Well Volume: gallons pH meter: Hydrolab

Purge Volume: gallons Conductivity meter: Hydrolab

Observation for sheen or LNAPL: Calibration Date: 10/25/99

Observation for DNAPL: # of Purge Volumes Reqired: N/A

Observation and condition of the well: poor satisfactory new # of Purge Volumes Removed: N/A

If poor, note deficiencies: N/A Purge Method:

Pump hoses and/or bailer ropes were new, cleaned or (dedicated)? Sample Method: Peristaltic pump

Water Disposal: RPAC Treatment Plant

Approx Pump Rate: Sampler(s): B. Lukert

General Comments: Sample Interval 27-30'

Field Parameters	Before Purging	Volume 1	Volume 2	Volume 3	Volume 4	Volume 5	Volume 6
Volume (gallons)							
24- hour Time							
pH							6.23
Conductivity ( )							5,570
Temp. °C or °F							61.3°F
Color							
Turbidity							
Diss. Oxy. (mg/L)							

Field Parameters	Volume 7	Volume 8	Volume 9	Volume 10	Volume 11	Volume 12	
Volume (gallons)							
24- hour Time							
pH							
Conductivity ( )							
Temp. °C or °F							
Color							
Turbidity							
Diss. Oxy. (mg/L)							

SCOEPA00008890

RECONNAISSANCE GROUNDWATER SAMPLING DATA SHEET

Well Number: CPT-010 Sample Number: 033-GG-01 Date: 10/26/99

Project: RPAC Project Number: 52920804A.00 Task: 045

Weather Conditions: Overcast 50°F Well Developer's Name:

Date, Time Start: Date, Time Finish Well Development Co.:

PID/FID Backgd: 0.1/0.2 ppm In-pipe 0.0 / 0.0 ppm

% LEL / % O_2 Backgd: /% In-pipe / %

P.I.D. Standard Calibration Used: Isobutylene / Methane

P.I.D./FID Calibration Date : 10/26/99

Well Depth: feet BTOC or bgs

Water Depth: 33.8' feet BTOC or bgs

Feet of Water: feet

Gallons per Foot: gallons/feet

Well Volume: gallons

Purge Volume: gallons

Observation for sheen or LNAPL:

Observation for DNAPL:

Observation and condition of the well: poor satisfactory new

If poor, note deficiencies: N/A

Pump hoses and/or bailer ropes were new, cleaned or dedicated?

Approx Pump Rate:

Measuring Point (MP): TOC gs; PVC or stainless

Elevation of MP: feet

Elevation of Water: feet

Well Diameter: inches

Well Diameter	Gallons per casing foot
2 inches	0.16
3 inches	0.367
4 inches	0.65

pH meter: Hydak

Conductivity meter: Hydak

Calibration Date: 10/26/99

# of Purge Volumes Reqired:

# of Purge Volumes Removed:

Purge Method:

Sample Method: Peristaltic Pump

Water Disposal: RPAC Treatment Plant

Sampler(s): G. Lukert

General Comments: Sample Interval = 36-39'

Field Parameters	Before Purging	Volume 1	Volume 2	Volume 3	Volume 4	Volume 5	Volume 6
Volume (gallons)							
24- hour Time							
pH							6.81
Conductivity ( )							4,280
Temp. °C or °F							61.0°F
Color							
Turbidity							
Diss. Oxy. (mg/L)							

Field Parameters	Volume 7	Volume 8	Volume 9	Volume 10	Volume 11	Volume 12	
Volume (gallons)							
24- hour Time							
pH							
Conductivity ( )							
Temp. °C or °F							
Color							
Turbidity							
Diss. Oxy. (mg/L)							

SCOEPA00008891

RECONNAISSANCE GROUNDWATER SAMPLING DATA SHEET

Well Number: CPT-010 Sample Number: 034-GG-01 Date: 10/26/99

Project: RPAC Project Number: 52920804A.00 Task: 4/5

Weather Conditions: Overcast 50°F Well Developer's Name:

Date, Time Start: Date, Time Finish Well Development Co.:

PID/FID Backgd: 0.1 / 0.2 ppm In-pipe 0.0 / 0.0 ppm Measuring Point (MP): TOC gs; PVC or stainless

% LEL / % O_2 Backgd: / % In-pipe / % Elevation of MP: feet

P.I.D. Standard Calibration Used: Isobutylene/Methane Elevation of Water: feet

P.I.D./FID Calibration Date : 10/26/99 Well Diameter: inches

Well Depth: feet BTOC or bgs

Water Depth: 24' feet BTOC or (bgs)

Feet of Water: feet

Gallons per Foot: gallons/feet

Well Volume: gallons

Purge Volume: gallons

Well Diameter	Gallons per casing foot
2 inches	0.16
3 inches	0.367
4 inches	0.65

pH meter: Hydak

Conductivity meter: Hydak

Calibration Date: 10/26/99

Observation for sheen or LNAPL:

Observation for DNAPL:

# of Purge Volumes Reqired:

Observation and condition of the well: poor satisfactory new

# of Purge Volumes Removed:

If poor, note deficiencies: N/A

Purge Method:

Pump hoses and/or bailer ropes were new, cleaned or (dedicated?)

Sample Method: Peristaltic pump

Water Disposal: RPAC Treatment Plant

Approx Pump Rate:

Sampler(s): G. Lukert

General Comments: Sample Interval = 47-50', good recharge

Field Parameters	Before Purging	Volume 1	Volume 2	Volume 3	Volume 4	Volume 5	Volume 6
Volume (gallons)							
24- hour Time							
pH							6.08
Conductivity ( )							12,130
Temp. °C or °F							54.8°F
Color							
Turbidity							
Diss. Oxy. (mg/L)							

Field Parameters	Volume 7	Volume 8	Volume 9	Volume 10	Volume 11	Volume 12	
Volume (gallons)							
24- hour Time							
pH							
Conductivity ( )							
Temp. °C or °F							
Color							
Turbidity							
Diss. Oxy. (mg/L)							

SCOEPA00008892

RECONNAISSANCE GROUNDWATER SAMPLING DATA SHEET

Well Number: CPT-011 Sample Number: 028-GG-01 Date: 10/22/99

Project: RPAC Project Number: 52920804A.00 Task: 4/5

Weather Conditions: _____ Well Developer's Name: _____

Date, Time Start: 10/22/99 Date, Time Finish 0955 Well Development Co.: _____

PID/FID Backgd: 0.1 / 0.2 ppm In-pipe 0.0 / 0.0 ppm

% LEL / % O_2 Backgd: ___/___% In-pipe___ / ___ %

P.I.D. Standard Calibration Used: Isobutylene / Methane

P.I.D./FID Calibration Date : 10/22/99

Well Depth: _____ feet BTOC or bgs

Water Depth: 30' feet BTOC or (bgs)

Feet of Water: _____ feet

Gallons per Foot: _____ gallons/feet

Well Volume: _____ gallons

Purge Volume: _____ gallons

Observation for sheen or LNAPL: _____

Observation for DNAPL: _____

Observation and condition of the well: poor satisfactory new

If poor, note deficiencies: N/A

Pump hoses and/or bailer ropes were new, cleaned or (dedicated?)

_____

Approx Pump Rate: _____

General Comments: Sample Interval: 54-57'

Measuring Point (MP): _____ TOC gs; PVC or stainless

Elevation of MP: _____ feet

Elevation of Water: _____ feet

Well Diameter: _____ inches

Well Diameter	Gallons per casing foot
2 inches	0.16
3 inches	0.367
4 inches	0.65

pH meter: Hydak

Conductivity meter: Hydak

Calibration Date: 10/22/99

# of Purge Volumes Reqired: _____

# of Purge Volumes Removed: _____

Purge Method: _____

Sample Method: Peristaltic Pump

Water Disposal: RPAC Treatment Plant

Sampler(s): G. Lukert

Field Parameters	Before Purging	Volume 1	Volume 2	Volume 3	Volume 4	Volume 5	Volume 6
Volume (gallons)							
24- hour Time							
pH							6.67
Conductivity ( )							2,270
Temp. °C or °F							56.5°F
Color							
Turbidity							
Diss. Oxy. (mg/L)							

Field Parameters	Volume 7	Volume 8	Volume 9	Volume 10	Volume 11	Volume 12	
Volume (gallons)							
24- hour Time							
pH							
Conductivity ( )							
Temp. °C or °F							
Color							
Turbidity							
Diss. Oxy. (mg/L)							

SCOEPA00008893

RECONNAISSANCE GROUNDWATER SAMPLING DATA SHEET

Well Number: CPT-011 Sample Number: 029-GG-01 Date: 10/22/99

Project: RPAC Project Number: 52920804A.00 Task: 45

Weather Conditions: Clear 70°F Well Developer's Name:

Date, Time Start: Date, Time Finish 1500 Well Development Co.:

PID/FID Backgd: 0.1/0.2 ppm In-pipe 0.0/0.0 ppm

% LEL / % O_2 Backgd: ___/___% In-pipe___/___%

P.I.D. Standard Calibration Used: Isobutylene/Methane

P.I.D./FID Calibration Date : 10/22/99

Well Depth: feet BTOC or bgs

Water Depth: 28' feet BTOC or bgs

Feet of Water: feet

Gallons per Foot: gallons/feet

Well Volume: gallons

Purge Volume: gallons

Observation for sheen or LNAPL:

Observation for DNAPL:

Observation and condition of the well: poor satisfactory new

If poor, note deficiencies: N/A

Pump hoses and/or bailer ropes were new, cleaned or dedicated?

Approx Pump Rate:

Measuring Point (MP): TOC gs; PVC or stainless

Elevation of MP: feet

Elevation of Water: feet

Well Diameter: inches

Well Diameter	Gallons per casing foot
2 inches	0.16
3 inches	0.367
4 inches	0.65

pH meter: Hydac

Conductivity meter: Hydac

Calibration Date: 10/22/99

# of Purge Volumes Reqired:

# of Purge Volumes Removed:

Purge Method:

Sample Method: Peristaltic Pump

Water Disposal: RPAC Treatment Plant

Sampler(s): G. Lukert

General Comments: Sample Interval 87.5 - 90.5'

Field Parameters	Before Purging	Volume 1	Volume 2	Volume 3	Volume 4	Volume 5	Volume 6
Volume (gallons)							
24- hour Time							
pH							3.23
Conductivity ( )							1020
Temp. °C or °F							69.2°F
Color							
Turbidity							
Diss. Oxy. (mg/L)							

Field Parameters	Volume 7	Volume 8	Volume 9	Volume 10	Volume 11	Volume 12	
Volume (gallons)							
24- hour Time							
pH							
Conductivity ( )							
Temp. °C or °F							
Color							
Turbidity							
Diss. Oxy. (mg/L)							

SCOEPA00008894

RECONNAISSANCE GROUND WATER SAMPLE

SHEET

Well Number: CPT-013 Sample Number: 038-GG-01 Date: 10/27/99

Project: RPAC Project Number: 5292C0804A.00 Task: _____

Weather Conditions: Rain, 50°F Well Developer's Name: _____

Date, Time Start: _____ Date, Time Finish 1440 Well Development Co.: _____

PID/FID Backgd: 0.1/0.1 ppm In-pipe 0.0 / 0.0 ppm

% LEL / % O_2 Backgd: ____/____% In-pipe____ / ___ %

P.I.D. Standard Calibration Used: Isobutylene / Methane

P.I.D./FID Calibration Date : 10/27/99

Well Depth: _____ feet BTOC or bgs

Water Depth: 30.8' feet BTOC or (bgs)

Feet of Water: _____ feet

Gallons per Foot: _____ gallons/feet

Well Volume: _____ gallons

Purge Volume: _____ gallons

Observation for sheen or LNAPL: _____

Observation for DNAPL: _____

Observation and condition of the well: poor satisfactory new

If poor, note deficiencies: N/A

Pump hoses and/or bailer ropes were new, cleaned or (dedicated?)

_____

Approx Pump Rate: _____

General Comments: Sample Interval 36-39'

Measuring Point (MP): _____ TOC gs; PVC or stainless

Elevation of MP: _____ feet

Elevation of Water: _____ feet

Well Diameter: _____ inches

Well Diameter	Gallons per casing foot
2 inches	0.16
3 inches	0.367
4 inches	0.65

pH meter: Hydac

Conductivity meter: Hydac

Calibration Date: 10/27/99

# of Purge Volumes Reqired: _____

# of Purge Volumes Removed: _____

Purge Method: _____

Sample Method: Peristaltic Pump

Water Disposal: RPAC Treatment plant

Sampler(s): G. Lukert / B. Collard

Field Parameters	Before Purging	Volume 1	Volume 2	Volume 3	Volume 4	Volume 5	Volume 6
Volume (gallons)							
24- hour Time							
pH							6.27
Conductivity ( )							12,340
Temp. °C or °F							54.6°F
Color							
Turbidity							
Diss. Oxy. (mg/L)							

Field Parameters	Volume 7	Volume 8	Volume 9	Volume 10	Volume 11	Volume 12	
Volume (gallons)							
24- hour Time							
pH							
Conductivity ( )							
Temp. °C or °F							
Color							
Turbidity							
Diss. Oxy. (mg/L)							

SCOEPA00008895

RECONNAISSANCE GROUNDWATER SAMPLING DATA SHEET

Well Number: CPT-014 Sample Number: 037-GG-01 Date: 10/27/99

Project: RPAC Project Number: 52920804A.00 Task: 45

Weather Conditions: Rain 50°F Well Developer's Name: _____

Date, Time Start: _____ Date, Time Finish 1000 Well Development Co.: _____

PID/FID Backgd: 0.1/0.1 ppm In-pipe 0.0 / 0.0 ppm Measuring Point (MP): _____ TOC gs; PVC or stainless

% LEL / % O_2 Backgd: ___/___% In-pipe___ / ___ % Elevation of MP: _____ feet

P.I.D. Standard Calibration Used: Isobutylene/Methane Elevation of Water: _____ feet

P.I.D./FID Calibration Date : 10/27/99 Well Diameter: _____ inches

Well Depth: _____ feet BTOC or bgs

Water Depth: 26' feet BTOC or (bgs)

Feet of Water: _____ feet

Gallons per Foot: _____ gallons/feet

Well Volume: _____ gallons

Purge Volume: _____ gallons

Observation for sheen or LNAPL: _____

Observation for DNAPL: _____

Observation and condition of the well: poor satisfactory new

If poor, note deficiencies: N/A

Pump hoses and/or bailer ropes were new, cleaned or (dedicated?)

_____

Approx Pump Rate: _____

Well Diameter	Gallons per casing foot
2 inches	0.16
3 inches	0.367
4 inches	0.65

pH meter: Hydac

Conductivity meter: Hydac

Calibration Date: _____

# of Purge Volumes Reqired: _____

# of Purge Volumes Removed: _____

Purge Method: _____

Sample Method: Peristaltic Pump

Water Disposal: RPAC Treatment Plant

Sampler(s): B. Lulcert, B. Collard

General Comments: Sample Interval = 46-49', good recharge, collected Duplicate + MS/MSD

Field Parameters	Before Purging	Volume 1	Volume 2	Volume 3	Volume 4	Volume 5	Volume 6
Volume (gallons)							
24- hour Time							
pH							5.30
Conductivity ( )							13,830
Temp. °C or °F							55.0°F
Color							
Turbidity							
Diss. Oxy. (mg/L)							

Field Parameters	Volume 7	Volume 8	Volume 9	Volume 10	Volume 11	Volume 12	
Volume (gallons)							
24- hour Time							
pH							
Conductivity ( )							
Temp. °C or °F							
Color							
Turbidity							
Diss. Oxy. (mg/L)							

SCOEPA00008896

RECONNAISSANCE GROUNDWATER SAMPLING DATA SHEET

Well Number: CPT-015 Sample Number: 039-GG-01 Date: 10/28/99

Project: RPAC Project Number: 52920804A.00 Task: 45

Weather Conditions: Rain 50°F Well Developer's Name:

Date, Time Start: Date, Time Finish 0900 Well Development Co.:

PID/FID Backgd: 0.1 / 0.2 ppm In-pipe 0.0 / 0.0 ppm

% LEL / % O_2 Backgd: / % In-pipe / %

P.I.D. Standard Calibration Used: Isobutylene / Methane

P.I.D./FID Calibration Date : 10/28/99

Well Depth: feet BTOC or bgs

Water Depth: 24.8' feet BTOC or bgs

Feet of Water: feet

Gallons per Foot: gallons/feet

Well Volume: gallons

Purge Volume: gallons

Observation for sheen or LNAPL:

Observation for DNAPL:

Observation and condition of the well: poor satisfactory new

If poor, note deficiencies: N/A

Pump hoses and/or bailer ropes were new, cleaned or dedicated?

Approx Pump Rate:

Measuring Point (MP): TOC gs; PVC or stainless

Elevation of MP: feet

Elevation of Water: feet

Well Diameter: inches

Well Diameter	Gallons per casing foot
2 inches	0.16
3 inches	0.367
4 inches	0.65

pH meter: Hydrolab - not functioning

Conductivity meter: Hydrolab - not functioning

Calibration Date: N/A

# of Purge Volumes Reqired:

#.of Purge Volumes Removed:

Purge Method:

Sample Method: Peristaltic Pump

Water Disposal: RPAC Treatment Plant

Sampler(s): G. Lukert, B. Collard

General Comments: Sample Interval 27-30', some recharge

Field Parameters	Before Purging	Volume 1	Volume 2	Volume 3	Volume 4	Volume 5	Volume 6
Volume (gallons)							
24- hour Time							
pH							N/A
Conductivity ( )							N/A
Temp. °C or °F							N/A
Color							
Turbidity							
Diss. Oxy. (mg/L)							

Field Parameters	Volume 7	Volume 8	Volume 9	Volume 10	Volume 11	Volume 12	
Volume (gallons)							
24- hour Time							
pH							
Conductivity ( )							
Temp. °C or °F							
Color							
Turbidity							
Diss. Oxy. (mg/L)							

SCOEPA00008897

RECONNAISSANCE GROUNDWATER SAMPLING DATA SHEET

Well Number: CPT-015 Sample Number: 035-GG-01 Date: 10/26/99

Project: RPAC Project Number: 52920804.00 Task: 45

Weather Conditions: Partly Cloudy 60°F Well Developer's Name:

Date, Time Start: Date, Time Finish 1530 Well Development Co.:

PID/FID Backgd: 0.1 / 0.1 ppm In-pipe 0.0 / 0.0 ppm

% LEL / % O_2 Backgd: / % In-pipe / %

P.I.D. Standard Calibration Used: Isobutylene / Methane

P.I.D./FID Calibration Date : 10/26/99

Well Depth: feet BTOC or bgs

Water Depth: 32' feet BTOC or bgs

Feet of Water: feet

Gallons per Foot: gallons/feet

Well Volume: gallons

Purge Volume: gallons

Observation for sheen or LNAPL:

Observation for DNAPL:

Observation and condition of the well: poor satisfactory new

If poor, note deficiencies: N/A

Pump hoses and/or bailer ropes were new, cleaned or dedicated?

Approx Pump Rate:

General Comments: Sample Interval = 44.47'

Measuring Point (MP): TOC gs; PVC or stainless

Elevation of MP: feet

Elevation of Water: feet

Well Diameter: inches

Well Diameter	Gallons per casing foot
2 inches	0.16
3 inches	0.367
4 inches	0.65

pH meter: HydAct

Conductivity meter: HydAct

Calibration Date: 10/26/99

# of Purge Volumes Reqired:

# of Purge Volumes Removed:

Purge Method:

Sample Method: Peristaltic Pump

Water Disposal: RPAC Treatment Plant

Sampler(s): G. Lukert

Field Parameters	Before Purging	Volume 1	Volume 2	Volume 3	Volume 4	Volume 5	Volume 6
Volume (gallons)							
24- hour Time							
pH							7.61
Conductivity ( )							9,270
Temp. °C or °F							56.4°F
Color							
Turbidity							
Diss. Oxy. (mg/L)							

Field Parameters	Volume 7	Volume 8	Volume 9	Volume 10	Volume 11	Volume 12	
Volume (gallons)							
24- hour Time							
pH							
Conductivity ( )							
Temp. °C or °F							
Color							
Turbidity							
Diss. Oxy. (mg/L)							

SCOEPA00008898

RECONNAISSANCE GROUNDWATER SAMPLING SHEET

Well Number: CPT-016 Sample Number: 041-GG-01 Date: 10/28/99

Project: RPAC Project Number: 52920804A.00 Task: 4/5

Weather Conditions: Rain 50°F Well Developer's Name:

State, Time Start: Date, Time Finish 1300 Well Development Co.:

PID/FID Backgd: 0.2/0.2 ppm In-pipe 0.0 / 0.0 ppm

% LEL / % O_2 Backgd: ___/___% In-pipe___/___%

P.I.D. Standard Calibration Used: Isobutylene / Methane

P.I.D./FID Calibration Date : 10/28/99

Well Depth: _____ feet BTOC or bgs

Water Depth: 29' feet BTOC or bgs

Feet of Water: _____ feet

Gallons per Foot: _____ gallons/feet

Well Volume: _____ gallons

Purge Volume: _____ gallons

Observation for sheen or LNAPL: _____

Observation for DNAPL: _____

Observation and condition of the well: poor satisfactory new

If poor, note deficiencies: NA

Pump hoses and/or bailer ropes were new, cleaned or dedicated?

Approx Pump Rate: _____

Measuring Point (MP): _____ TOC gs; PVC or stainless

Elevation of MP: _____ feet

Elevation of Water: _____ feet

Well Diameter: _____ inches

Well Diameter	Gallons per casing foot
2 inches	0.16
3 inches	0.367
4 inches	0.65

pH meter: Hydrolab not functioning

Conductivity meter: Hydrolab not functioning

Calibration Date: NA

# of Purge Volumes Reqired: _____

# of Purge Volumes Removed: _____

Purge Method: _____

Sample Method: Peristaltic Pump

Water Disposal: RPAC Treatment Plant

Sampler(s): G. Lukert, B. Collard

General Comments: Sample Interval = 30-33', slow recharge

Field Parameters	Before Purging	Volume 1	Volume 2	Volume 3	Volume 4	Volume 5	Volume 6
Volume (gallons)							
24- hour Time							
pH							NA
Conductivity ( )							NA
Temp. °C or °F							NA
Color							
Turbidity							
Diss. Oxy. (mg/L)							

Field Parameters	Volume 7	Volume 8	Volume 9	Volume 10	Volume 11	Volume 12	
Volume (gallons)							
24- hour Time							
pH							
Conductivity ( )							
Temp. °C or °F							
Color							
Turbidity							
Diss. Oxy. (mg/L)							

SCOEPA00008899

RECONNAISSANCE GROUNDWATER SAMPLING DATA SHEET

Well Number: CPT-016 Sample Number: 040-GG-01 Date: 10/28/99

Project: RPAC Project Number: 52920804A.00 Task: 45

Weather Conditions: Rain 50°F Well Developer's Name: _____

Date, Time Start: _____ Date, Time Finish 1150 Well Development Co.: _____

PID/FID Backgd: 0.2/0.2 ppm In-pipe 0.0/ 0.0 ppm

% LEL / % O_2 Backgd: ___/___% In-pipe ___ / ___ %

P.I.D. Standard Calibration Used: Isobutylene/Methane

P.I.D./FID Calibration Date : _____

Well Depth: _____ feet BTOC or bgs

Water Depth: 27.9' feet BTOC or (bgs)

Feet of Water: _____ feet

Gallons per Foot: _____ gallons/feet

Well Volume: _____ gallons

Purge Volume: _____ gallons

Observation for sheen or LNAPL: _____

Observation for DNAPL: _____

Observation and condition of the well: poor satisfactory new

If poor, note deficiencies: _____

Pump hoses and/or bailer ropes were new, cleaned or (dedicated?)

_____

Approx Pump Rate: _____

Measuring Point (MP): _____ TOC gs; PVC or stainless

Elevation of MP: _____ feet

Elevation of Water: _____ feet

Well Diameter: _____ inches

Well Diameter	Gallons per casing foot
2 inches	0.16
3 inches	0.367
4 inches	0.65

pH meter: Hydak not functioning

Conductivity meter: Hydak not functioning

Calibration Date: _____

# of Purge Volumes Reqired: _____

# of Purge Volumes Removed: _____

Purge Method: _____

Sample Method: Brassaltic pump

Water Disposal: RPAC Treatment Plant

Sampler(s): G. Lukert, R. Collard

General Comments: Sample Interval = 42-45' bgs, good recharge

Field Parameters	Before Purging	Volume 1	Volume 2	Volume 3	Volume 4	Volume 5	Volume 6
Volume (gallons)							
24- hour Time							
pH							NA
Conductivity ( )							NA
Temp. °C or °F							NA
Color							
Turbidity							
Diss. Oxy. (mg/L)							

Field Parameters	Volume 7	Volume 8	Volume 9	Volume 10	Volume 11	Volume 12	
Volume (gallons)							
24- hour Time							
pH							
Conductivity ( )							
Temp. °C or °F							
Color							
Turbidity							
Diss. Oxy. (mg/L)							

RECONNAISSANCE GROUNDWATER SAMPLING DATA SHEET

Well Number: CPT-022 Sample Number: 026-GG-01 Date: 10/21/99

Project: RPAC Project Number: 52920804A.00 Task: 45

Weather Conditions: Clear 70°F Well Developer's Name:

Date, Time Start: Date, Time Finish 1520 Well Development Co.:

PID/FID Backgd: 0.1 / 0.1 ppm In-pipe 0.0 / 0.0 ppm

% LEL / % O_2 Backgd: ___/___% In-pipe___/___%

P.I.D. Standard Calibration Used:

P.I.D./FID Calibration Date :

Well Depth: feet BTOC or bgs

Water Depth: 15.8' feet BTOC or bgs

Feet of Water: feet

Gallons per Foot: gallons/feet

Well Volume: gallons

Purge Volume: gallons

Observation for sheen or LNAPL:

Observation for DNAPL:

Observation and condition of the well: poor satisfactory new

If poor, note deficiencies: N/A

Pump hoses and/or bailer ropes were new, cleaned or dedicated?

Approx Pump Rate:

General Comments: Sample Interval = 22-25

Measuring Point (MP): TOC gs; PVC or stainless

Elevation of MP: feet

Elevation of Water: feet

Well Diameter: inches

Well Diameter	Gallons per casing foot
2 inches	0.16
3 inches	0.367
4 inches	0.65

pH meter: Hydac

Conductivity meter: Hydac

Calibration Date: 10/21/99

# of Purge Volumes Reqired:

# of Purge Volumes Removed:

Purge Method:

Sample Method: Peristaltic pump

Water Disposal: RPAC Treatment Plant

Sampler(s): G. Lukert

Field Parameters	Before Purging	Volume 1	Volume 2	Volume 3	Volume 4	Volume 5	Volume 6
Volume (gallons)							
24- hour Time							
pH							6.25
Conductivity ( )							6650
Temp. °C or °F							64.7°F
Color							
Turbidity							
Diss. Oxy. (mg/L)							

Field Parameters	Volume 7	Volume 8	Volume 9	Volume 10	Volume 11	Volume 12	
Volume (gallons)							
24- hour Time							
pH							
Conductivity ( )							
Temp. °C or °F							
Color							
Turbidity							
Diss. Oxy. (mg/L)							

SCOEPA00008901

RECONNAISSANCE GROUNDWATER SAMPLING DATA

SHEET

Well Number: CPT-022 Sample Number: 027-GG-01 Date: 10/21/99

Project: RPAC Project Number: 52920804A.00 Task: 45

Weather Conditions: Clear 70°F Well Developer's Name:

Date, Time Start: Date, Time Finish Well Development Co.:

PID/FID Backgd: 0.1/0.1 ppm In-pipe 0.0/0.0 ppm Measuring Point (MP): TOC gs; PVC or stainless

% LEL / % O_2 Backgd: /% In-pipe / % Elevation of MP: feet

P.I.D. Standard Calibration Used: Isobutylene / Methane Elevation of Water: feet

P.I.D./FID Calibration Date : 10/21/99 Well Diameter: inches

Well Depth: feet BTOC or bgs

Well Diameter	Gallons per casing foot
2 inches	0.16
3 inches	0.367
4 inches	0.65

Water Depth: 28.3' feet BTOC or (bgs)

Feet of Water: feet

Gallons per Foot: gallons/feet

Well Volume: gallons pH meter: Hydalab

Purge Volume: gallons Conductivity meter: Hydalab

Observation for sheen or LNAPL: Calibration Date: 10/21/99

Observation for DNAPL: # of Purge Volumes Reqired:

Observation and condition of the well: poor satisfactory new # of Purge Volumes Removed:

If poor, note deficiencies: NA Purge Method:

Pump hoses and/or bailer ropes were new, cleaned or (dedicated)? Sample Method: Peristaltic pump

Water Disposal: RPAC Treatment plant

Approx Pump Rate: Sampler(s): G. Lukert

General Comments: Sample Interval = 62-65'

Field Parameters	Before Purging	Volume 1	Volume 2	Volume 3	Volume 4	Volume 5	Volume 6
Volume (gallons)							
24- hour Time							
pH							7.35
Conductivity ( )							920
Temp. °C or °F							61.3°F
Color							
Turbidity							
Diss. Oxy. (mg/L)							

Field Parameters	Volume 7	Volume 8	Volume 9	Volume 10	Volume 11	Volume 12	
Volume (gallons)							
24- hour Time							
pH							
Conductivity ( )							
Temp. °C or °F							
Color							
Turbidity							
Diss. Oxy. (mg/L)							

SCOEPA00008902

RECONNAISSANCE GROUNDWATER SAMPLING DATA

SHEET

Well Number: CPT-023 Sample Number: 025-GG-01 Date: 10/21/99

Project: RPAC Project Number: 52920080 4A.00 Task: 4/5

Weather Conditions: Clear 70°F Well Developer's Name: _____

Date, Time Start: _____ Date, Time Finish 1320 Well Development Co.: _____

PID/FID Backgd: 0.1 / 0.1 ppm In-pipe 0.0 / 0.0 ppm Measuring Point (MP): _____ TOC gs; PVC or stainless

% LEL / % O_2 Backgd: ___ / ___ % In-pipe ___ / ___ % Elevation of MP: _____ feet

P.I.D. Standard Calibration Used: Isobutylene / Methane Elevation of Water: _____ feet

P.I.D./FID Calibration Date : 10/21/99 Well Diameter: _____ inches

Well Depth: _____ feet BTOC or bgs

Water Depth: 14' feet BTOC or bgs

Feet of Water: _____ feet

Gallons per Foot: _____ gallons/feet

Well Volume: _____ gallons

Purge Volume: _____ gallons

Observation for sheen or LNAPL: _____

Observation for DNAPL: _____

Observation and condition of the well: poor satisfactory new

If poor, note deficiencies: N/A

Pump hoses and/or bailer ropes were new, cleaned or dedicated?

Approx Pump Rate: _____

Well Diameter	Gallons per casing foot
2 inches	0.16
3 inches	0.367
4 inches	0.65

pH meter: Hydak

Conductivity meter: Hydak

Calibration Date: 10/21/99

# of Purge Volumes Reqired: _____

# of Purge Volumes Removed: _____

Purge Method: _____

Sample Method: Peristaltic pump

Water Disposal: RPAC Treatment Plant

Sampler(s): B. Lukert

General Comments: Sample Interval = 14-17'

Field Parameters	Before Purging	Volume 1	Volume 2	Volume 3	Volume 4	Volume 5	Volume 6
Volume (gallons)							
24- hour Time							
pH							6.05
Conductivity ( )							2050
Temp. °C or °F							62.0°F
Color							
Turbidity							
Diss. Oxy. (mg/L)							

Field Parameters	Volume 7	Volume 8	Volume 9	Volume 10	Volume 11	Volume 12	
Volume (gallons)							
24- hour Time							
pH							
Conductivity ( )							
Temp. °C or °F							
Color							
Turbidity							
Diss. Oxy. (mg/L)							

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RECONNAISSANCE GROUNDWATER SAMPLING DATA SHEET

Well Number: CPT-024 Sample Number: 030-GG-01 Date: 10-25-99

Project: RPAC Project Number: 52920804A.00 Task: 45

Weather Conditions: Rain 60°F Well Developer's Name:

Date, Time Start: Date, Time Finish Well Development Co.:

PID/FID Backgd: 0.2/0.1 ppm In-pipe 0.0 / 0.0 ppm Measuring Point (MP): TOC gs; PVC or stainless

% LEL / % O_2 Backgd: /% In-pipe / % Elevation of MP: feet

P.I.D. Standard Calibration Used: Isobutylene / Methane Elevation of Water: feet

P.I.D./FID Calibration Date : 10/25/99 Well Diameter: inches

Well Depth: feet BTOC or bgs

Water Depth: 20.98 feet BTOC or (bgs)

Feet of Water: feet

Gallons per Foot: gallons/feet

Well Volume: gallons

Purge Volume: gallons

Observation for sheen or LNAPL:

Observation for DNAPL:

Observation and condition of the well: poor satisfactory new

If poor, note deficiencies: NA

Pump hoses and/or bailer ropes were new, cleaned or (dedicated)?

Approx Pump Rate:

Well Diameter	Gallons per casing foot
2 inches	0.16
3 inches	0.367
4 inches	0.65

pH meter: Hydak

Conductivity meter: Hydak

Calibration Date: 10/25/99

# of Purge Volumes Reqired:

# of Purge Volumes Removed:

Purge Method:

Sample Method: Peristaltic pump

Water Disposal: RPAC Treatment plant

Sampler(s): G. Lukert / B. Collard

General Comments: Sample Interval: 25-28', collected Dup + MS/MSD

Field Parameters	Before Purging	Volume 1	Volume 2	Volume 3	Volume 4	Volume 5	Volume 6
Volume (gallons)							
24- hour Time							
pH							5.98
Conductivity ( )							5,542
Temp. °C or °F							54.8°F
Color							
Turbidity							
Diss. Oxy. (mg/L)							

Field Parameters	Volume 7	Volume 8	Volume 9	Volume 10	Volume 11	Volume 12	
Volume (gallons)							
24- hour Time							
pH							
Conductivity ( )							
Temp. °C or °F							
Color							
Turbidity							
Diss. Oxy. (mg/L)							

SCOEPA00008904

RECONNAISSANCE GROUND WATER SAMPLING DATA

SHEET

Well Number: GP-026 Sample Number: 019-GG-01 Date: 10/19/99

Project: RPAC Project Number: 5292C0804A00 Task: 45

Weather Conditions: Sunny 70°F Well Developer's Name:

Time, Time Start: Date, Time Finish 1325 Well Development Co.:

PID/FID Backgd: 0.2 / 0.1 ppm In-pipe 0.1 / 0.0 ppm

% LEL / % O_2 Backgd: / % In-pipe / %

P.I.D. Standard Calibration Used: Isobutylene / Methane

P.I.D./FID Calibration Date : 10/19/99

Well Depth: feet BTOC or bgs

Water Depth: 25' feet BTOC or bgs

Feet of Water: feet

Gallons per Foot: gallons/feet

Well Volume: gallons

Purge Volume: gallons

Observation for sheen or LNAPL:

Observation for DNAPL:

Observation and condition of the well: poor satisfactory new

If poor, note deficiencies: N/A

Pump hoses and/or bailer ropes were new, cleaned or dedicated?

Approx Pump Rate:

Measuring Point (MP): TOC gs; PVC or stainless

Elevation of MP: feet

Elevation of Water: feet

Well Diameter: inches

Well Diameter	Gallons per casing foot
2 inches	0.16
3 inches	0.367
4 inches	0.65

pH meter: Hydrolab

Conductivity meter: Hydrolab

Calibration Date: 10/19/99

# of Purge Volumes Reqired: N/A

# of Purge Volumes Removed: N/A

Purge Method:

Sample Method: Peristaltic Pump

Water Disposal: RPAC Treatment Plant

Sampler(s): G. Lukert

General Comments: Sample Interval 27-30'

Field Parameters	Before Purging	Volume 1	Volume 2	Volume 3	Volume 4	Volume 5	Volume 6
Volume (gallons)							
24- hour Time							
pH							8.49
Conductivity ( )							542
Temp. °C or °F							70.3
Color							
Turbidity							
Diss. Oxy. (mg/L)							

Field Parameters	Volume 7	Volume 8	Volume 9	Volume 10	Volume 11	Volume 12	
Volume (gallons)							
24- hour Time							
pH							
Conductivity ( )							
Temp. °C or °F							
Color							
Turbidity							
Diss. Oxy. (mg/L)							

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SCOEPA00008907

Columbia Analytical Services, Inc.
An Employee-Owned Company

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Oct 11, 1999

Columbia Analytical Services-Houston Project 9901854/1856
URS-Greiner Woodward-Clyde Project Number: 92C0804A.00

Objective

Fourteen water samples were analyzed for tetrachloro- through octachloro- dibenzo-p-dioxins and furans by EPA SW-846 Method 8290.

Sample Receiving

The laboratory received the samples on September 2, 1999. The samples were received in good condition. The following lab accession numbers were assigned:

Lab ID	Client ID
E9901854-001	002-GG-01
E9901854-002	003-GG-01
E9901854-003	004-GG-02
E9901854-004	005-GG-01
E9901854-005	006-GG-01
E9901854-006	007-GG-01
E9901854-007	008-GG-01
E9901854-008	009-GG-01
E9901854-009	010-GG-01
E9901854-010	001-GG-01
E9901856-001	011-GG-01
E9901856-002	012-GG-01
E9901856-002MS	012-GG-01 MS
E9901856-002MSD	012-GG-01 MSD
E9901856-003	013-GG-01
E9901856-004	014-GG-01
EB50186-LS	Lab Spike
EB50186-MB	Method Blank

Extraction

The samples were extracted according to the requirements of the Method. No discrepancies were encountered during extraction and cleanup.

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Analysis

The samples were analyzed by GC-MS according to the Method. Data are reported for tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans.
The following standards had recoveries outside the QC advisory limits:

Sample ID	Internal Standard	Recovery (%)
E9901854-005	13C12-OCDD	147.8
E9901854-003	13C12-OCDD	136.4
E9901854-007	13C12-OCDD	35.4
E9901856-004	13C12-OCDD	18.2
	13C12-1,2,3,4,7,8,9-HpCDF	39.6
E9901856-002	13C12-1,2,3,4,7,8-HxCDD	34.3
	13C12-1,2,3,4,6,7,8-HpCDD	27.2
	13C12-OCDD	36.2
	13C12-1,2,3,4,6,7,8-HpCDF	29.5
	13C12-1,2,3,4,7,8,9-HpCDF	29.9
E9901856-002MS	13C12-OCDD	25.0
E9901856-002MSD	13C12-1,2,3,4,6,7,8-HpCDD	36.3
	13C12-OCDD	19.3
	13C12-1,2,3,4,6,7,8-HpCDF	39.0
	13C12-1,2,3,4,7,8,9-HpCDF	27.8

Quality Control

A Method Blank, Laboratory Spike, Matrix Spike and Matrix Spike Duplicate were analyzed with the sample batch.

Respectfully submitted,

Amer M. Amer, Ph.D.
Lab Manager

SCOEPA00008909

ABBREVIATIONS AND FLAGS

Abbreviations and definitions

The following abbreviations and definitions are employed by Columbia Analytical Servces-Houston in its analytical reports for dioxin/furan analysis:

Cal	Calibration.
Conc	Concentration.
DFBLK	Method blank.
Dioxins	Polychlorinated dibenzo-p-dioxin(s).
EDL	Estimated detection limit.
EMPC	Estimated maximum possible concentration.
Flags	Data qualifiers.
Furans	Polychlorinated dibenzofuran(s).
g	Gram(s).
ID	Identifier.
Ions	Masses monitored for the analyte during data acquisition.
L	Liter(s).
LCS	Lab control sample.
MDL	Method detection limit.
MS	Matrix spike.
MSD	Matrix spike duplicate.
NO	Number of peaks meeting all identification criteria
PCDD	Polychlorinated dibenzo-p-dioxin(s).
PCDF	Polychlorinated dibenzofuran(s).
ppb	Parts per billion.
ppq	Parts per quadrillion.
ppt	Parts per trillion.
QC	Quality control.
Ratio	Ratio of the areas from monitored ions for an analyte.
% Rec.	Percent recovery.
RRF	relative response factor.
RT	Retention time.
SDG	Sample Delivery Group.
S/N	Signal to noise ratio.
TEF	Toxicity equivalence factor.
TEQ	Toxicity equivalence.

Flags

The EPA qualifiers ("flags") for the Contract Laboratory Program are employed by Columbia Analytical Services. They are:

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B This flag is used when the analyte is found in the associated blank, as well as in the sample.

C Indicates that the value for the analyte was obtained by analysis using a DB-225 confirmation column.

D Indicates that the analysis was performed on a diluted extract. This is performed when the initial analysis indicates that one or more analytes are present at a concentration above theupper end of the linear calibration range.

E Indicates an estimated value. Employed when the analyte concentration is above the upper end of the linear calibration range.

J Indicates an estimated value. Employed when the analyte concentration is below the lower end of the linear calibration range, but above the detection limit.

M Indicates that the compound was quantified using a manual integration of the peak areas.

S Indicates that the analyte in question is, in the opinion of the GC–MS Interpretation Specialist, a PCDD/PCDF even though the [M–COCl]+ ion did not meet the requirement that the signal-to-noise be at least 2.5:1.

U Indicates that compound was analyzed for but not detected.

Y Indicates that recovery of labeled standard is outside the range specified by QA goals. These goals are not mandatory requirements.

SCOEPA00008911

SUMMARY REPORT

SCOEPA00008912

URS-Greiner Woodward-Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901854 **REFERENCE: 92C0804A.00**
FILE: A14675 **SAMPLE: 002-GG-01**
LAB ID.: E9901854-001

Project ID/P.O	92C0804A.00	Date collected:	8/26/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	0.955 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MRL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	10	ND	191.3	96%	50-150
1,2,3,7,8-PeCDD	-	10	ND	1259.7	126%	50-150
1,2,3,4,7,8-HxCDD	-	25	ND	1246.9	125%	50-150
1,2,3,6,7,8-HxCDD	-	25	ND	1111.2	111%	50-150
1,2,3,7,8,9-HxCDD	-	25	ND	1342.6	134%	50-150
1,2,3,4,6,7,8-HpCDD	30.3	25	ND	1279.1	128%	50-150
OCDD	202.0	50	ND	2260.5	113%	50-150
2,3,7,8-TCDF	6.8	10	ND	257.0	128%	50-150
1,2,3,7,8-PeCDF	-	10	ND	1255.1	126%	50-150
2,3,4,7,8-PeCDF	-	10	ND	1255.4	126%	50-150
1,2,3,4,7,8-HxCDF	-	25	ND	1136.0	114%	50-150
1,2,3,6,7,8-HxCDF	-	25	ND	1169.8	117%	50-150
2,3,4,6,7,8-HxCDF	-	25	ND	1168.8	117%	50-150
1,2,3,7,8,9-HxCDF	-	25	ND	1143.9	114%	50-150
1,2,3,4,6,7,8-HpCDF	10.2	25	ND	1275.6	128%	50-150
1,2,3,4,7,8,9-HpCDF	-	25	ND	1269.7	127%	50-150
OCDF	-	50	ND	2670.5	134%	50-150

TOTAL ANALYTES	CONC (PPQ)	MRL (PPQ)
TOTAL TCDD	-	10
TOTAL PeCDD	-	10
TOTAL HxCDD	-	25
TOTAL HpCDD	62.9	25
TOTAL OCDD	202.0	50
TOTAL TCDF	17.8	10
TOTAL PeCDF	-	10
TOTAL HxCDF	5.3	25
TOTAL HpCDF	23.3	25
TOTAL OCDF	-	50

Definitions:

CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
BLANK — The concentration of the blank.
MS (PPQ) — The concentration of Matrix Spike recovered.
MS (%) — The percent recovery of the Matrix Spike.
ND — (Non-Detect) The concentration of the analyte is less than the detection limit.
NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 311.24 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 1.28 PPQ

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URS-Greiner Woodward-Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901854 **REFERENCE: 92C0804A.00**
FILE: A14676 **SAMPLE: 003-GG-01**
LAB ID.: E9901854-002

Project ID/P.O	92C0804A.00	Date collected:	8/27/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	1.01 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MRL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	279.6	10	ND	191.3	96%	50-150
1,2,3,7,8-PeCDD	-	10	ND	1259.7	126%	50-150
1,2,3,4,7,8-HxCDD	-	25	ND	1246.9	125%	50-150
1,2,3,6,7,8-HxCDD	-	25	ND	1111.2	111%	50-150
1,2,3,7,8,9-HxCDD	-	25	ND	1342.6	134%	50-150
1,2,3,4,6,7,8-HpCDD	210.1	25	ND	1279.1	128%	50-150
OCDD	1417.2	50	ND	2260.5	113%	50-150
2,3,7,8-TCDF	5428.4	10	ND	257.0	128%	50-150
1,2,3,7,8-PeCDF	-	10	ND	1255.1	126%	50-150
2,3,4,7,8-PeCDF	-	10	ND	1255.4	126%	50-150
1,2,3,4,7,8-HxCDF	-	25	ND	1136.0	114%	50-150
1,2,3,6,7,8-HxCDF	-	25	ND	1169.8	117%	50-150
2,3,4,6,7,8-HxCDF	-	25	ND	1168.8	117%	50-150
1,2,3,7,8,9-HxCDF	-	25	ND	1143.9	114%	50-150
1,2,3,4,6,7,8-HpCDF	104.3	25	ND	1275.6	128%	50-150
1,2,3,4,7,8,9-HpCDF	-	25	ND	1269.7	127%	50-150
OCDF	327.8	50	ND	2670.5	134%	50-150

TOTAL ANALYTES	CONC (PPQ)	MRL (PPQ)
TOTAL TCDD	940.8	10
TOTAL PeCDD	80.0	10
TOTAL HxCDD	74.5	25
TOTAL HpCDD	379.4	25
TOTAL OCDD	1417.2	50
TOTAL TCDF	26073.7	10
TOTAL PeCDF	2136.7	10
TOTAL HxCDF	69.4	25
TOTAL HpCDF	115.1	25
TOTAL OCDF	327.8	50

Definitions:

- **CONC** — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
- **EDL** — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
- **BLANK** — The concentration of the blank.
- **MS (PPQ)** — The concentration of Matrix Spike recovered.
- **MS (%)** — The percent recovery of the Matrix Spike.
- **ND** — (Non-Detect) The concentration of the analyte is less than the detection limit.
- **NR** — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 31614.73 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 827.34 PPQ

SCOEPA00008914

URS-Greiner Woodward-Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901854 **REFERENCE: 92C0804A.00**
FILE: A14677 **SAMPLE: 004-GG-02**
LAB ID.: E9901854-003

Project ID/P.O	92C0804A.00	Date collected:	8/27/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	1.01 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MRL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	70.5	10	ND	191.3	96%	50-150
1,2,3,7,8-PeCDD	-	10	ND	1259.7	126%	50-150
1,2,3,4,7,8-HxCDD	-	25	ND	1246.9	125%	50-150
1,2,3,6,7,8-HxCDD	-	25	ND	1111.2	111%	50-150
1,2,3,7,8,9-HxCDD	-	25	ND	1342.6	134%	50-150
1,2,3,4,6,7,8-HpCDD	52.8	25	ND	1279.1	128%	50-150
OCDD	419.0	50	ND	2260.5	113%	50-150
2,3,7,8-TCDF	1611.5	10	ND	257.0	128%	50-150
1,2,3,7,8-PeCDF	-	10	ND	1255.1	126%	50-150
2,3,4,7,8-PeCDF	5.8	10	ND	1255.4	126%	50-150
1,2,3,4,7,8-HxCDF	-	25	ND	1136.0	114%	50-150
1,2,3,6,7,8-HxCDF	-	25	ND	1169.8	117%	50-150
2,3,4,6,7,8-HxCDF	-	25	ND	1168.8	117%	50-150
1,2,3,7,8,9-HxCDF	-	25	ND	1143.9	114%	50-150
1,2,3,4,6,7,8-HpCDF	33.6	25	ND	1275.6	128%	50-150
1,2,3,4,7,8,9-HpCDF	-	25	ND	1269.7	127%	50-150
OCDF	108.0	50	ND	2670.5	134%	50-150

TOTAL ANALYTES	CONC (PPQ)	MRL (PPQ)
TOTAL TCDD	374.7	10
TOTAL PeCDD	-	10
TOTAL HxCDD	-	25
TOTAL HpCDD	52.8	25
TOTAL OCDD	419.0	50
TOTAL TCDF	17468.8	10
TOTAL PeCDF	1154.5	10
TOTAL HxCDF	-	25
TOTAL HpCDF	90.9	25
TOTAL OCDF	108.0	50

Definitions:

- **CONC** — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
- **EDL** — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
- **BLANK** — The concentration of the blank.
- **MS (PPQ)** — The concentration of Matrix Spike recovered.
- **MS (%)** — The percent recovery of the Matrix Spike.
- **ND** — (Non-Detect) The concentration of the analyte is less than the detection limit.
- **NR** — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 19668.82 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 235.91 PPQ

SCOEPA00008915

URS-Greiner Woodward-Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901854 **REFERENCE: 92C0804A.00**
FILE: A14678 **SAMPLE: 005-GG-01**
LAB ID.: E9901854-004

Project ID/P.O	92C0804A.00	Date collected:	8/30/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	0.995 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MRL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	10	ND	191.3	96%	50-150
1,2,3,7,8-PeCDD	-	10	ND	1259.7	126%	50-150
1,2,3,4,7,8-HxCDD	-	25	ND	1246.9	125%	50-150
1,2,3,6,7,8-HxCDD	-	25	ND	1111.2	111%	50-150
1,2,3,7,8,9-HxCDD	-	25	ND	1342.6	134%	50-150
1,2,3,4,6,7,8-HpCDD	15.4	25	ND	1279.1	128%	50-150
OCDD	137.4	50	ND	2260.5	113%	50-150
2,3,7,8-TCDF	-	10	ND	257.0	128%	50-150
1,2,3,7,8-PeCDF	-	10	ND	1255.1	126%	50-150
2,3,4,7,8-PeCDF	-	10	ND	1255.4	126%	50-150
1,2,3,4,7,8-HxCDF	-	25	ND	1136.0	114%	50-150
1,2,3,6,7,8-HxCDF	-	25	ND	1169.8	117%	50-150
2,3,4,6,7,8-HxCDF	-	25	ND	1168.8	117%	50-150
1,2,3,7,8,9-HxCDF	-	25	ND	1143.9	114%	50-150
1,2,3,4,6,7,8-HpCDF	-	25	ND	1275.6	128%	50-150
1,2,3,4,7,8,9-HpCDF	-	25	ND	1269.7	127%	50-150
OCDF	15.6	50	ND	2670.5	134%	50-150

TOTAL ANALYTES	CONC (PPQ)	MRL (PPQ)
TOTAL TCDD	-	10
TOTAL PeCDD	-	10
TOTAL HxCDD	-	25
TOTAL HpCDD	23.4	25
TOTAL OCDD	137.4	50
TOTAL TCDF	665.8	10
TOTAL PeCDF	-	10
TOTAL HxCDF	-	25
TOTAL HpCDF	10.6	25
TOTAL OCDF	15.6	50

Definitions:

- **CONC** — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
- **EDL** — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
- **BLANK** — The concentration of the blank.
- **MS (PPQ)** — The concentration of Matrix Spike recovered.
- **MS (%)** — The percent recovery of the Matrix Spike.
- **ND** — (Non-Detect) The concentration of the analyte is less than the detection limit.
- **NR** — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 852.79 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 0.31 PPQ

SCOEPA00008916

URS-Greiner Woodward-Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901854 **REFERENCE: 92C0804A.00**
FILE: A14679 **SAMPLE: 006-GG-01**
LAB ID.: E9901854-005

Project ID/P.O	92C0804A.00	Date collected:	8/27/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	1 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MRL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	10	ND	191.3	96%	50-150
1,2,3,7,8-PeCDD	-	10	ND	1259.7	126%	50-150
1,2,3,4,7,8-HxCDD	-	25	ND	1246.9	125%	50-150
1,2,3,6,7,8-HxCDD	-	25	ND	1111.2	111%	50-150
1,2,3,7,8,9-HxCDD	-	25	ND	1342.6	134%	50-150
1,2,3,4,6,7,8-HpCDD	-	25	ND	1279.1	128%	50-150
OCDD	20.7	50	ND	2260.5	113%	50-150
2,3,7,8-TCDF	-	10	ND	257.0	128%	50-150
1,2,3,7,8-PeCDF	-	10	ND	1255.1	126%	50-150
2,3,4,7,8-PeCDF	-	10	ND	1255.4	126%	50-150
1,2,3,4,7,8-HxCDF	-	25	ND	1136.0	114%	50-150
1,2,3,6,7,8-HxCDF	-	25	ND	1169.8	117%	50-150
2,3,4,6,7,8-HxCDF	-	25	ND	1168.8	117%	50-150
1,2,3,7,8,9-HxCDF	-	25	ND	1143.9	114%	50-150
1,2,3,4,6,7,8-HpCDF	-	25	ND	1275.6	128%	50-150
1,2,3,4,7,8,9-HpCDF	-	25	ND	1269.7	127%	50-150
OCDF	-	50	ND	2670.5	134%	50-150

TOTAL ANALYTES	CONC (PPQ)	MRL (PPQ)
TOTAL TCDD	-	10
TOTAL PeCDD	-	10
TOTAL HxCDD	-	25
TOTAL HpCDD	-	25
TOTAL OCDD	20.7	50
TOTAL TCDF	93.7	10
TOTAL PeCDF	-	10
TOTAL HxCDF	-	25
TOTAL HpCDF	-	25
TOTAL OCDF	-	50

Definitions:

CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).

EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).

BLANK — The concentration of the blank.

MS (PPQ) — The concentration of Matrix Spike recovered.

MS (%) — The percent recovery of the Matrix Spike.

ND — (Non-Detect) The concentration of the analyte is less than the detection limit.

NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 114.39 PPQ

TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 0.02 PPQ

SCOEPA00008917

URS-Greiner Woodward-Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901854 **REFERENCE: 92C0804A.00**
FILE: A14680 **SAMPLE: 007-GG-01**
LAB ID.: E9901854-006

Project ID/P.O	92C0804A.00	Date collected:	8/27/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	1 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MRL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	22.1	10	ND	191.3	96%	50-150
1,2,3,7,8-PeCDD	-	10	ND	1259.7	126%	50-150
1,2,3,4,7,8-HxCDD	-	25	ND	1246.9	125%	50-150
1,2,3,6,7,8-HxCDD	-	25	ND	1111.2	111%	50-150
1,2,3,7,8,9-HxCDD	-	25	ND	1342.6	134%	50-150
1,2,3,4,6,7,8-HpCDD	130.7	25	ND	1279.1	128%	50-150
OCDD	1102.0	50	ND	2260.5	113%	50-150
2,3,7,8-TCDF	779.9	10	ND	257.0	128%	50-150
1,2,3,7,8-PeCDF	-	10	ND	1255.1	126%	50-150
2,3,4,7,8-PeCDF	-	10	ND	1255.4	126%	50-150
1,2,3,4,7,8-HxCDF	-	25	ND	1136.0	114%	50-150
1,2,3,6,7,8-HxCDF	-	25	ND	1169.8	117%	50-150
2,3,4,6,7,8-HxCDF	-	25	ND	1168.8	117%	50-150
1,2,3,7,8,9-HxCDF	-	25	ND	1143.9	114%	50-150
1,2,3,4,6,7,8-HpCDF	46.6	25	ND	1275.6	128%	50-150
1,2,3,4,7,8,9-HpCDF	-	25	ND	1269.7	127%	50-150
OCDF	172.5	50	ND	2670.5	134%	50-150

TOTAL ANALYTES	CONC (PPQ)	MRL (PPQ)
TOTAL TCDD	251.8	10
TOTAL PeCDD	-	10
TOTAL HxCDD	8.7	25
TOTAL HpCDD	243.8	25
TOTAL OCDD	1102.0	50
TOTAL TCDF	5720.9	10
TOTAL PeCDF	728.9	10
TOTAL HxCDF	33.8	25
TOTAL HpCDF	180.2	25
TOTAL OCDF	172.5	50

Definitions:

CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
BLANK — The concentration of the blank.
MS (PPQ) — The concentration of Matrix Spike recovered.
MS (%) — The percent recovery of the Matrix Spike.
ND — (Non-Detect) The concentration of the analyte is less than the detection limit.
NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 8442.48 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 103.1 PPQ

SCOEPA00008918

URS-Greiner Woodward-Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901854
FILE: A14681
LAB ID.: E9901854-007

REFERENCE: 92C0804A.00
SAMPLE: 008-GG-01

Project ID/P.O	92C0804A.00	Date collected:	8/30/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	0.99 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MRL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	15.1	10	ND	191.3	96%	50-150
1,2,3,7,8-PeCDD	-	10	ND	1259.7	126%	50-150
1,2,3,4,7,8-HxCDD	-	25	ND	1246.9	125%	50-150
1,2,3,6,7,8-HxCDD	-	25	ND	1111.2	111%	50-150
1,2,3,7,8,9-HxCDD	-	25	ND	1342.6	134%	50-150
1,2,3,4,6,7,8-HpCDD	288.2	25	ND	1279.1	128%	50-150
OCDD	2462.1	50	ND	2260.5	113%	50-150
2,3,7,8-TCDF	340.9	10	ND	257.0	128%	50-150
1,2,3,7,8-PeCDF	-	10	ND	1255.1	126%	50-150
2,3,4,7,8-PeCDF	-	10	ND	1255.4	126%	50-150
1,2,3,4,7,8-HxCDF	19.8	25	ND	1136.0	114%	50-150
1,2,3,6,7,8-HxCDF	-	25	ND	1169.8	117%	50-150
2,3,4,6,7,8-HxCDF	-	25	ND	1168.8	117%	50-150
1,2,3,7,8,9-HxCDF	-	25	ND	1143.9	114%	50-150
1,2,3,4,6,7,8-HpCDF	98.4	25	ND	1275.6	128%	50-150
1,2,3,4,7,8,9-HpCDF	-	25	ND	1269.7	127%	50-150
OCDF	202.4	50	ND	2670.5	134%	50-150

TOTAL ANALYTES	CONC (PPQ)	MRL (PPQ)
TOTAL TCDD	92.4	10
TOTAL PeCDD	-	10
TOTAL HxCDD	-	25
TOTAL HpCDD	288.2	25
TOTAL OCDD	2462.1	50
TOTAL TCDF	1213.3	10
TOTAL PeCDF	423.0	10
TOTAL HxCDF	263.9	25
TOTAL HpCDF	321.7	25
TOTAL OCDF	202.4	50

Definitions:

- **CONC** — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
- **EDL** — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
- **BLANK** — The concentration of the blank.
- **MS (PPQ)** — The concentration of Matrix Spike recovered.
- **MS (%)** — The percent recovery of the Matrix Spike.
- **ND** — (Non-Detect) The concentration of the analyte is less than the detection limit.
- **NR** — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 5266.97 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 57.7 PPQ

SCOEPA00008919

URS-Greiner Woodward-Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901854 **REFERENCE: 92C0804A.00**
FILE: A14682 **SAMPLE: 009-GG-01**
LAB ID.: E9901854-008

Project ID/P.O	92C0804A.00	Date collected:	8/31/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	0.56 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/17/99	Batch Number:	EB50186

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MRL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	13.6	10	ND	191.3	96%	50-150
1,2,3,7,8-PeCDD	-	10	ND	1259.7	126%	50-150
1,2,3,4,7,8-HxCDD	-	25	ND	1246.9	125%	50-150
1,2,3,6,7,8-HxCDD	86.6	25	ND	1111.2	111%	50-150
1,2,3,7,8,9-HxCDD	-	25	ND	1342.6	134%	50-150
1,2,3,4,6,7,8-HpCDD	775.0	25	ND	1279.1	128%	50-150
OCDD	3996.5	50	ND	2260.5	113%	50-150
2,3,7,8-TCDF	305.1	10	ND	257.0	128%	50-150
1,2,3,7,8-PeCDF	-	10	ND	1255.1	126%	50-150
2,3,4,7,8-PeCDF	-	10	ND	1255.4	126%	50-150
1,2,3,4,7,8-HxCDF	17.0	25	ND	1136.0	114%	50-150
1,2,3,6,7,8-HxCDF	-	25	ND	1169.8	117%	50-150
2,3,4,6,7,8-HxCDF	-	25	ND	1168.8	117%	50-150
1,2,3,7,8,9-HxCDF	-	25	ND	1143.9	114%	50-150
1,2,3,4,6,7,8-HpCDF	104.0	25	ND	1275.6	128%	50-150
1,2,3,4,7,8,9-HpCDF	-	25	ND	1269.7	127%	50-150
OCDF	159.7	50	ND	2670.5	134%	50-150

TOTAL ANALYTES	CONC (PPQ)	MRL (PPQ)
TOTAL TCDD	35.8	10
TOTAL PeCDD	107.3	10
TOTAL HxCDD	424.8	25
TOTAL HpCDD	1474.6	25
TOTAL OCDD	3996.5	50
TOTAL TCDF	1190.4	10
TOTAL PeCDF	499.4	10
TOTAL HxCDF	17.0	25
TOTAL HpCDF	288.5	25
TOTAL OCDF	159.7	50

Definitions:

CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).

EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).

BLANK — The concentration of the blank.

MS (PPQ) — The concentration of Matrix Spike recovered.

MS (%) — The percent recovery of the Matrix Spike.

ND — (Non-Detect) The concentration of the analyte is less than the detection limit.

NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 8193.99 PPQ

TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 67.46 PPQ

SCOEPA00008920

URS-Greiner Woodward-Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901854
FILE: A14683
LAB ID.: E9901854-009

REFERENCE: 92C0804A.00
SAMPLE: 010-GG-01

Project ID/P.O	92C0804A.00	Date collected:	8/31/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	0.985 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/17/99	Batch Number:	EB50186

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MRL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	10	ND	191.3	96%	50-150
1,2,3,7,8-PeCDD	-	10	ND	1259.7	126%	50-150
1,2,3,4,7,8-HxCDD	-	25	ND	1246.9	125%	50-150
1,2,3,6,7,8-HxCDD	-	25	ND	1111.2	111%	50-150
1,2,3,7,8,9-HxCDD	-	25	ND	1342.6	134%	50-150
1,2,3,4,6,7,8-HpCDD	-	25	ND	1279.1	128%	50-150
OCDD	79.3	50	ND	2260.5	113%	50-150
2,3,7,8-TCDF	-	10	ND	257.0	128%	50-150
1,2,3,7,8-PeCDF	-	10	ND	1255.1	126%	50-150
2,3,4,7,8-PeCDF	-	10	ND	1255.4	126%	50-150
1,2,3,4,7,8-HxCDF	-	25	ND	1136.0	114%	50-150
1,2,3,6,7,8-HxCDF	-	25	ND	1169.8	117%	50-150
2,3,4,6,7,8-HxCDF	-	25	ND	1168.8	117%	50-150
1,2,3,7,8,9-HxCDF	-	25	ND	1143.9	114%	50-150
1,2,3,4,6,7,8-HpCDF	-	25	ND	1275.6	128%	50-150
1,2,3,4,7,8,9-HpCDF	-	25	ND	1269.7	127%	50-150
OCDF	-	50	ND	2670.5	134%	50-150

TOTAL ANALYTES	CONC (PPQ)	MRL (PPQ)
TOTAL TCDD	-	10
TOTAL PeCDD	-	10
TOTAL HxCDD	-	25
TOTAL HpCDD	-	25
TOTAL OCDD	79.3	50
TOTAL TCDF	29.2	10
TOTAL PeCDF	-	10
TOTAL HxCDF	-	25
TOTAL HpCDF	-	25
TOTAL OCDF	-	50

Definitions:

CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).

EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).

BLANK — The concentration of the blank.

MS (PPQ) — The concentration of Matrix Spike recovered.

MS (%) — The percent recovery of the Matrix Spike.

ND — (Non-Detect) The concentration of the analyte is less than the detection limit.

NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 108.51 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 0.08 PPQ

SCOEPA00008921

URS-Greiner Woodward-Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901854 **REFERENCE: 92C0804A.00**
FILE: A14684 **SAMPLE: 001-GG-01**
LAB ID.: E9901854-010

Project ID/P.O	92C0804A.00	Date collected:	8/26/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	0.975 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/17/99	Batch Number:	EB50186

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MRL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	74.1	10	ND	191.3	96%	50-150
1,2,3,7,8-PeCDD	69.6	10	ND	1259.7	126%	50-150
1,2,3,4,7,8-HxCDD	83.9	25	ND	1246.9	125%	50-150
1,2,3,6,7,8-HxCDD	651.2	25	ND	1111.2	111%	50-150
1,2,3,7,8,9-HxCDD	260.9	25	ND	1342.6	134%	50-150
1,2,3,4,6,7,8-HpCDD	8286.4	25	ND	1279.1	128%	50-150
OCDD	69550.4	50	ND	2260.5	113%	50-150
2,3,7,8-TCDF	1658.5	10	ND	257.0	128%	50-150
1,2,3,7,8-PeCDF	-	10	ND	1255.1	126%	50-150
2,3,4,7,8-PeCDF	25.3	10	ND	1255.4	126%	50-150
1,2,3,4,7,8-HxCDF	74.9	25	ND	1136.0	114%	50-150
1,2,3,6,7,8-HxCDF	48.6	25	ND	1169.8	117%	50-150
2,3,4,6,7,8-HxCDF	95.1	25	ND	1168.8	117%	50-150
1,2,3,7,8,9-HxCDF	-	25	ND	1143.9	114%	50-150
1,2,3,4,6,7,8-HpCDF	2040.0	25	ND	1275.6	128%	50-150
1,2,3,4,7,8,9-HpCDF	127.4	25	ND	1269.7	127%	50-150
OCDF	11609.0	50	ND	2670.5	134%	50-150

TOTAL ANALYTES	CONC (PPQ)	MRL (PPQ)
TOTAL TCDD	634.9	10
TOTAL PeCDD	585.5	10
TOTAL HxCDD	3310.6	25
TOTAL HpCDD	16653.9	25
TOTAL OCDD	69550.4	50
TOTAL TCDF	4566.0	10
TOTAL PeCDF	2018.8	10
TOTAL HxCDF	1114.5	25
TOTAL HpCDF	10410.2	25
TOTAL OCDF	11609.0	50

Definitions:

- **CONC** — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
- **EDL** — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
- **BLANK** — The concentration of the blank.
- **MS (PPQ)** — The concentration of Matrix Spike recovered.
- **MS (%)** — The percent recovery of the Matrix Spike.
- **ND** — (Non-Detect) The concentration of the analyte is less than the detection limit.
- **NR** — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 120453.81 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 594.51 PPQ

SCOEPA00008922

URS-Greiner Woodward-Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901854 **REFERENCE: 92C0804A.00**
FILE: A14913 **SAMPLE: 001-GG-01**
LAB ID.: E9901854-010dil

Project ID/P.O	92C0804A.00	Date collected:	8/26/99	RTWin / Col Pfm:	A14904
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14904
Sample matrix	Water	Date extracted:	9/7/99	Ending CCAL:	A14917
Sample size:	0.975 L	Date analyzed:	10/1/99	Initial CAL:	A051099
		Date processed:	10/7/99	Batch Number:	EB50186

corrected 10/19/99 KS

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MRL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	~~10~~ 200	ND	191.3	96%	50-150
1,2,3,7,8-PeCDD	-	~~10~~ 200	ND	1259.7	126%	50-150
1,2,3,4,7,8-HxCDD	-	~~25~~ 500	ND	1246.9	125%	50-150
1,2,3,6,7,8-HxCDD	-	~~25~~ 500	ND	1111.2	111%	50-150
1,2,3,7,8,9-HxCDD	-	~~25~~ 500	ND	1342.6	134%	50-150
1,2,3,4,6,7,8-HpCDD	4428.1	~~25~~ 500	ND	1279.1	128%	50-150
OCDD	44592.7	~~50~~ 1000	ND	2260.5	113%	50-150
2,3,7,8-TCDF	586.9	~~10~~ 200	ND	257.0	128%	50-150
1,2,3,7,8-PeCDF	-	~~10~~ 200	ND	1255.1	126%	50-150
2,3,4,7,8-PeCDF	-	~~10~~ 200	ND	1255.4	126%	50-150
1,2,3,4,7,8-HxCDF	-	~~25~~ 500	ND	1136.0	114%	50-150
1,2,3,6,7,8-HxCDF	-	~~25~~ 500	ND	1169.8	117%	50-150
2,3,4,6,7,8-HxCDF	-	~~25~~ 500	ND	1168.8	117%	50-150
1,2,3,7,8,9-HxCDF	-	~~25~~ 500	ND	1143.9	114%	50-150
1,2,3,4,6,7,8-HpCDF	1079.8	~~25~~ 500	ND	1275.6	128%	50-150
1,2,3,4,7,8,9-HpCDF	-	~~25~~ 500	ND	1269.7	127%	50-150
OCDF	7511.7	~~50~~ 1000	ND	2670.5	134%	50-150

TOTAL ANALYTES	CONC (PPQ)	MRL (PPQ)
TOTAL TCDD	-	10
TOTAL PeCDD	-	10
TOTAL HxCDD	1157.1	25
TOTAL HpCDD	10070.5	25
TOTAL OCDD	44592.7	50
TOTAL TCDF	1551.9	10
TOTAL PeCDF	991.3	10
TOTAL HxCDF	689.4	25
TOTAL HpCDF	5650.6	25
TOTAL OCDF	7511.7	50

Definitions:

- **CONC** — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
- **EDL** — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
- **BLANK** — The concentration of the blank.
- **MS (PPQ)** — The concentration of Matrix Spike recovered.
- **MS (%)** — The percent recovery of the Matrix Spike.
- **ND** — (Non-Detect) The concentration of the analyte is less than the detection limit.
- **NR** — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 72215.12 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 165.87 PPQ

SCOEPA00008923

URS-Greiner Woodward-Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901856 **REFERENCE: 92C0804A.00**
FILE: A14685 **SAMPLE: 011-GG-01**
LAB ID.: E9901856-001

Project ID/P.O	92C0804A.00	Date collected:	8/31/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/3/99	Beginning CCAL:	A14673
Sample matrix	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	0.96 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MRL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	10	ND	191.3	96%	50-150
1,2,3,7,8-PeCDD	-	10	ND	1259.7	126%	50-150
1,2,3,4,7,8-HxCDD	-	25	ND	1246.9	125%	50-150
1,2,3,6,7,8-HxCDD	-	25	ND	1111.2	111%	50-150
1,2,3,7,8,9-HxCDD	-	25	ND	1342.6	134%	50-150
1,2,3,4,6,7,8-HpCDD	65.4	25	ND	1279.1	128%	50-150
OCDD	586.9	50	ND	2260.5	113%	50-150
2,3,7,8-TCDF	17.4	10	ND	257.0	128%	50-150
1,2,3,7,8-PeCDF	-	10	ND	1255.1	126%	50-150
2,3,4,7,8-PeCDF	-	10	ND	1255.4	126%	50-150
1,2,3,4,7,8-HxCDF	-	25	ND	1136.0	114%	50-150
1,2,3,6,7,8-HxCDF	-	25	ND	1169.8	117%	50-150
2,3,4,6,7,8-HxCDF	-	25	ND	1168.8	117%	50-150
1,2,3,7,8,9-HxCDF	-	25	ND	1143.9	114%	50-150
1,2,3,4,6,7,8-HpCDF	-	25	ND	1275.6	128%	50-150
1,2,3,4,7,8,9-HpCDF	-	25	ND	1269.7	127%	50-150
OCDF	105.0	50	ND	2670.5	134%	50-150

TOTAL ANALYTES	CONC (PPQ)	MRL (PPQ)
TOTAL TCDD	-	10
TOTAL PeCDD	-	10
TOTAL HxCDD	-	25
TOTAL HpCDD	133.6	25
TOTAL OCDD	586.9	50
TOTAL TCDF	58.7	10
TOTAL PeCDF	9.0	10
TOTAL HxCDF	-	25
TOTAL HpCDF	-	25
TOTAL OCDF	105.0	50

Definitions:

- **CONC** — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
- **EDL** — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
- **BLANK** — The concentration of the blank.
- **MS (PPQ)** — The concentration of Matrix Spike recovered.
- **MS (%)** — The percent recovery of the Matrix Spike.
- **ND** — (Non-Detect) The concentration of the analyte is less than the detection limit.
- **NR** — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 893.12 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 3.08 PPQ

SCOEPA00008924

URS-Greiner Woodward-Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901856
FILE: A14687
LAB ID.: E9901856-002

REFERENCE: 92C0804A.00
SAMPLE: 012-GG-01

Project ID/P.O	92C0804A.00	Date collected:	9/1/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/3/99	Beginning CCAL:	A14686
Sample matrix	Water	Date extracted:	9/7/99	Ending CCAL:	A14695
Sample size:	1 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MRL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	69.0	10	ND	191.3	96%	50-150
1,2,3,7,8-PeCDD	-	10	ND	1259.7	126%	50-150
1,2,3,4,7,8-HxCDD	-	25	ND	1246.9	125%	50-150
1,2,3,6,7,8-HxCDD	-	25	ND	1111.2	111%	50-150
1,2,3,7,8,9-HxCDD	-	25	ND	1342.6	134%	50-150
1,2,3,4,6,7,8-HpCDD	145.6	25	ND	1279.1	128%	50-150
OCDD	1356.5	50	ND	2260.5	113%	50-150
2,3,7,8-TCDF	695.7	10	ND	257.0	128%	50-150
1,2,3,7,8-PeCDF	-	10	ND	1255.1	126%	50-150
2,3,4,7,8-PeCDF	-	10	ND	1255.4	126%	50-150
1,2,3,4,7,8-HxCDF	46.9	25	ND	1136.0	114%	50-150
1,2,3,6,7,8-HxCDF	-	25	ND	1169.8	117%	50-150
2,3,4,6,7,8-HxCDF	-	25	ND	1168.8	117%	50-150
1,2,3,7,8,9-HxCDF	-	25	ND	1143.9	114%	50-150
1,2,3,4,6,7,8-HpCDF	65.9	25	ND	1275.6	128%	50-150
1,2,3,4,7,8,9-HpCDF	-	25	ND	1269.7	127%	50-150
OCDF	179.3	50	ND	2670.5	134%	50-150

TOTAL ANALYTES	CONC (PPQ)	MRL (PPQ)
TOTAL TCDD	203.0	10
TOTAL PeCDD	-	10
TOTAL HxCDD	-	25
TOTAL HpCDD	384.7	25
TOTAL OCDD	1356.5	50
TOTAL TCDF	4453.5	10
TOTAL PeCDF	1328.8	10
TOTAL HxCDF	96.7	25
TOTAL HpCDF	65.9	25
TOTAL OCDF	179.3	50

Definitions:

- **CONC** — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
- **EDL** — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
- **BLANK** — The concentration of the blank.
- **MS (PPQ)** — The concentration of Matrix Spike recovered.
- **MS (%)** — The percent recovery of the Matrix Spike.
- **ND** — (Non-Detect) The concentration of the analyte is less than the detection limit.
- **NR** — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 8068.32 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 146.91 PPQ

SCOEPA00008925

URS-Greiner Woodward-Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901856 **REFERENCE: 92C0804A.00**
FILE: A14690 **SAMPLE: 012-GG-01 MS**
LAB ID.: E9901856-002MS

Project ID/P.O	92C0804A.00	Date collected:	9/1/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/3/99	Beginning CCAL:	A14686
Sample matrix	Water	Date extracted:	9/7/99	Ending CCAL:	A14695
Sample size:	1 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MRL (PPQ)	BLANK (PPQ)	MS (PPQ)	MS (%)	QC Limits
2,3,7,8-TCDD	167.8	10	ND	167.8	84%	50-150
1,2,3,7,8-PeCDD	1009.7	10	ND	1009.7	101%	50-150
1,2,3,4,7,8-HxCDD	944.4	25	ND	944.4	94%	50-150
1,2,3,6,7,8-HxCDD	1035.3	25	ND	1035.3	104%	50-150
1,2,3,7,8,9-HxCDD	1127.1	25	ND	1127.1	113%	50-150
1,2,3,4,6,7,8-HpCDD	992.8	25	ND	992.8	99%	50-150
OCDD	2069.8	50	ND	2069.8	103%	50-150
2,3,7,8-TCDF	201.2	10	ND	201.2	101%	50-150
1,2,3,7,8-PeCDF	942.9	10	ND	942.9	94%	50-150
2,3,4,7,8-PeCDF	898.9	10	ND	898.9	90%	50-150
1,2,3,4,7,8-HxCDF	959.9	25	ND	959.9	96%	50-150
1,2,3,6,7,8-HxCDF	972.3	25	ND	972.3	97%	50-150
2,3,4,6,7,8-HxCDF	994.4	25	ND	994.4	99%	50-150
1,2,3,7,8,9-HxCDF	961.8	25	ND	961.8	96%	50-150
1,2,3,4,6,7,8-HpCDF	998.2	25	ND	998.2	100%	50-150
1,2,3,4,7,8,9-HpCDF	993.2	25	ND	993.2	99%	50-150
OCDF	2070.3	50	ND	2070.3	104%	50-150

TOTAL ANALYTES	CONC (PPQ)	MRL (PPQ)
TOTAL TCDD	182.8	10
TOTAL PeCDD	1009.7	10
TOTAL HxCDD	3106.8	25
TOTAL HpCDD	992.8	25
TOTAL OCDD	2069.8	50
TOTAL TCDF	252.3	10
TOTAL PeCDF	1883.0	10
TOTAL HxCDF	3897.3	25
TOTAL HpCDF	2074.7	25
TOTAL OCDF	2070.3	50

Definitions:

- CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
- EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
- BLANK — The concentration of the blank.
- MS (PPQ) — The concentration of Matrix Spike recovered.
- MS (%) — The percent recovery of the Matrix Spike.
- ND — (Non-Detect) The concentration of the analyte is less than the detection limit.
- NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 17539.47 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 1922.86 PPQ

SCOEPA00008926

URS-Greiner Woodward-Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901856
FILE: A14692
LAB ID.: E9901856-002MSD

REFERENCE: 92C0804A.00
SAMPLE: 012-GG-01 MSD

Project ID/P.O	92C0804A.00	Date collected:	9/1/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/3/99	Beginning CCAL:	A14686
Sample matrix	Water	Date extracted:	9/7/99	Ending CCAL:	A14695
Sample size:	1 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

corrected 10/14/99 KS

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MRL (PPQ)	BLANK (PPQ)	~~LS~~ (PPQ) MSD	~~LS~~ (%) MSD	QC Limits
2,3,7,8-TCDD	215.1	10	ND	215.1	108%	50-150
1,2,3,7,8-PeCDD	1065.9	10	ND	1065.9	107%	50-150
1,2,3,4,7,8-HxCDD	1005.2	25	ND	1005.2	101%	50-150
1,2,3,6,7,8-HxCDD	1036.4	25	ND	1036.4	104%	50-150
1,2,3,7,8,9-HxCDD	1052.4	25	ND	1052.4	105%	50-150
1,2,3,4,6,7,8-HpCDD	1012.0	25	ND	1012.0	101%	50-150
OCDD	2230.5	50	ND	2230.5	112%	50-150
2,3,7,8-TCDF	199.1	10	ND	199.1	100%	50-150
1,2,3,7,8-PeCDF	1024.7	10	ND	1024.7	102%	50-150
2,3,4,7,8-PeCDF	998.5	10	ND	998.5	100%	50-150
1,2,3,4,7,8-HxCDF	957.4	25	ND	957.4	96%	50-150
1,2,3,6,7,8-HxCDF	985.1	25	ND	985.1	99%	50-150
2,3,4,6,7,8-HxCDF	933.3	25	ND	933.3	93%	50-150
1,2,3,7,8,9-HxCDF	928.9	25	ND	928.9	93%	50-150
1,2,3,4,6,7,8-HpCDF	1114.4	25	ND	1114.4	111%	50-150
1,2,3,4,7,8,9-HpCDF	1045.0	25	ND	1045.0	104%	50-150
OCDF	2049.7	50	ND	2049.7	102%	50-150

TOTAL ANALYTES	CONC (PPQ)	MRL (PPQ)
TOTAL TCDD	220.0	10
TOTAL PeCDD	1065.9	10
TOTAL HxCDD	3094.0	25
TOTAL HpCDD	1012.0	25
TOTAL OCDD	2230.5	50
TOTAL TCDF	308.1	10
TOTAL PeCDF	2049.7	10
TOTAL HxCDF	3804.6	25
TOTAL HpCDF	2159.3	25
TOTAL OCDF	2049.7	50

Definitions:

- **CONC** — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
- **EDL** — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
- **BLANK** — The concentration of the blank.
- **MS (PPQ)** — The concentration of Matrix Spike recovered.
- **MS (%)** — The percent recovery of the Matrix Spike.
- **ND** — (Non-Detect) The concentration of the analyte is less than the detection limit.
- **NR** — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 17993.86 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 2044.32 PPQ

SCOEPA00008927

URS-Greiner Woodward-Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901856 **REFERENCE: 92C0804A.00**
FILE: A14688 **SAMPLE: 013-GG-01**
LAB ID.: E9901856-003

Project ID/P.O	92C0804A.00	Date collected:	9/1/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/3/99	Beginning CCAL:	A14686
Sample matrix	Water	Date extracted:	9/7/99	Ending CCAL:	A14695
Sample size:	1 L	Date analyzed:	9/16/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MRL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	10	ND	191.3	96%	50-150
1,2,3,7,8-PeCDD	-	10	ND	1259.7	126%	50-150
1,2,3,4,7,8-HxCDD	-	25	ND	1246.9	125%	50-150
1,2,3,6,7,8-HxCDD	-	25	ND	1111.2	111%	50-150
1,2,3,7,8,9-HxCDD	-	25	ND	1342.6	134%	50-150
1,2,3,4,6,7,8-HpCDD	-	25	ND	1279.1	128%	50-150
OCDD	54.9	50	ND	2260.5	113%	50-150
2,3,7,8-TCDF	27.5	10	ND	257.0	128%	50-150
1,2,3,7,8-PeCDF	-	10	ND	1255.1	126%	50-150
2,3,4,7,8-PeCDF	-	10	ND	1255.4	126%	50-150
1,2,3,4,7,8-HxCDF	-	25	ND	1136.0	114%	50-150
1,2,3,6,7,8-HxCDF	-	25	ND	1169.8	117%	50-150
2,3,4,6,7,8-HxCDF	-	25	ND	1168.8	117%	50-150
1,2,3,7,8,9-HxCDF	-	25	ND	1143.9	114%	50-150
1,2,3,4,6,7,8-HpCDF	-	25	ND	1275.6	128%	50-150
1,2,3,4,7,8,9-HpCDF	-	25	ND	1269.7	127%	50-150
OCDF	-	50	ND	2670.5	134%	50-150

TOTAL ANALYTES	CONC (PPQ)	MRL (PPQ)
TOTAL TCDD	-	10
TOTAL PeCDD	-	10
TOTAL HxCDD	-	25
TOTAL HpCDD	-	25
TOTAL OCDD	54.9	50
TOTAL TCDF	190.0	10
TOTAL PeCDF	39.5	10
TOTAL HxCDF	-	25
TOTAL HpCDF	-	25
TOTAL OCDF	-	50

Definitions:

CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
BLANK — The concentration of the blank.
MS (PPQ) — The concentration of Matrix Spike recovered.
MS (%) — The percent recovery of the Matrix Spike.
ND — (Non-Detect) The concentration of the analyte is less than the detection limit.
NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 284.47 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 2.8 PPQ

SCOEPA00008928

URS-Greiner Woodward-Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901856 **REFERENCE: 92C0804A.00**
FILE: A14689 **SAMPLE: 014-GG-01**
LAB ID.: E9901856-004

Project ID/P.O	92C0804A.00	Date collected:	9/1/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/3/99	Beginning CCAL:	A14686
Sample matrix	Water	Date extracted:	9/7/99	Ending CCAL:	A14695
Sample size:	0.98 L	Date analyzed:	9/16/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MRL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	63.3	10	ND	191.3	96%	50-150
1,2,3,7,8-PeCDD	-	10	ND	1259.7	126%	50-150
1,2,3,4,7,8-HxCDD	-	25	ND	1246.9	125%	50-150
1,2,3,6,7,8-HxCDD	-	25	ND	1111.2	111%	50-150
1,2,3,7,8,9-HxCDD	-	25	ND	1342.6	134%	50-150
1,2,3,4,6,7,8-HpCDD	131.2	25	ND	1279.1	128%	50-150
OCDD	1138.7	50	ND	2260.5	113%	50-150
2,3,7,8-TCDF	1024.0	10	ND	257.0	128%	50-150
1,2,3,7,8-PeCDF	27.7	10	ND	1255.1	126%	50-150
2,3,4,7,8-PeCDF	13.3	10	ND	1255.4	126%	50-150
1,2,3,4,7,8-HxCDF	55.4	25	ND	1136.0	114%	50-150
1,2,3,6,7,8-HxCDF	13.8	25	ND	1169.8	117%	50-150
2,3,4,6,7,8-HxCDF	-	25	ND	1168.8	117%	50-150
1,2,3,7,8,9-HxCDF	-	25	ND	1143.9	114%	50-150
1,2,3,4,6,7,8-HpCDF	132.3	25	ND	1275.6	128%	50-150
1,2,3,4,7,8,9-HpCDF	-	25	ND	1269.7	127%	50-150
OCDF	-	50	ND	2670.5	134%	50-150

TOTAL ANALYTES	CONC (PPQ)	MRL (PPQ)
TOTAL TCDD	490.4	10
TOTAL PeCDD	-	10
TOTAL HxCDD	-	25
TOTAL HpCDD	295.6	25
TOTAL OCDD	1138.7	50
TOTAL TCDF	6964.0	10
TOTAL PeCDF	1588.8	10
TOTAL HxCDF	128.5	25
TOTAL HpCDF	285.3	25
TOTAL OCDF	-	50

Definitions:

- **CONC** — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
- **EDL** — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
- **BLANK** — The concentration of the blank.
- **MS (PPQ)** — The concentration of Matrix Spike recovered.
- **MS (%)** — The percent recovery of the Matrix Spike.
- **ND** — (Non-Detect) The concentration of the analyte is less than the detection limit.
- **NR** — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 10891.2 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 184.39 PPQ

SCOEPA00008929

ANALYSIS REPORT

SCOEPA00008930

URS-Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901854
FILE: A14675
LAB ID.: E9901854-001

REFERENCE: 92C0804A.00
SAMPLE: 002-GG-01

Project ID/P.O.:	92C0804A.00	Date collected:	8/26/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	0.955 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10	-		U
1,2,3,7,8-PeCDD	-	-	10	-		U
1,2,3,4,7,8-HxCDD	-	-	25	-		U
1,2,3,6,7,8-HxCDD	-	-	25	-		U
1,2,3,7,8,9-HxCDD	-	-	25	-		U
1,2,3,4,6,7,8-HpCDD	-	30.3	25	1.16	38:33	J
OCDD	-	202.0	50	0.94	43:27	
2,3,7,8-TCDF	-	6.8	10	0.89	23:39	JC
1,2,3,7,8-PeCDF	-	-	10	-		U
2,3,4,7,8-PeCDF	-	-	10	-		U
1,2,3,4,7,8-HxCDF	-	-	25	-		U
1,2,3,6,7,8-HxCDF	-	-	25	-		U
2,3,4,6,7,8-HxCDF	-	-	25	-		U
1,2,3,7,8,9-HxCDF	-	-	25	-		U
1,2,3,4,6,7,8-HpCDF	-	10.2	25	0.92	37:07	J
1,2,3,4,7,8,9-HpCDF	-	-	25	-		U
OCDF	-	-	50	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	0	-	10	U
TOTAL PeCDD	0	-	25	U
TOTAL HxCDD	0	-	25	U
TOTAL HpCDD	2	62.9	25	
TOTAL TCDF	1	17.8	10	
TOTAL PeCDF	0	-	25	U
TOTAL HxCDF	1	5.3	25	J
TOTAL HpCDF	2	23.3	25	J

DATA REVIEWER: AMA 10/11/99

SCOEPA00008931

URS-Greiner Woodward-Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901854 **REFERENCE: 92C0804A.00**
FILE: A14675 **SAMPLE: 002-GG-01**
LAB ID.: E9901854-001

Project ID/P.O.:	92C0804A.00	Date collected:	8/26/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	0.955 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1371.0	65.5	0.80	24:15	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	1589.8	75.9	1.74	29:07	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1446.9	69.1	1.20	33:39	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1551.2	74.1	1.23	33:47	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1758.5	84.0	1.20	38:33	-
$^{13}C_{12}$-OCDD	5587.8	133.4	0.93	43:25	-
$^{13}C_{12}$-2,3,7,8-TCDF	1564.1	74.7	0.82	23:37	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1562.5	74.6	1.57	27:52	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1718.1	82.0	1.55	28:45	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1402.0	66.9	0.43	32:37	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1362.4	65.1	0.48	32:46	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1557.4	74.4	0.47	33:31	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1770.2	84.5	0.45	34:40	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1503.4	71.8	0.41	37:06	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	2231.0	106.5	0.41	39:12	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.81	24:04	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.20	34:16	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	608.6	72.7	24:16	-

SCOEPA00008932

URS-Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901854
FILE: A14676
LAB ID.: E9901854-002

REFERENCE: 92C0804A.00
SAMPLE: 003-GG-01

Project ID/P.O.:	92C0804A.00	Date collected:	8/27/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	1.01 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	279.6	10	0.85	24:16	
1,2,3,7,8-PeCDD	-	-	10	-		U
1,2,3,4,7,8-HxCDD	-	-	25	-		U
1,2,3,6,7,8-HxCDD	-	-	25	-		U
1,2,3,7,8,9-HxCDD	-	-	25	-		U
1,2,3,4,6,7,8-HpCDD	-	210.1	25	1.11	38:33	
OCDD	-	1417.2	50	0.90	43:24	
2,3,7,8-TCDF	-	5428.4	10	0.80	23:39	EC
1,2,3,7,8-PeCDF	-	-	10	-		U
2,3,4,7,8-PeCDF	-	-	10	-		U
1,2,3,4,7,8-HxCDF	-	-	25	-		U
1,2,3,6,7,8-HxCDF	-	-	25	-		U
2,3,4,6,7,8-HxCDF	-	-	25	-		U
1,2,3,7,8,9-HxCDF	-	-	25	-		U
1,2,3,4,6,7,8-HpCDF	-	104.3	25	1.16	37:06	
1,2,3,4,7,8,9-HpCDF	-	-	25	-		U
OCDF	-	327.8	50	0.94	43:39	

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	4	940.8	10	
TOTAL PeCDD	3	80.0	25	
TOTAL HxCDD	2	74.5	25	
TOTAL HpCDD	2	379.4	25	
TOTAL TCDF	11	26073.7	10	E
TOTAL PeCDF	3	2136.7	25	
TOTAL HxCDF	3	69.4	25	
TOTAL HpCDF	2	115.1	25	

DATA REVIEWER: AMA 10/11/99

SCOEPA00008933

URS-Greiner Woodward-Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901854 **REFERENCE: 92C0804A.00**
FILE: A14676 **SAMPLE: 003-GG-01**
LAB ID.: E9901854-002

Project ID/P.O.:	92C0804A.00	Date collected:	8/27/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	1.01 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1068.8	54.0	0.79	24:16	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	1218.7	61.5	1.59	29:07	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1134.9	57.3	1.32	33:39	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1058.4	53.4	1.32	33:45	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1077.3	54.4	1.20	38:32	-
$^{13}C_{12}$-OCDD	5123.8	129.4	0.89	43:24	-
$^{13}C_{12}$-2,3,7,8-TCDF	1130.7	57.1	0.84	23:38	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1184.1	59.8	1.41	27:52	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1177.5	59.5	1.35	28:44	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1047.4	52.9	0.44	32:36	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1050.5	53.1	0.45	32:45	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1087.0	54.9	0.45	33:29	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1330.1	67.2	0.45	34:39	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1145.8	57.9	0.48	37:05	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1476.4	74.6	0.47	39:11	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.80	24:04	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.32	34:15	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	550.6	69.5	24:18	-

SCOEPA00008934

URS-Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901854 **REFERENCE: 92C0804A.00**
FILE: A14677 **SAMPLE: 004-GG-02**
LAB ID.: E9901854-003

Project ID/P.O.:	92C0804A.00	Date collected:	8/27/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	1.01 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	70.5	10	0.78	24:14	
1,2,3,7,8-PeCDD	-	-	10	-		U
1,2,3,4,7,8-HxCDD	-	-	25	-		U
1,2,3,6,7,8-HxCDD	-	-	25	-		U
1,2,3,7,8,9-HxCDD	-	-	25	-		U
1,2,3,4,6,7,8-HpCDD	-	52.8	25	1.09	38:30	
OCDD	-	419.0	50	0.91	43:22	
2,3,7,8-TCDF	-	1611.5	10	0.78	23:37	C
1,2,3,7,8-PeCDF	-	-	10	-		U
2,3,4,7,8-PeCDF	-	5.8	10	1.40	28:44	J
1,2,3,4,7,8-HxCDF	-	-	25	-		U
1,2,3,6,7,8-HxCDF	-	-	25	-		U
2,3,4,6,7,8-HxCDF	-	-	25	-		U
1,2,3,7,8,9-HxCDF	-	-	25	-		U
1,2,3,4,6,7,8-HpCDF	-	33.6	25	1.08	37:04	J
1,2,3,4,7,8,9-HpCDF	-	-	25	-		U
OCDF	-	108.0	50	0.88	43:37	

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	5	374.7	10	
TOTAL PeCDD	0	-	25	U
TOTAL HxCDD	0	-	25	U
TOTAL HpCDD	1	52.8	25	
TOTAL TCDF	9	17468.8	10	E
TOTAL PeCDF	7	1154.5	25	
TOTAL HxCDF	0	-	25	U
TOTAL HpCDF	2	90.9	25	

DATA REVIEWER: AMA 10/11/99

SCOEPA00008935

URS-Greiner Woodward-Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901854 **REFERENCE: 92C0804A.00**
FILE: A14677 **SAMPLE: 004-GG-02**
LAB ID.: E9901854-003

Project ID/P.O.:	92C0804A.00	Date collected:	8/27/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	1.01 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1171.0	59.1	0.83	24:13	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	1425.6	72.0	1.51	29:05	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1540.1	77.8	1.29	33:37	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1179.2	59.5	1.30	33:44	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1743.0	88.0	1.12	38:30	-
$^{13}C_{12}$-OCDD	5400.7	136.4	0.92	43:22	Y
$^{13}C_{12}$-2,3,7,8-TCDF	1315.9	66.5	0.86	23:35	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1497.1	75.6	1.51	27:50	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1559.0	78.7	1.52	28:43	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1418.2	71.6	0.50	32:35	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1322.9	66.8	0.49	32:44	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1343.1	67.8	0.50	33:28	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1566.3	79.1	0.49	34:37	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1535.7	77.6	0.45	37:03	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	2123.9	107.3	0.46	39:09	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.82	24:02	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.27	34:13	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	572.2	72.2	24:14	-

SCOEPA00008936

URS-Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901854 **REFERENCE: 92C0804A.00**
FILE: A14678 **SAMPLE: 005-GG-01**
LAB ID.: E9901854-004

Project ID/P.O.:	92C0804A.00	Date collected:	8/30/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	0.995 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10	-		U
1,2,3,7,8-PeCDD	-	-	10	-		U
1,2,3,4,7,8-HxCDD	-	-	25	-		U
1,2,3,6,7,8-HxCDD	-	-	25	-		U
1,2,3,7,8,9-HxCDD	-	-	25	-		U
1,2,3,4,6,7,8-HpCDD	-	15.4	25	0.96	38:30	J
OCDD	-	137.4	50	0.88	43:22	
2,3,7,8-TCDF	-	-	10	-		U
1,2,3,7,8-PeCDF	-	-	10	-		U
2,3,4,7,8-PeCDF	-	-	10	-		U
1,2,3,4,7,8-HxCDF	-	-	25	-		U
1,2,3,6,7,8-HxCDF	-	-	25	-		U
2,3,4,6,7,8-HxCDF	-	-	25	-		U
1,2,3,7,8,9-HxCDF	-	-	25	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25	-		U
OCDF	-	15.6	50	0.99	43:35	J

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	0	-	10	U
TOTAL PeCDD	0	-	25	U
TOTAL HxCDD	0	-	25	U
TOTAL HpCDD	2	23.4	25	J
TOTAL TCDF	2	665.8	10	
TOTAL PeCDF	0	-	25	U
TOTAL HxCDF	0	-	25	U
TOTAL HpCDF	1	10.6	25	J

DATA REVIEWER: AMA 10/11/99

SCOEPA00008937

URS-Greiner Woodward-Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901854 **REFERENCE: 92C0804A.00**
FILE: A14678 **SAMPLE: 005-GG-01**
LAB ID.: E9901854-004

Project ID/P.O.:	92C0804A.00	Date collected:	8/30/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	0.995 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1627.3	81.0	0.79	24:14	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2036.9	101.3	1.64	29:05	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1728.9	86.0	1.32	33:37	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1818.9	90.5	1.28	33:44	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2244.9	111.7	1.13	38:29	-
$^{13}C_{12}$-OCDD	5394.1	134.2	0.88	43:21	-
$^{13}C_{12}$-2,3,7,8-TCDF	1804.2	89.8	0.80	23:36	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1917.8	95.4	1.57	27:50	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	2059.2	102.4	1.60	28:42	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1478.5	73.6	0.44	32:34	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1540.9	76.7	0.44	32:43	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1671.3	83.1	0.45	33:28	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1911.0	95.1	0.46	34:37	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1794.2	89.3	0.45	37:02	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	2563.5	127.5	0.45	39:09	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.81	24:03	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.29	34:13	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	754.7	93.9	24:15	-

SCOEPA00008938

URS-Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901854 **REFERENCE: 92C0804A.00**
FILE: A14679 **SAMPLE: 006-GG-01**
LAB ID.: E9901854-005

Project ID/P.O.:	92C0804A.00	Date collected:	8/27/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	1 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10	-		U
1,2,3,7,8-PeCDD	-	-	10	-		U
1,2,3,4,7,8-HxCDD	-	-	25	-		U
1,2,3,6,7,8-HxCDD	-	-	25	-		U
1,2,3,7,8,9-HxCDD	-	-	25	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25	-		U
OCDD	-	20.7	50	0.98	43:19	J
2,3,7,8-TCDF	-	-	10	-		U
1,2,3,7,8-PeCDF	-	-	10	-		U
2,3,4,7,8-PeCDF	-	-	10	-		U
1,2,3,4,7,8-HxCDF	-	-	25	-		U
1,2,3,6,7,8-HxCDF	-	-	25	-		U
2,3,4,6,7,8-HxCDF	-	-	25	-		U
1,2,3,7,8,9-HxCDF	-	-	25	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25	-		U
OCDF	-	-	50	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	0	-	10	U
TOTAL PeCDD	0	-	25	U
TOTAL HxCDD	0	-	25	U
TOTAL HpCDD	0	-	25	U
TOTAL TCDF	1	93.7	10	
TOTAL PeCDF	0	-	25	U
TOTAL HxCDF	0	-	25	U
TOTAL HpCDF	0	-	25	U

DATA REVIEWER: AMA 10/11/99

SCOEPA00008939

URS-Greiner Woodward-Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901854 **REFERENCE: 92C0804A.00**
FILE: A14679 **SAMPLE: 006-GG-01**
LAB ID.: E9901854-005

Project ID/P.O.:	92C0804A.00	Date collected:	8/27/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	1 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1623.1	81.2	0.79	24:13	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	1931.7	96.6	1.59	29:04	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1604.6	80.2	1.27	33:35	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1664.1	83.2	1.29	33:43	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2229.1	111.5	1.11	38:28	-
$^{13}C_{12}$-OCDD	5912.5	147.8	0.90	43:19	Y
$^{13}C_{12}$-2,3,7,8-TCDF	1679.7	84.0	0.81	23:35	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1847.9	92.4	1.55	27:49	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1912.9	95.6	1.58	28:40	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1562.5	78.1	0.48	32:34	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1566.4	78.3	0.49	32:43	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1717.5	85.9	0.48	33:27	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	2006.7	100.3	0.49	34:36	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1724.1	86.2	0.46	37:02	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	2454.9	122.7	0.44	39:08	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.80	24:01	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.26	34:12	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	789.6	98.7	24:14	-

SCOEPA00008940

URS-Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901854
FILE: A14680
LAB ID.: E9901854-006

REFERENCE: 92C0804A.00
SAMPLE: 007-GG-01

Project ID/P.O.:	92C0804A.00	Date collected:	8/27/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	1 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	.	22.1	10	0.84	24:11	
1,2,3,7,8-PeCDD	.	.	10	.		U
1,2,3,4,7,8-HxCDD	.	.	25	.		U
1,2,3,6,7,8-HxCDD	.	.	25	.		U
1,2,3,7,8,9-HxCDD	.	.	25	.		U
1,2,3,4,6,7,8-HpCDD	.	130.7	25	1.04	38:30	
OCDD	.	1102.0	50	0.89	43:22	
2,3,7,8-TCDF	.	779.9	10	0.81	23:31	C
1,2,3,7,8-PeCDF	.	.	10	.		U
2,3,4,7,8-PeCDF	.	.	10	.		U
1,2,3,4,7,8-HxCDF	.	.	25	.		U
1,2,3,6,7,8-HxCDF	.	.	25	.		U
2,3,4,6,7,8-HxCDF	.	.	25	.		U
1,2,3,7,8,9-HxCDF	.	.	25	.		U
1,2,3,4,6,7,8-HpCDF	.	46.6	25	1.14	37:03	J
1,2,3,4,7,8,9-HpCDF	.	.	25	.		U
OCDF	.	172.5	50	0.91	43:37	

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	4	251.8	10	
TOTAL PeCDD	0	.	25	U
TOTAL HxCDD	2	8.7	25	J
TOTAL HpCDD	2	243.8	25	
TOTAL TCDF	10	5720.9	10	E
TOTAL PeCDF	5	728.9	25	
TOTAL HxCDF	2	33.8	25	J
TOTAL HpCDF	2	180.2	25	

DATA REVIEWER: AAA 10/11/99

SCOEPA00008941

URS-Greiner Woodward-Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901854 **REFERENCE: 92C0804A.00**
FILE: A14680 **SAMPLE: 007-GG-01**
LAB ID.: E9901854-006

Project ID/P.O.:	92C0804A.00	Date collected:	8/27/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	1 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1135.3	56.8	0.79	24:09	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	1339.6	67.0	1.53	29:01	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1704.6	85.2	1.28	33:35	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1038.7	51.9	1.29	33:43	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1708.1	85.4	1.00	38:29	-
$^{13}C_{12}$-OCDD	4465.6	111.6	0.91	43:21	-
$^{13}C_{12}$-2,3,7,8-TCDF	1287.2	64.4	0.80	23:30	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1324.8	66.2	1.50	27:47	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1354.6	67.7	1.51	28:37	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1411.4	70.6	0.48	32:32	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1165.6	58.3	0.49	32:41	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1345.0	67.2	0.48	33:25	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1523.3	76.2	0.48	34:35	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1516.5	75.8	0.40	37:01	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1969.9	98.5	0.41	39:08	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.80	23:58	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.26	34:11	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	640.5	80.1	24:10	-

SCOEPA00008942

URS-Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901854 **REFERENCE: 92C0804A.00**
FILE: A14681 **SAMPLE: 008-GG-01**
LAB ID.: E9901854-007

Project ID/P.O.:	92C0804A.00	Date collected:	8/30/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	0.99 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	15.1	10	0.87	24:18	
1,2,3,7,8-PeCDD	-	-	25	-		U
1,2,3,4,7,8-HxCDD	-	-	25	-		U
1,2,3,6,7,8-HxCDD	-	-	25	-		U
1,2,3,7,8,9-HxCDD	-	-	25	-		U
1,2,3,4,6,7,8-HpCDD	-	288.2	25	1.02	38:37	
OCDD	-	2462.1	50	0.93	43:27	
2,3,7,8-TCDF	-	340.9	10	0.76	23:40	C
1,2,3,7,8-PeCDF	-	-	10	-		U
2,3,4,7,8-PeCDF	-	-	10	-		U
1,2,3,4,7,8-HxCDF	-	19.8	25	1.26	32:44	J
1,2,3,6,7,8-HxCDF	-	-	25	-		U
2,3,4,6,7,8-HxCDF	-	-	25	-		U
1,2,3,7,8,9-HxCDF	-	-	25	-		U
1,2,3,4,6,7,8-HpCDF	-	98.4	25	0.93	37:11	
1,2,3,4,7,8,9-HpCDF	-	-	25	-		U
OCDF	-	202.4	50	0.93	43:42	

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	4	92.4	10	
TOTAL PeCDD	0	-	25	U
TOTAL HxCDD	0	-	25	U
TOTAL HpCDD	1	288.2	25	
TOTAL TCDF	10	1213.3	10	
TOTAL PeCDF	4	423.0	25	
TOTAL HxCDF	5	263.9	25	
TOTAL HpCDF	2	321.7	25	

DATA REVIEWER: AMA 10/11/99

SCOEPA00008943

URS-Greiner Woodward-Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901854 **REFERENCE: 92C0804A.00**
FILE: A14681 **SAMPLE: 008-GG-01**
LAB ID.: E9901854-007

Project ID/P.O.:	92C0804A.00	Date collected:	8/30/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	0.99 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1133.4	56.1	0.78	24:16	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	1026.4	50.8	1.65	29:12	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1689.0	83.6	1.26	33:44	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1398.2	69.2	1.31	33:51	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1002.7	49.6	1.12	38:36	-
$^{13}C_{12}$-OCDD	1428.9	35.4	0.90	43:26	Y
$^{13}C_{12}$-2,3,7,8-TCDF	1287.5	63.7	0.84	23:38	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1043.0	51.6	1.64	27:56	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1060.0	52.5	1.63	28:49	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1679.4	83.1	0.46	32:42	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1315.6	65.1	0.48	32:51	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1301.9	64.4	0.47	33:36	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1386.8	68.6	0.49	34:44	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	916.2	45.4	0.45	37:10	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	942.0	46.6	0.45	39:15	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.79	24:04	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.26	34:20	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	507.0	62.7	24:18	-

SCOEPA00008944

URS-Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901854 **REFERENCE: 92C0804A.00**
FILE: A14682 **SAMPLE: 009-GG-01**
LAB ID.: E9901854-008

Project ID/P.O.:	92C0804A.00	Date collected:	8/31/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	0.56 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/17/99	Batch Number:	EB50186

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	13.6	10	0.89	24:13	J
1,2,3,7,8-PeCDD	-	-	10	-		U
1,2,3,4,7,8-HxCDD	-	-	25	-		U
1,2,3,6,7,8-HxCDD	-	86.6	25	1.15	33:47	J
1,2,3,7,8,9-HxCDD	-	-	25	-		U
1,2,3,4,6,7,8-HpCDD	-	775.0	25	1.07	38:33	
OCDD	-	3996.5	50	0.91	43:24	
2,3,7,8-TCDF	-	305.1	10	0.78	23:37	C
1,2,3,7,8-PeCDF	-	-	10	-		U
2,3,4,7,8-PeCDF	-	-	10	-		U
1,2,3,4,7,8-HxCDF	-	17.0	25	1.31	32:39	J
1,2,3,6,7,8-HxCDF	-	-	25	-		U
2,3,4,6,7,8-HxCDF	-	-	25	-		U
1,2,3,7,8,9-HxCDF	-	-	25	-		U
1,2,3,4,6,7,8-HpCDF	-	104.0	25	0.93	37:06	
1,2,3,4,7,8,9-HpCDF	-	-	25	-		U
OCDF	-	159.7	50	1.01	43:39	J

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	1	35.8	10	
TOTAL PeCDD	3	107.3	25	
TOTAL HxCDD	4	424.8	25	
TOTAL HpCDD	2	1474.6	25	
TOTAL TCDF	10	1190.4	10	
TOTAL PeCDF	5	499.4	25	
TOTAL HxCDF	0	17.0	25	J
TOTAL HpCDF	2	288.5	25	

DATA REVIEWER: AMA 10/11/99

SCOEPA00008945

URS-Greiner Woodward-Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901854 **REFERENCE: 92C0804A.00**
FILE: A14682 **SAMPLE: 009-GG-01**
LAB ID.: E9901854-008

Project ID/P.O.:	92C0804A.00	Date collected:	8/31/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	0.56 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/17/99	Batch Number:	EB50186

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	2380.0	66.6	0.83	24:14	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2330.2	65.2	1.66	29:07	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	2499.8	70.0	1.24	33:39	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	2281.4	63.9	1.30	33:46	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1755.8	49.2	1.12	38:32	-
$^{13}C_{12}$-OCDD	3320.0	46.5	0.89	43:24	-
$^{13}C_{12}$-2,3,7,8-TCDF	2574.4	72.1	0.83	23:36	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	2361.2	66.1	1.55	27:52	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	2374.1	66.5	1.59	28:45	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	2228.6	62.4	0.45	32:37	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1981.7	55.5	0.43	32:45	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	2388.9	66.9	0.43	33:30	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	2183.3	61.1	0.45	34:39	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1802.6	50.5	0.41	37:05	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1914.2	53.6	0.41	39:11	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.83	24:02	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.27	34:15	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	1005.1	70.4	24:15	-

SCOEPA00008946

URS-Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901854 **REFERENCE: 92C0804A.00**
FILE: A14683 **SAMPLE: 010-GG-01**
LAB ID.: E9901854-009

Project ID/P.O.:	92C0804A.00	Date collected:	8/31/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	0.985 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/17/99	Batch Number:	EB50186

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10	-		U
1,2,3,7,8-PeCDD	-	-	10	-		U
1,2,3,4,7,8-HxCDD	-	-	25	-		U
1,2,3,6,7,8-HxCDD	-	-	25	-		U
1,2,3,7,8,9-HxCDD	-	-	25	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25	-		U
OCDD	-	79.3	50	0.87	43:22	J
2,3,7,8-TCDF	-	-	10	-		U
1,2,3,7,8-PeCDF	-	-	10	-		U
2,3,4,7,8-PeCDF	-	-	10	-		U
1,2,3,4,7,8-HxCDF	-	-	25	-		U
1,2,3,6,7,8-HxCDF	-	-	25	-		U
2,3,4,6,7,8-HxCDF	-	-	25	-		U
1,2,3,7,8,9-HxCDF	-	-	25	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25	-		U
OCDF	-	-	50	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	0	-	10	U
TOTAL PeCDD	0	-	25	U
TOTAL HxCDD	0	-	25	U
TOTAL HpCDD	0	-	25	U
TOTAL TCDF	2	29.2	10	
TOTAL PeCDF	0	-	25	U
TOTAL HxCDF	0	-	25	U
TOTAL HpCDF	0	-	25	U

DATA REVIEWER: AMA 10/11/99

SCOEPA00008947

URS-Greiner Woodward-Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901854 **REFERENCE: 92C0804A.00**
FILE: A14683 **SAMPLE: 010-GG-01**
LAB ID.: E9901854-009

Project ID/P.O.:	92C0804A.00	Date collected:	8/31/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	0.985 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/17/99	Batch Number:	EB50186

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1160.3	57.1	0.80	24:09	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	1245.3	61.3	1.66	29:02	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1492.9	73.5	1.41	33:36	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	921.7	45.4	1.11	33:42	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1076.9	53.0	1.14	38:30	-
$^{13}C_{12}$-OCDD	2403.3	59.2	0.89	43:21	-
$^{13}C_{12}$-2,3,7,8-TCDF	1198.3	59.0	0.83	23:30	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1202.3	59.2	1.52	27:47	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1235.2	60.8	1.57	28:38	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1042.3	51.3	0.50	32:33	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	850.9	41.9	0.47	32:42	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1195.5	58.9	0.43	33:26	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1072.3	52.8	0.47	34:36	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	957.5	47.2	0.39	37:02	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1081.2	53.3	0.38	39:09	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.82	23:57	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.28	34:12	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	531.5	65.4	24:10	-

SCOEPA00008948

URS-Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901854 **REFERENCE: 92C0804A.00**
FILE: A14684 **SAMPLE: 001-GG-01**
LAB ID.: E9901854-010

Project ID/P.O.:	92C0804A.00	Date collected:	8/26/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	0.975 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/17/99	Batch Number:	EB50186

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	74.1	10	0.75	24:13	
1,2,3,7,8-PeCDD	-	69.6	10	1.58	29:06	
1,2,3,4,7,8-HxCDD	-	83.9	25	1.25	33:40	
1,2,3,6,7,8-HxCDD	-	651.2	25	1.29	33:46	
1,2,3,7,8,9-HxCDD	-	260.9	25	1.20	34:15	
1,2,3,4,6,7,8-HpCDD	-	8286.4	25	1.04	38:32	
OCDD	-	69550.4	50	0.88	43:23	E
2,3,7,8-TCDF	-	1658.5	10	0.77	23:36	C
1,2,3,7,8-PeCDF	-	-	10	-		U
2,3,4,7,8-PeCDF	-	25.3	10	1.62	28:44	J
1,2,3,4,7,8-HxCDF	-	74.9	25	1.20	32:37	
1,2,3,6,7,8-HxCDF	-	48.6	25	1.11	32:45	J
2,3,4,6,7,8-HxCDF	-	95.1	25	1.12	33:27	
1,2,3,7,8,9-HxCDF	-	-	25	-		U
1,2,3,4,6,7,8-HpCDF	-	2040.0	25	1.11	37:05	
1,2,3,4,7,8,9-HpCDF	-	127.4	25	1.09	39:11	
OCDF	-	11609.0	50	0.91	43:37	

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	5	634.9	10	
TOTAL PeCDD	7	585.5	25	
TOTAL HxCDD	5	3310.6	25	
TOTAL HpCDD	2	16653.9	25	
TOTAL TCDF	13	4566.0	10	E
TOTAL PeCDF	7	2018.8	25	
TOTAL HxCDF	6	1114.5	25	
TOTAL HpCDF	3	10410.2	25	

DATA REVIEWER: AMA 10/11/99

SCOEPA00008949

URS-Greiner Woodward-Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901854 **REFERENCE: 92C0804A.00**
FILE: A14684 **SAMPLE: 001-GG-01**
LAB ID.: E9901854-010

Project ID/P.O.:	92C0804A.00	Date collected:	8/26/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14673
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	0.975 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/17/99	Batch Number:	EB50186

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1282.5	62.5	0.78	24:13	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	1202.4	58.6	1.64	29:06	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1705.4	83.1	1.25	33:39	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1391.9	67.9	1.25	33:45	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	959.9	46.8	1.09	38:30	-
$^{13}C_{12}$-OCDD	2312.3	56.4	0.93	43:22	-
$^{13}C_{12}$-2,3,7,8-TCDF	1468.9	71.6	0.79	23:35	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1335.3	65.1	1.61	27:50	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1342.0	65.4	1.63	28:43	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1617.0	78.8	0.46	32:37	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1542.8	75.2	0.47	32:45	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1769.1	86.2	0.47	33:29	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1504.9	73.4	0.46	34:39	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1089.8	53.1	0.37	37:04	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	939.9	45.8	0.40	39:10	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.80	24:01	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.26	34:15	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	561.1	68.4	24:14	-

SCOEPA00008950

URS-Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901854 **REFERENCE: 92C0804A.00**
FILE: A14913 **SAMPLE: 001-GG-01**
LAB ID.: E9901854-010dil

Dilution 1:20

Project ID/P.O.:	92C0804A.00	Date collected:	8/26/99	RTWin / Col Pfm:	A14904
Sample origin:	RPAC-Task#44	Date received:	9/2/99	Beginning CCAL:	A14904
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14917
Sample size:	0.975 L	Date analyzed:	10/1/99	Initial CAL:	A051099
		Date processed:	10/7/99	Batch Number:	EB50186

corrected 10/28/99 BS

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	200 ~~10~~	-		U
1,2,3,7,8-PeCDD	-	-	200 ~~10~~	-		U
1,2,3,4,7,8-HxCDD	-	-	500 ~~25~~	-		U
1,2,3,6,7,8-HxCDD	-	-	500 ~~25~~	-		U
1,2,3,7,8,9-HxCDD	-	-	500 ~~25~~	-		U
1,2,3,4,6,7,8-HpCDD	-	4428.1	500 ~~25~~	1.00	34:26	
OCDD	-	44592.7	1000 ~~50~~	0.89	38:47	
2,3,7,8-TCDF	-	586.9	200 ~~10~~	0.73	20:11	
1,2,3,7,8-PeCDF	-	-	200 ~~10~~	-		U
2,3,4,7,8-PeCDF	-	-	200 ~~10~~	-		U
1,2,3,4,7,8-HxCDF	-	-	500 ~~25~~	-		U
1,2,3,6,7,8-HxCDF	-	-	500 ~~25~~	-		U
2,3,4,6,7,8-HxCDF	-	-	500 ~~25~~	-		U
1,2,3,7,8,9-HxCDF	-	-	500 ~~25~~	-		U
1,2,3,4,6,7,8-HpCDF	-	1079.8	500 ~~25~~	1.10	32:59	
1,2,3,4,7,8,9-HpCDF	-	-	500 ~~25~~	-		U
OCDF	-	7511.7	1000 ~~50~~	0.89	38:57	

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	0	-	10	U
TOTAL PeCDD	0	-	10	U
TOTAL HxCDD	2	1157.1	25	
TOTAL HpCDD	2	10070.5	25	
TOTAL TCDF	5	1551.9	10	
TOTAL PeCDF	3	991.3	10	J
TOTAL HxCDF	3	689.4	25	J
TOTAL HpCDF	2	5650.6	25	

DATA REVIEWER: AMA 10/11/99

SCOEPA00008951

URS-Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901856 **REFERENCE: 92C0804A.00**
FILE: A14685 **SAMPLE: 011-GG-01**
LAB ID.: E9901856-001

Project ID/P.O.:	92C0804A.00	Date collected:	8/31/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/3/99	Beginning CCAL:	A14673
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	0.96 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	·	·	10	·		U
1,2,3,7,8-PeCDD	·	·	10	·		U
1,2,3,4,7,8-HxCDD	·	·	25	·		U
1,2,3,6,7,8-HxCDD	·	·	25	·		U
1,2,3,7,8,9-HxCDD	·	·	25	·		U
1,2,3,4,6,7,8-HpCDD	·	65.4	25	0.95	38:30	
OCDD	·	586.9	50	0.92	43:20	
2,3,7,8-TCDF	·	17.4	10	0.67	23:34	
1,2,3,7,8-PeCDF	·	·	10	·		U
2,3,4,7,8-PeCDF	·	·	10	·		U
1,2,3,4,7,8-HxCDF	·	·	25	·		U
1,2,3,6,7,8-HxCDF	·	·	25	·		U
2,3,4,6,7,8-HxCDF	·	·	25	·		U
1,2,3,7,8,9-HxCDF	·	·	25	·		U
1,2,3,4,6,7,8-HpCDF	·	·	25	·		U
1,2,3,4,7,8,9-HpCDF	·	·	25	·		U
OCDF	·	105.0	50	0.88	43:35	

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	0	·	10	U
TOTAL PeCDD	0	·	10	U
TOTAL HxCDD	0	·	25	U
TOTAL HpCDD	2	133.6	25	
TOTAL TCDF	4	58.7	10	
TOTAL PeCDF	1	9.0	10	J
TOTAL HxCDF	0	·	25	U
TOTAL HpCDF	0	·	25	U

DATA REVIEWER: AMA 10/11/99

SCOEPA00008952

URS-Greiner Woodward-Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901856 **REFERENCE: 92C0804A.00**
FILE: A14685 **SAMPLE: 011-GG-01**
LAB ID.: E9901856-001

Project ID/P.O.:	92C0804A.00	Date collected:	8/31/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/3/99	Beginning CCAL:	A14673
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	0.96 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1207.8	58.0	0.79	24:11	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	1314.0	63.1	1.63	29:04	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1821.9	87.5	1.41	33:36	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1351.5	64.9	1.41	33:43	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	985.9	47.3	1.18	38:29	-
$^{13}C_{12}$-OCDD	2664.5	63.9	0.91	43:19	-
$^{13}C_{12}$-2,3,7,8-TCDF	1288.2	61.8	0.82	23:32	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1197.9	57.5	1.46	27:48	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1328.9	63.8	1.57	28:40	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1624.5	78.0	0.47	32:33	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1647.3	79.1	0.48	32:41	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1752.2	84.1	0.47	33:26	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1745.3	83.8	0.47	34:37	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1085.3	52.1	0.45	37:02	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1036.2	49.7	0.46	39:08	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.79	24:00	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.42	34:13	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	532.2	63.9	24:12	-

SCOEPA00008953

URS-Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901856 **REFERENCE: 92C0804A.00**
FILE: A14687 **SAMPLE: 012-GG-01**
LAB ID.: E9901856-002

Project ID/P.O.:	92C0804A.00	Date collected:	9/1/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/3/99	Beginning CCAL:	A14686
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14695
Sample size:	1 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	69.0	10	0.76	24:15	
1,2,3,7,8-PeCDD	-	-	10	-		U
1,2,3,4,7,8-HxCDD	-	-	25	-		U
1,2,3,6,7,8-HxCDD	-	-	25	-		U
1,2,3,7,8,9-HxCDD	-	-	25	-		U
1,2,3,4,6,7,8-HpCDD	-	145.6	25	1.08	38:32	
OCDD	-	1356.5	50	0.90	43:22	
2,3,7,8-TCDF	-	695.7	10	0.77	23:37	
1,2,3,7,8-PeCDF	-	-	10	-		U
2,3,4,7,8-PeCDF	-	-	10	-		U
1,2,3,4,7,8-HxCDF	-	46.9	25	1.14	32:37	J
1,2,3,6,7,8-HxCDF	-	-	25	-		U
2,3,4,6,7,8-HxCDF	-	-	25	-		U
1,2,3,7,8,9-HxCDF	-	-	25	-		U
1,2,3,4,6,7,8-HpCDF	-	65.9	25	1.05	37:03	
1,2,3,4,7,8,9-HpCDF	-	-	25	-		U
OCDF	-	179.3	50	0.98	43:37	

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	2	203.0	10	
TOTAL PeCDD	0	-	10	U
TOTAL HxCDD	0	-	25	U
TOTAL HpCDD	1	384.7	25	
TOTAL TCDF	8	4453.5	10	E
TOTAL PeCDF	3	1328.8	10	
TOTAL HxCDF	2	96.7	25	
TOTAL HpCDF	1	65.9	25	

DATA REVIEWER: AMA 10/11/99

SCOEPA00008954

URS-Greiner Woodward-Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901856 **REFERENCE: 92C0804A.00**
FILE: A14687 **SAMPLE: 012-GG-01**
LAB ID.: E9901856-002

Project ID/P.O.:	92C0804A.00	Date collected:	9/1/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/3/99	Beginning CCAL:	A14686
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14695
Sample size:	1 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	945.7	47.3	0.79	24:13	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	943.7	47.2	1.59	29:05	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	685.1	34.3	1.09	33:39	Y
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	924.0	46.2	1.27	33:45	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	544.6	27.2	1.04	38:31	Y
$^{13}C_{12}$-OCDD	1449.0	36.2	0.92	43:22	Y
$^{13}C_{12}$-2,3,7,8-TCDF	1135.8	56.8	0.82	23:36	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	984.0	49.2	1.64	27:50	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	986.5	49.3	1.59	28:42	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1028.1	51.4	0.47	32:35	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	863.8	43.2	0.44	32:44	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	905.5	45.3	0.43	33:28	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	933.1	46.7	0.46	34:38	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	590.6	29.5	0.46	37:03	Y
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	597.3	29.9	0.47	39:10	Y

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.83	24:02	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.22	34:14	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	440.1	55.0	24:14	-

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URS-Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

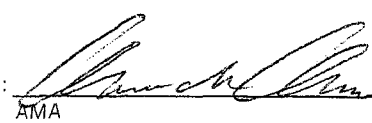
Method 8290

PROJECT: E9901856 **REFERENCE: 92C0804A.00**
FILE: A14690 **SAMPLE: 012-GG-01 MS**
LAB ID.: E9901856-002MS

Project ID/P.O.:	92C0804A.00	Date collected:	9/1/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/3/99	Beginning CCAL:	A14686
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14695
Sample size:	1 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	167.8	10	0.79	24:15	
1,2,3,7,8-PeCDD	-	1009.7	10	1.70	29:06	
1,2,3,4,7,8-HxCDD	-	944.4	25	1.20	33:38	
1,2,3,6,7,8-HxCDD	-	1035.3	25	1.26	33:45	
1,2,3,7,8,9-HxCDD	-	1127.1	25	1.20	34:15	
1,2,3,4,6,7,8-HpCDD	-	992.8	25	1.09	38:31	
OCDD	-	2069.8	50	0.91	43:22	
2,3,7,8-TCDF	-	201.2	10	0.72	23:37	
1,2,3,7,8-PeCDF	-	942.9	10	1.56	27:51	
2,3,4,7,8-PeCDF	-	898.9	10	1.66	28:42	
1,2,3,4,7,8-HxCDF	-	959.9	25	1.22	32:36	
1,2,3,6,7,8-HxCDF	-	972.3	25	1.19	32:44	
2,3,4,6,7,8-HxCDF	-	994.4	25	1.13	33:29	
1,2,3,7,8,9-HxCDF	-	961.8	25	1.23	34:39	
1,2,3,4,6,7,8-HpCDF	-	998.2	25	0.99	37:05	
1,2,3,4,7,8,9-HpCDF	-	993.2	25	0.94	39:10	
OCDF	-	2070.3	50	0.91	43:37	

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	3	182.8	10	
TOTAL PeCDD	1	1009.7	10	
TOTAL HxCDD	3	3106.8	25	
TOTAL HpCDD	1	992.8	25	
TOTAL TCDF	4	252.3	10	
TOTAL PeCDF	6	1883.0	10	
TOTAL HxCDF	5	3897.3	25	
TOTAL HpCDF	2	2074.7	25	

DATA REVIEWER:  10/11/99
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URS-Greiner Woodward-Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901856 **REFERENCE: 92C0804A.00**
FILE: A14690 **SAMPLE: 012-GG-01 MS**
LAB ID.: E9901856-002MS

Project ID/P.O.:	92C0804A.00	Date collected:	9/1/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/3/99	Beginning CCAL:	A14686
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14695
Sample size:	1 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1169.4	58.5	0.76	24:14	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	1312.4	65.6	1.58	29:05	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1371.7	68.6	1.30	33:37	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1269.1	63.5	1.30	33:44	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	982.1	49.1	1.02	38:30	-
$^{13}C_{12}$-OCDD	1000.4	25.0	0.92	43:22	Y
$^{13}C_{12}$-2,3,7,8-TCDF	1142.9	57.1	0.83	23:36	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1232.2	61.6	1.61	27:50	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1177.1	58.9	1.51	28:42	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1432.3	71.6	0.49	32:35	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1381.5	69.1	0.50	32:44	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1297.2	64.9	0.51	33:28	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1189.3	59.5	0.47	34:38	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	988.8	49.4	0.42	37:03	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	840.7	42.0	0.40	39:09	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.80	24:02	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.29	34:14	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	485.5	60.7	24:15	-

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URS-Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901856 **REFERENCE: 92C0804A.00**
FILE: A14692 **SAMPLE: 012-GG-01 MSD**
LAB ID.: E9901856-002MSD

Project ID/P.O.:	92C0804A.00	Date collected:	9/1/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/3/99	Beginning CCAL:	A14686
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14695
Sample size:	1 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD		215.1	10	0.72	24:16	
1,2,3,7,8-PeCDD		1065.9	10	1.59	29:07	
1,2,3,4,7,8-HxCDD		1005.2	25	1.23	33:38	
1,2,3,6,7,8-HxCDD		1036.4	25	1.22	33:45	
1,2,3,7,8,9-HxCDD		1052.4	25	1.24	34:14	
1,2,3,4,6,7,8-HpCDD		1012.0	25	1.11	38:30	
OCDD		2230.5	50	0.91	43:22	
2,3,7,8-TCDF		199.1	10	0.73	23:38	
1,2,3,7,8-PeCDF		1024.7	10	1.65	27:51	
2,3,4,7,8-PeCDF		998.5	10	1.78	28:44	
1,2,3,4,7,8-HxCDF		957.4	25	1.17	32:36	
1,2,3,6,7,8-HxCDF		985.1	25	1.19	32:45	
2,3,4,6,7,8-HxCDF		933.3	25	1.13	33:29	
1,2,3,7,8,9-HxCDF		928.9	25	1.21	34:39	
1,2,3,4,6,7,8-HpCDF		1114.4	25	1.14	37:04	
1,2,3,4,7,8,9-HpCDF		1045.0	25	1.11	39:11	
OCDF		2049.7	50	0.87	43:36	

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	3	220.0	10	
TOTAL PeCDD	0	1065.9	10	
TOTAL HxCDD	0	3094.0	25	
TOTAL HpCDD	1	1012.0	25	
TOTAL TCDF	6	308.1	10	
TOTAL PeCDF	4	2049.7	10	
TOTAL HxCDF	0	3804.6	25	
TOTAL HpCDF	1	2159.3	25	

DATA REVIEWER: AMA 10/11/99

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URS-Greiner Woodward-Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901856 **REFERENCE: 92C0804A.00**
FILE: A14692 **SAMPLE: 012-GG-01 MSD**
LAB ID.: E9901856-002MSD

Project ID/P.O.:	92C0804A.00	Date collected:	9/1/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/3/99	Beginning CCAL:	A14686
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14695
Sample size:	1 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1146.7	57.3	0.79	24:15	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	1272.0	63.6	1.62	29:06	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1526.9	76.3	1.29	33:37	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1314.5	65.7	1.29	33:45	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	725.7	36.3	1.01	38:29	Y
$^{13}C_{12}$-OCDD	772.4	19.3	0.92	43:20	Y
$^{13}C_{12}$-2,3,7,8-TCDF	1109.1	55.5	0.81	23:37	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1174.9	58.7	1.56	27:50	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1128.9	56.4	1.57	28:43	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1360.7	68.0	0.50	32:35	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1473.9	73.7	0.50	32:44	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1191.5	59.6	0.48	33:28	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1149.5	57.5	0.50	34:38	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	780.5	39.0	0.48	37:02	Y
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	555.1	27.8	0.44	39:09	Y

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.80	24:03	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.30	34:13	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	510.6	63.8	24:16	-

SCOEPA00008959

URS-Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901856 **REFERENCE: 92C0804A.00**
FILE: A14688 **SAMPLE: 013-GG-01**
LAB ID.: E9901856-003

Project ID/P.O.:	92C0804A.00	Date collected:	9/1/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/3/99	Beginning CCAL:	A14686
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14695
Sample size:	1 L	Date analyzed:	9/16/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10	-		U
1,2,3,7,8-PeCDD	-	-	10	-		U
1,2,3,4,7,8-HxCDD	-	-	25	-		U
1,2,3,6,7,8-HxCDD	-	-	25	-		U
1,2,3,7,8,9-HxCDD	-	-	25	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25	-		U
OCDD	-	54.9	50	0.93	43:22	J
2,3,7,8-TCDF	-	27.5	10	0.74	23:37	
1,2,3,7,8-PeCDF	-	-	10	-		U
2,3,4,7,8-PeCDF	-	-	10	-		U
1,2,3,4,7,8-HxCDF	-	-	25	-		U
1,2,3,6,7,8-HxCDF	-	-	25	-		U
2,3,4,6,7,8-HxCDF	-	-	25	-		U
1,2,3,7,8,9-HxCDF	-	-	25	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25	-		U
OCDF	-	-	50	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	0	-	10	U
TOTAL PeCDD	0	-	10	U
TOTAL HxCDD	0	-	25	U
TOTAL HpCDD	0	-	25	U
TOTAL TCDF	4	190.0	10	
TOTAL PeCDF	2	39.5	10	J
TOTAL HxCDF	0	-	25	U
TOTAL HpCDF	0	-	25	U

DATA REVIEWER: AMA 10/11/99

SCOEPA00008960

URS-Greiner Woodward-Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901856 **REFERENCE: 92C0804A.00**
FILE: A14688 **SAMPLE: 013-GG-01**
LAB ID.: E9901856-003

Project ID/P.O.:	92C0804A.00	Date collected:	9/1/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/3/99	Beginning CCAL:	A14686
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14695
Sample size:	1 L	Date analyzed:	9/16/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1434.0	71.7	0.81	24:14	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	1639.6	82.0	1.63	29:06	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	2250.2	112.5	1.31	33:38	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1531.3	76.6	1.31	33:45	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	831.8	41.6	1.11	38:30	-
$^{13}C_{12}$-OCDD	1995.3	49.9	0.93	43:22	-
$^{13}C_{12}$-2,3,7,8-TCDF	1581.7	79.1	0.81	23:36	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1562.2	78.1	1.56	27:51	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1579.8	79.0	1.60	28:44	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1735.9	86.8	0.45	32:36	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	2208.8	110.4	0.45	32:44	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	2477.8	123.9	0.45	33:29	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1838.4	91.9	0.46	34:39	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1220.8	61.0	0.45	37:04	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	888.0	44.4	0.43	39:10	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.81	24:02	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.26	34:15	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	633.4	79.2	24:15	-

SCOEPA00008961

URS-Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901856 **REFERENCE: 92C0804A.00**
FILE: A14689 **SAMPLE: 014-GG-01**
LAB ID.: E9901856-004

Project ID/P.O.:	92C0804A.00	Date collected:	9/1/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/3/99	Beginning CCAL:	A14686
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14695
Sample size:	0.98 L	Date analyzed:	9/16/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	63.3	10	0.84	24:17	
1,2,3,7,8-PeCDD	-	-	10	-		U
1,2,3,4,7,8-HxCDD	-	-	25	-		U
1,2,3,6,7,8-HxCDD	-	-	25	-		U
1,2,3,7,8,9-HxCDD	-	-	25	-		U
1,2,3,4,6,7,8-HpCDD	-	131.2	25	1.03	38:32	
OCDD	-	1138.7	50	0.92	43:23	
2,3,7,8-TCDF	-	1024.0	10	0.80	23:39	
1,2,3,7,8-PeCDF	-	27.7	10	1.39	27:53	J
2,3,4,7,8-PeCDF	-	13.3	10	1.53	28:47	J
1,2,3,4,7,8-HxCDF	-	55.4	25	1.16	32:40	
1,2,3,6,7,8-HxCDF	-	13.8	25	1.17	32:47	J
2,3,4,6,7,8-HxCDF	-	-	25	-		U
1,2,3,7,8,9-HxCDF	-	-	25	-		U
1,2,3,4,6,7,8-HpCDF	-	132.3	25	1.14	37:06	
1,2,3,4,7,8,9-HpCDF	-	-	25	-		U
OCDF	-	-	50	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	4	490.4	10	
TOTAL PeCDD	0	-	10	U
TOTAL HxCDD	0	-	25	U
TOTAL HpCDD	2	295.6	25	
TOTAL TCDF	10	6964.0	10	E
TOTAL PeCDF	4	1588.8	10	
TOTAL HxCDF	3	128.5	25	
TOTAL HpCDF	2	285.3	25	

DATA REVIEWER: AMA 10/11/99

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URS-Greiner Woodward-Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901856 **REFERENCE: 92C0804A.00**
FILE: A14689 **SAMPLE: 014-GG-01**
LAB ID.: E9901856-004

Project ID/P.O.:	92C0804A.00	Date collected:	9/1/99	RTWin / Col Pfm:	A14673
Sample origin:	RPAC-Task#44	Date received:	9/3/99	Beginning CCAL:	A14686
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14695
Sample size:	0.98 L	Date analyzed:	9/16/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1740.1	85.3	0.79	24:16	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	1244.8	61.0	1.58	29:09	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1753.8	85.9	1.15	33:41	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1536.8	75.3	1.34	33:48	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	883.1	43.3	1.06	38:32	-
$^{13}C_{12}$-OCDD	741.1	18.2	0.91	43:23	Y
$^{13}C_{12}$-2,3,7,8-TCDF	1904.2	93.3	0.83	23:37	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1400.1	68.6	1.50	27:53	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1310.7	64.2	1.55	28:46	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	2195.4	107.6	0.48	32:39	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1997.8	97.9	0.50	32:47	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	2086.8	102.3	0.50	33:32	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1862.0	91.2	0.49	34:41	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	954.4	46.8	0.41	37:05	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	807.2	39.6	0.43	39:12	Y

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.81	24:03	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.27	34:17	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	810.8	99.3	24:16	-

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QUALITY ASSURANCE DATA

SCOEPA00008964

URS-Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901854/1856 **REFERENCE: 92C0804A.00**
FILE: A14693 **SAMPLE: Lab Spike**
LAB ID.: EB50186-LS

Project ID/P.O.:	92C0804A.00	Date collected:	N/A	RTWin / Col Pfm:	A14673
Sample origin:	N/A	Date received:	N/A	Beginning CCAL:	A14686
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14695
Sample size:	1 L	Date analyzed:	9/16/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD		191.3	10	0.86	24:14	
1,2,3,7,8-PeCDD		1259.7	10	1.50	29:06	
1,2,3,4,7,8-HxCDD		1246.9	25	1.29	33:38	
1,2,3,6,7,8-HxCDD		1111.2	25	1.12	33:45	
1,2,3,7,8,9-HxCDD		1342.6	25	1.21	34:13	
1,2,3,4,6,7,8-HpCDD		1279.1	25	1.04	38:30	
OCDD		2260.5	50	0.91	43:20	
2,3,7,8-TCDF		257.0	10	0.74	23:37	
1,2,3,7,8-PeCDF		1255.1	10	1.66	27:50	
2,3,4,7,8-PeCDF		1255.4	10	1.56	28:42	
1,2,3,4,7,8-HxCDF		1136.0	25	1.14	32:35	
1,2,3,6,7,8-HxCDF		1169.8	25	1.21	32:43	
2,3,4,6,7,8-HxCDF		1168.8	25	1.10	33:28	
1,2,3,7,8,9-HxCDF		1143.9	25	1.25	34:38	
1,2,3,4,6,7,8-HpCDF		1275.6	25	1.05	37:03	
1,2,3,4,7,8,9-HpCDF		1269.7	25	0.95	39:08	
OCDF		2670.5	50	0.89	43:35	

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	1	191.3	10	
TOTAL PeCDD	1	1259.7	25	
TOTAL HxCDD	3	3700.7	25	
TOTAL HpCDD	1	1279.1	25	
TOTAL TCDF	1	257.0	10	
TOTAL PeCDF	2	2510.5	25	
TOTAL HxCDF	4	4618.6	25	
TOTAL HpCDF	2	2545.3	25	

DATA REVIEWER: _____ 10/11/99
AMA

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PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901854/1856 **REFERENCE: 92C0804A.00**
FILE: A14693 **SAMPLE: Lab Spike**
LAB ID.: EB50186-LS

Project ID/P.O.:	92C0804A.00	Date collected:	N/A	RTWin / Col Pfm:	A14673
Sample origin:	N/A	Date received:	N/A	Beginning CCAL:	A14686
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14695
Sample size:	1 L	Date analyzed:	9/16/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	248.5	12.4	0.81	24:13	Y
$^{13}C_{12}$-1,2,3,7,8-PeCDD	202.3	10.1	1.67	29:04	Y
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	245.0	12.3	1.11	33:36	Y
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	233.9	11.7	1.22	33:44	Y
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	197.2	9.9	1.16	38:29	Y
$^{13}C_{12}$-OCDD	345.7	8.6	0.88	43:19	Y
$^{13}C_{12}$-2,3,7,8-TCDF	254.3	12.7	0.78	23:36	Y
$^{13}C_{12}$-1,2,3,7,8-PeCDF	205.4	10.3	1.67	27:49	Y
$^{13}C_{12}$-2,3,4,7,8-PeCDF	206.2	10.3	1.50	28:40	Y
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	238.7	11.9	0.52	32:34	Y
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	236.8	11.8	0.47	32:43	Y
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	272.8	13.6	0.51	33:27	Y
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	255.2	12.8	0.49	34:37	Y
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	170.1	8.5	0.41	37:03	Y
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	200.0	10.0	0.49	39:08	Y

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.83	24:02	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.19	34:13	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	90.9	11.4	24:14	Y

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URS-Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901854/1856
FILE: A14674
LAB ID.: EB50186-MB

REFERENCE: 92C0804A.00
SAMPLE: Method Blank

Project ID/P.O.:	92C0804A.00	Date collected:	N/A	RTWin / Col Pfm:	A14673
Sample origin:	N/A	Date received:	N/A	Beginning CCAL:	A14673
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	1 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10	-		U
1,2,3,7,8-PeCDD	-	-	10	-		U
1,2,3,4,7,8-HxCDD	-	-	25	-		U
1,2,3,6,7,8-HxCDD	-	-	25	-		U
1,2,3,7,8,9-HxCDD	-	-	25	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25	-		U
OCDD	-	-	50	-		U
2,3,7,8-TCDF	-	-	10	-		U
1,2,3,7,8-PeCDF	-	-	10	-		U
2,3,4,7,8-PeCDF	-	-	10	-		U
1,2,3,4,7,8-HxCDF	-	-	25	-		U
1,2,3,6,7,8-HxCDF	-	-	25	-		U
2,3,4,6,7,8-HxCDF	-	-	25	-		U
1,2,3,7,8,9-HxCDF	-	-	25	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25	-		U
OCDF	-	-	50	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	0	-	10	U
TOTAL PeCDD	0	-	25	U
TOTAL HxCDD	0	-	25	U
TOTAL HpCDD	0	-	25	U
TOTAL TCDF	0	-	10	U
TOTAL PeCDF	0	-	25	U
TOTAL HxCDF	0	-	25	U
TOTAL HpCDF	0	-	25	U

DATA REVIEWER: AMA 10/11/99

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URS-Greiner Woodward-Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901854/1856 **REFERENCE: 92C0804A.00**
FILE: A14674 **SAMPLE: Method Blank**
LAB ID.: EB50186-MB

Project ID/P.O.:	92C0804A.00	Date collected:	N/A	RTWin / Col Pfm:	A14673
Sample origin:	N/A	Date received:	N/A	Beginning CCAL:	A14673
Sample matrix:	Water	Date extracted:	9/7/99	Ending CCAL:	A14686
Sample size:	1 L	Date analyzed:	9/15/99	Initial CAL:	A051099
		Date processed:	9/16/99	Batch Number:	EB50186

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	914.4	45.7	0.79	24:12	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	984.6	49.2	1.67	29:04	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	972.3	48.6	1.29	33:36	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	965.5	48.3	1.33	33:43	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1185.5	59.3	1.02	38:29	-
$^{13}C_{12}$-OCDD	4108.0	102.7	0.93	43:21	-
$^{13}C_{12}$-2,3,7,8-TCDF	979.1	49.0	0.82	23:35	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	993.7	49.7	1.57	27:49	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	989.8	49.5	1.57	28:40	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	950.3	47.5	0.45	32:34	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	830.4	41.5	0.45	32:42	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	978.5	48.9	0.46	33:27	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1087.1	54.4	0.43	34:36	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1036.9	51.8	0.42	37:02	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1477.8	73.9	0.40	39:08	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.79	24:01	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.30	34:12	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	434.4	54.3	24:13	-

SCOEPA00008968

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Dec 2, 1999

Columbia Analytical Services-Houston Project E9901899
URS Greiner Woodward Clyde Project Number: 92C0804A.00

Objective

Eight water samples were analyzed for tetrachloro- through octachloro- dibenzo-p-dioxins and furans by EPA SW-846 Method 8290.

Sample Receiving

The laboratory received the samples on Oct 21, 1999. The samples were received in good condition. The following lab accession numbers were assigned:

Lab ID	Client ID
E9901899-001	015-GG-01 12/6/99 KS
E9901899-002	015-GG-01 1
~~E9901899-003~~	~~015-GG-01~~
E9901899-004	016-GG-01
E9901899-005	017-GG-01
E9901899-006	018-GG-01
E9901899-007	017-GG-04
E9901899-008	020-GG-01
EB60017-LS	Lab Spike
EB60017-MB	Method Blank

Extraction

The samples were extracted according to the requirements of the Method. No discrepancies were encountered during extraction and cleanup.

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Analysis

The samples were analyzed by GC-MS according to the Method. Data are reported for tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans.
The following standards had recoveries outside the QC advisory limits:

Sample ID	*Internal Standard*	*Recovery (%)*
E9901899-006	13C12-1,2,3,7,8-PeCDD	145
E9901899-008	13C12-1,2,3,7,8-PeCDD	153

Quality Control

A Method Blank, Laboratory Spike, Matrix Spike and Matrix Spike Duplicate were analyzed with the sample batch.

Respectfully submitted,

Amer M. Amer, Ph.D.
Lab Manager

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ABBREVIATIONS AND FLAGS

Abbreviations and definitions

The following abbreviations and definitions are employed by Columbia Analytical Servces-Houston in its analytical reports for dioxin/furan analysis:

Cal	Calibration.
Conc	Concentration.
Dioxins	Polychlorinated dibenzo-p-dioxin(s).
EDL	Estimated detection limit.
EMPC	Estimated maximum possible concentration.
Flags	Data qualifiers.
Furans	Polychlorinated dibenzofuran(s).
g	Gram(s).
ID	Identifier.
Ions	Masses monitored for the analyte during data acquisition.
L	Liter(s).
LCS	Lab control sample.
MB	Method blank.
MDL	Method detection limit.
MS	Matrix spike.
MSD	Matrix spike duplicate.
NO	Number of peaks meeting all identification criteria
PCDD	Polychlorinated dibenzo-p-dioxin(s).
PCDF	Polychlorinated dibenzofuran(s).
ppb	Parts per billion.
ppq	Parts per quadrillion.
ppt	Parts per trillion.
QC	Quality control.
Ratio	Ratio of the areas from monitored ions for an analyte.
% Rec.	Percent recovery.
RRF	relative response factor.
RT	Retention time.
SDG	Sample Delivery Group.
S/N	Signal to noise ratio.
TEF	Toxicity equivalence factor.
TEQ	Toxicity equivalence.

Flags

The EPA qualifiers ("flags") for the Contract Laboratory Program are employed by Columbia Analytical Services. They are:

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B This flag is used when the analyte is found in the associated blank, as well as in the sample.

C Indicates that the value for the analyte was obtained by analysis using a DB-225 confirmation column.

D Indicates that the analysis was performed on a diluted extract. This is performed when the initial analysis indicates that one or more analytes are present at a concentration above theupper end of the linear calibration range.

E Indicates an estimated value. Employed when the analyte concentration is above the upper end of the linear calibration range.

J Indicates an estimated value. Employed when the analyte concentration is below the lower end of the linear calibration range, but above the detection limit.

M Indicates that the compound was quantified using a manual integration of the peak areas.

S Indicates that the analyte in question is, in the opinion of the GC–MS Interpretation Specialist, a PCDD/PCDF even though the [M–COCl]+ ion did not meet the requirement that the signal-to-noise be at least 2.5:1.

U Indicates that compound was analyzed for but not detected.

Y Indicates that recovery of labeled standard is outside the range specified by QA goals. These goals are not mandatory requirements.

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SUMMARY REPORT

SCOEPA00008973

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901899
FILE: A15225
LAB ID.: E9901899-001

REFERENCE: K9907412
SAMPLE: 015-GG-01

Project ID/P.O	K9907412	Date collected:	10/18/99	RTWin / Col Pfm:	A15223
Sample origin:	GP-GW Sampling	Date received:	10/21/99	Beginning CCAL:	A15223
Sample matrix	Water	Date extracted:	10/26/99	Ending CCAL:	A15234
Sample size:	1.05 L	Date analyzed:	11/4/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	63.4	10.0	ND	158.5	79%	50-150
1,2,3,7,8-PeCDD	-	10.0	ND	878.7	88%	50-150
1,2,3,4,7,8-HxCDD	-	25.0	ND	746.3	75%	50-150
1,2,3,6,7,8-HxCDD	-	25.0	ND	811.2	81%	50-150
1,2,3,7,8,9-HxCDD	-	25.0	ND	846.0	85%	50-150
1,2,3,4,6,7,8-HpCDD	102.9	25.0	ND	746.4	75%	50-150
OCDD	1020.9	50.0	ND	1644.9	82%	50-150
2,3,7,8-TCDF	1784.1	10.0	ND	152.3	76%	50-150
1,2,3,7,8-PeCDF	-	10.0	ND	864.4	86%	50-150
2,3,4,7,8-PeCDF	-	10.0	ND	827.7	83%	50-150
1,2,3,4,7,8-HxCDF	-	25.0	ND	731.5	73%	50-150
1,2,3,6,7,8-HxCDF	-	25.0	ND	799.3	80%	50-150
2,3,4,6,7,8-HxCDF	-	25.0	ND	774.9	77%	50-150
1,2,3,7,8,9-HxCDF	-	25.0	ND	786.9	79%	50-150
1,2,3,4,6,7,8-HpCDF	-	25.0	ND	918.6	92%	50-150
1,2,3,4,7,8,9-HpCDF	-	25.0	ND	880.2	88%	50-150
OCDF	42.1	50.0	ND	1499.2	75%	50-150

TOTAL ANALYTES	CONC (PPQ)	MDL (PPQ)
TOTAL TCDD	8030.5	10.0
TOTAL PeCDD	535.0	10.0
TOTAL HxCDD	-	25.0
TOTAL HpCDD	216.7	25.0
TOTAL OCDD	1020.9	50.0
TOTAL TCDF	16374.8	10.0
TOTAL PeCDF	2671.5	10.0
TOTAL HxCDF	-	25.0
TOTAL HpCDF	-	25.0
TOTAL OCDF	42.1	50.0

Definitions:

- **CONC** — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
- **EDL** — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
- **BLANK** — The concentration of the blank.
- **MS (PPQ)** — The concentration of Matrix Spike recovered.
- **MS (%)** — The percent recovery of the Matrix Spike.
- **ND** — (Non-Detect) The concentration of the analyte is less than the detection limit.
- **NR** — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 28891.63 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 243.93 PPQ

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URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901899 **REFERENCE: K9907412**
FILE: A15226 **SAMPLE: 015-GG-02**
LAB ID.: E9901899-002

Project ID/P.O	K9907412	Date collected:	10/18/99	RTWin / Col Pfm:	A15223
Sample origin:	GP-GW Sampling	Date received:	10/21/99	Beginning CCAL:	A15223
Sample matrix	Water	Date extracted:	10/26/99	Ending CCAL:	A15234
Sample size:	1 L	Date analyzed:	11/4/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	EDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	26.8	10.0	ND	158.5	79%	50-150
1,2,3,7,8-PeCDD	-	10.0	ND	878.7	88%	50-150
1,2,3,4,7,8-HxCDD	-	25.0	ND	746.3	75%	50-150
1,2,3,6,7,8-HxCDD	-	25.0	ND	811.2	81%	50-150
1,2,3,7,8,9-HxCDD	-	25.0	ND	846.0	85%	50-150
1,2,3,4,6,7,8-HpCDD	64.7	25.0	ND	746.4	75%	50-150
OCDD	639.1	50.0	ND	1644.9	82%	50-150
2,3,7,8-TCDF	951.1	10.0	ND	152.3	76%	50-150
1,2,3,7,8-PeCDF	-	10.0	ND	864.4	86%	50-150
2,3,4,7,8-PeCDF	-	10.0	ND	827.7	83%	50-150
1,2,3,4,7,8-HxCDF	-	25.0	ND	731.5	73%	50-150
1,2,3,6,7,8-HxCDF	-	25.0	ND	799.3	80%	50-150
2,3,4,6,7,8-HxCDF	-	25.0	ND	774.9	77%	50-150
1,2,3,7,8,9-HxCDF	-	25.0	ND	786.9	79%	50-150
1,2,3,4,6,7,8-HpCDF	-	25.0	ND	918.6	92%	50-150
1,2,3,4,7,8,9-HpCDF	-	25.0	ND	880.2	88%	50-150
OCDF	22.6	50.0	ND	1499.2	75%	50-150

TOTAL ANALYTES	CONC (PPQ)	EDL (PPQ)
TOTAL TCDD	4528.1	10.0
TOTAL PeCDD	285.0	10.0
TOTAL HxCDD	35.8	25.0
TOTAL HpCDD	128.7	25.0
TOTAL OCDD	639.1	50.0
TOTAL TCDF	13807.7	10.0
TOTAL PeCDF	1881.7	10.0
TOTAL HxCDF	-	25.0
TOTAL HpCDF	-	25.0
TOTAL OCDF	22.6	50.0

Definitions:

- CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
- EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
- BLANK — The concentration of the blank.
- MS (PPQ) — The concentration of Matrix Spike recovered.
- MS (%) — The percent recovery of the Matrix Spike.
- ND — (Non-Detect) The concentration of the analyte is less than the detection limit.
- NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 21328.63 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 123.21 PPQ

SCOEPA00008975

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901899 **REFERENCE: K9907412**
FILE: A15390 **SAMPLE: 015-GG-01MS**
LAB ID.: E9901899-003MS

Project ID/P.O	K9907412	Date collected:	10/18/99	RTWin / Col Pfm:	A15382
Sample origin:	GP-GW Sampling	Date received:	10/21/99	Beginning CCAL:	A15382
Sample matrix	Water	Date extracted:	10/26/99	Ending CCAL:	A15392
Sample size:	1.005 L	Date analyzed:	11/17/99	Initial CAL:	A092899
		Date processed:	12/1/99	Batch Number:	EB60017

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MDL (PPQ)	BLANK (PPQ)	MS (PPQ)	MS (%)	QC Limits
2,3,7,8-TCDD	205.7	10.0	ND	205.7	103%	50-150
1,2,3,7,8-PeCDD	962.3	10.0	ND	962.3	97%	50-150
1,2,3,4,7,8-HxCDD	815.2	25.0	ND	815.2	82%	50-150
1,2,3,6,7,8-HxCDD	896.2	25.0	ND	896.2	90%	50-150
1,2,3,7,8,9-HxCDD	862.6	25.0	ND	862.6	87%	50-150
1,2,3,4,6,7,8-HpCDD	879.0	25.0	ND	879.0	88%	50-150
OCDD	2182.9	50.0	ND	2182.9	110%	50-150
2,3,7,8-TCDF	911.4	10.0	ND	911.4	458%	50-150
1,2,3,7,8-PeCDF	924.6	10.0	ND	924.6	93%	50-150
2,3,4,7,8-PeCDF	862.2	10.0	ND	862.2	87%	50-150
1,2,3,4,7,8-HxCDF	862.2	25.0	ND	862.2	87%	50-150
1,2,3,6,7,8-HxCDF	880.4	25.0	ND	880.4	88%	50-150
2,3,4,6,7,8-HxCDF	908.8	25.0	ND	908.8	91%	50-150
1,2,3,7,8,9-HxCDF	871.7	25.0	ND	871.7	88%	50-150
1,2,3,4,6,7,8-HpCDF	893.8	25.0	ND	893.8	90%	50-150
1,2,3,4,7,8,9-HpCDF	828.8	25.0	ND	828.8	83%	50-150
OCDF	1682.1	50.0	ND	1682.1	85%	50-150

TOTAL ANALYTES	CONC (PPQ)	MDL (PPQ)
TOTAL TCDD	3785.0	10.0
TOTAL PeCDD	1257.9	10.0
TOTAL HxCDD	2574.0	25.0
TOTAL HpCDD	879.0	25.0
TOTAL OCDD	2182.9	50.0
TOTAL TCDF	11841.3	10.0
TOTAL PeCDF	3457.2	10.0
TOTAL HxCDF	3523.2	25.0
TOTAL HpCDF	1722.6	25.0
TOTAL OCDF	1682.1	50.0

Definitions:

- **CONC** — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
- **EDL** — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
- **BLANK** — The concentration of the blank.
- **MS (PPQ)** — The concentration of Matrix Spike recovered.
- **MS (%)** — The percent recovery of the Matrix Spike.
- **ND** — (Non-Detect) The concentration of the analyte is less than the detection limit.
- **NR** — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 32905.18 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 1894.92 PPQ

SCOEPA00008976

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901899 **REFERENCE: K9907412**
FILE: A15391 **SAMPLE: 015-GG-01MSD**
LAB ID.: E9901899-003MSD

Project ID/P.O	K9907412	Date collected:	10/18/99	RTWin / Col Pfm:	A15382
Sample origin:	GP-GW Sampling	Date received:	10/21/99	Beginning CCAL:	A15382
Sample matrix	Water	Date extracted:	10/26/99	Ending CCAL:	A15392
Sample size:	1 L	Date analyzed:	11/17/99	Initial CAL:	A092899
		Date processed:	12/1/99	Batch Number:	EB60017

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MDL (PPQ)	BLANK (PPQ)	MS (PPQ)	MS (%)	QC Limits
2,3,7,8-TCDD	193.4	10.0	ND	193.4	97%	50-150
1,2,3,7,8-PeCDD	979.7	10.0	ND	979.7	98%	50-150
1,2,3,4,7,8-HxCDD	757.2	25.0	ND	757.2	76%	50-150
1,2,3,6,7,8-HxCDD	809.1	25.0	ND	809.1	81%	50-150
1,2,3,7,8,9-HxCDD	765.8	25.0	ND	765.8	77%	50-150
1,2,3,4,6,7,8-HpCDD	937.2	25.0	ND	937.2	94%	50-150
OCDD	2272.2	50.0	ND	2272.2	114%	50-150
2,3,7,8-TCDF	1050.3	10.0	ND	1050.3	525%	50-150
1,2,3,7,8-PeCDF	971.9	10.0	ND	971.9	97%	50-150
2,3,4,7,8-PeCDF	908.3	10.0	ND	908.3	91%	50-150
1,2,3,4,7,8-HxCDF	897.1	25.0	ND	897.1	90%	50-150
1,2,3,6,7,8-HxCDF	901.9	25.0	ND	901.9	90%	50-150
2,3,4,6,7,8-HxCDF	871.7	25.0	ND	871.7	87%	50-150
1,2,3,7,8,9-HxCDF	840.6	25.0	ND	840.6	84%	50-150
1,2,3,4,6,7,8-HpCDF	995.3	25.0	ND	995.3	100%	50-150
1,2,3,4,7,8,9-HpCDF	851.2	25.0	ND	851.2	85%	50-150
OCDF	1750.4	50.0	ND	1750.4	88%	50-150

TOTAL ANALYTES	CONC (PPQ)	MDL (PPQ)
TOTAL TCDD	4226.0	10.0
TOTAL PeCDD	1233.7	10.0
TOTAL HxCDD	2332.1	25.0
TOTAL HpCDD	1015.5	25.0
TOTAL OCDD	2272.2	50.0
TOTAL TCDF	12948.2	10.0
TOTAL PeCDF	3936.4	10.0
TOTAL HxCDF	3511.3	25.0
TOTAL HpCDF	1846.5	25.0
TOTAL OCDF	1750.4	50.0

Definitions:

- **CONC** — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
- **EDL** — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
- **BLANK** — The concentration of the blank.
- **MS (PPQ)** — The concentration of Matrix Spike recovered.
- **MS (%)** — The percent recovery of the Matrix Spike.
- **ND** — (Non-Detect) The concentration of the analyte is less than the detection limit.
- **NR** — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 35072.25 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 1907.23 PPQ

SCOEPA00008977

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901899
FILE: A15228
LAB ID.: E9901899-004

REFERENCE: K9907412
SAMPLE: 016-GG-01

Project ID/P.O	K9907412	Date collected:	10/18/99	RTWin / Col Pfm:	A15223
Sample origin:	GP-GW Sampling	Date received:	10/21/99	Beginning CCAL:	A15223
Sample matrix	Water	Date extracted:	10/26/99	Ending CCAL:	A15234
Sample size:	1.01 L	Date analyzed:	11/4/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	EDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	154.0	10.0	ND	158.5	79%	50-150
1,2,3,7,8-PeCDD	-	10.0	ND	878.7	88%	50-150
1,2,3,4,7,8-HxCDD	-	25.0	ND	746.3	75%	50-150
1,2,3,6,7,8-HxCDD	-	25.0	ND	811.2	81%	50-150
1,2,3,7,8,9-HxCDD	-	25.0	ND	846.0	85%	50-150
1,2,3,4,6,7,8-HpCDD	-	25.0	ND	746.4	75%	50-150
OCDD	34.6	50.0	ND	1644.9	82%	50-150
2,3,7,8-TCDF	303.5	10.0	ND	152.3	76%	50-150
1,2,3,7,8-PeCDF	-	10.0	ND	864.4	86%	50-150
2,3,4,7,8-PeCDF	-	10.0	ND	827.7	83%	50-150
1,2,3,4,7,8-HxCDF	-	25.0	ND	731.5	73%	50-150
1,2,3,6,7,8-HxCDF	-	25.0	ND	799.3	80%	50-150
2,3,4,6,7,8-HxCDF	-	25.0	ND	774.9	77%	50-150
1,2,3,7,8,9-HxCDF	-	25.0	ND	786.9	79%	50-150
1,2,3,4,6,7,8-HpCDF	-	25.0	ND	918.6	92%	50-150
1,2,3,4,7,8,9-HpCDF	-	25.0	ND	880.2	88%	50-150
OCDF	-	50.0	ND	1499.2	75%	50-150

TOTAL ANALYTES	CONC (PPQ)	EDL (PPQ)
TOTAL TCDD	154.0	10.0
TOTAL PeCDD	8.7	10.0
TOTAL HxCDD	-	25.0
TOTAL HpCDD	-	25.0
TOTAL OCDD	34.6	50.0
TOTAL TCDF	21311.3	10.0
TOTAL PeCDF	481.1	10.0
TOTAL HxCDF	-	25.0
TOTAL HpCDF	-	25.0
TOTAL OCDF	-	50.0

Definitions:

- **CONC** — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
- **EDL** — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
- **BLANK** — The concentration of the blank.
- **MS (PPQ)** — The concentration of Matrix Spike recovered.
- **MS (%)** — The percent recovery of the Matrix Spike.
- **ND** — (Non-Detect) The concentration of the analyte is less than the detection limit.
- **NR** — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 21989.54 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 184.39 PPQ

SCOEPA00008978

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901899
FILE: A15229
LAB ID.: E9901899-005

REFERENCE: K9907412
SAMPLE: 017-GG-01

Project ID/P.O	K9907412	Date collected:	10/18/99	RTWin / Col Pfm:	A15223
Sample origin:	GP-GW Sampling	Date received:	10/21/99	Beginning CCAL:	A15223
Sample matrix	Water	Date extracted:	10/26/99	Ending CCAL:	A15234
Sample size:	0.89 L	Date analyzed:	11/4/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	EDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	10.0	ND	158.5	79%	50-150
1,2,3,7,8-PeCDD	-	10.0	ND	878.7	88%	50-150
1,2,3,4,7,8-HxCDD	-	25.0	ND	746.3	75%	50-150
1,2,3,6,7,8-HxCDD	-	25.0	ND	811.2	81%	50-150
1,2,3,7,8,9-HxCDD	-	25.0	ND	846.0	85%	50-150
1,2,3,4,6,7,8-HpCDD	-	25.0	ND	746.4	75%	50-150
OCDD	38.4	50.0	ND	1644.9	82%	50-150
2,3,7,8-TCDF	-	10.0	ND	152.3	76%	50-150
1,2,3,7,8-PeCDF	-	10.0	ND	864.4	86%	50-150
2,3,4,7,8-PeCDF	-	10.0	ND	827.7	83%	50-150
1,2,3,4,7,8-HxCDF	-	25.0	ND	731.5	73%	50-150
1,2,3,6,7,8-HxCDF	-	25.0	ND	799.3	80%	50-150
2,3,4,6,7,8-HxCDF	-	25.0	ND	774.9	77%	50-150
1,2,3,7,8,9-HxCDF	-	25.0	ND	786.9	79%	50-150
1,2,3,4,6,7,8-HpCDF	-	25.0	ND	918.6	92%	50-150
1,2,3,4,7,8,9-HpCDF	-	25.0	ND	880.2	88%	50-150
OCDF	-	50.0	ND	1499.2	75%	50-150

TOTAL ANALYTES	CONC (PPQ)	EDL (PPQ)
TOTAL TCDD	-	10.0
TOTAL PeCDD	98.2	10.0
TOTAL HxCDD	-	25.0
TOTAL HpCDD	-	25.0
TOTAL OCDD	38.4	50.0
TOTAL TCDF	75314.8	10.0
TOTAL PeCDF	64.1	10.0
TOTAL HxCDF	-	25.0
TOTAL HpCDF	-	25.0
TOTAL OCDF	-	50.0

Definitions:

- **CONC** — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
- **EDL** — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
- **BLANK** — The concentration of the blank.
- **MS (PPQ)** — The concentration of Matrix Spike recovered.
- **MS (%)** — The percent recovery of the Matrix Spike.
- **ND** — (Non-Detect) The concentration of the analyte is less than the detection limit.
- **NR** — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 75515.43 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 0.04 PPQ

SCOEPA00008979

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901899
FILE: A15230
LAB ID.: E9901899-006

REFERENCE: K9907412
SAMPLE: 018-GG-01

Project ID/P.O	K9907412	Date collected:	10/19/99	RTWin / Col Pfm:	A15223
Sample origin:	GP-GW Sampling	Date received:	10/21/99	Beginning CCAL:	A15223
Sample matrix	Water	Date extracted:	10/26/99	Ending CCAL:	A15234
Sample size:	1.05 L	Date analyzed:	11/4/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	EDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	10.0	ND	158.5	79%	50-150
1,2,3,7,8-PeCDD	-	10.0	ND	878.7	88%	50-150
1,2,3,4,7,8-HxCDD	-	25.0	ND	746.3	75%	50-150
1,2,3,6,7,8-HxCDD	-	25.0	ND	811.2	81%	50-150
1,2,3,7,8,9-HxCDD	-	25.0	ND	846.0	85%	50-150
1,2,3,4,6,7,8-HpCDD	-	25.0	ND	746.4	75%	50-150
OCDD	58.4	50.0	ND	1644.9	82%	50-150
2,3,7,8-TCDF	64.0	10.0	ND	152.3	76%	50-150
1,2,3,7,8-PeCDF	-	10.0	ND	864.4	86%	50-150
2,3,4,7,8-PeCDF	-	10.0	ND	827.7	83%	50-150
1,2,3,4,7,8-HxCDF	-	25.0	ND	731.5	73%	50-150
1,2,3,6,7,8-HxCDF	-	25.0	ND	799.3	80%	50-150
2,3,4,6,7,8-HxCDF	-	25.0	ND	774.9	77%	50-150
1,2,3,7,8,9-HxCDF	-	25.0	ND	786.9	79%	50-150
1,2,3,4,6,7,8-HpCDF	-	25.0	ND	918.6	92%	50-150
1,2,3,4,7,8,9-HpCDF	-	25.0	ND	880.2	88%	50-150
OCDF	-	50.0	ND	1499.2	75%	50-150

TOTAL ANALYTES	CONC (PPQ)	EDL (PPQ)
TOTAL TCDD	93.6	10.0
TOTAL PeCDD	-	10.0
TOTAL HxCDD	-	25.0
TOTAL HpCDD	-	25.0
TOTAL OCDD	58.4	50.0
TOTAL TCDF	336.9	10.0
TOTAL PeCDF	46.7	10.0
TOTAL HxCDF	-	25.0
TOTAL HpCDF	-	25.0
TOTAL OCDF	-	50.0

Definitions:

- **CONC** — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
- **EDL** — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
- **BLANK** — The concentration of the blank.
- **MS (PPQ)** — The concentration of Matrix Spike recovered.
- **MS (%)** — The percent recovery of the Matrix Spike.
- **ND** — (Non-Detect) The concentration of the analyte is less than the detection limit.
- **NR** — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 535.58 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 6.46 PPQ

SCOEPA00008980

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901899 **REFERENCE: K9907412**
FILE: A15231 **SAMPLE: 017-GG-04**
LAB ID.: E9901899-007

Project ID/P.O	K9907412	Date collected:	10/19/99	RTWin / Col Pfm:	A15223
Sample origin:	GP-GW Sampling	Date received:	10/21/99	Beginning CCAL:	A15223
Sample matrix	Water	Date extracted:	10/26/99	Ending CCAL:	A15234
Sample size:	1 L	Date analyzed:	11/4/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	EDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	10.0	ND	158.5	79%	50-150
1,2,3,7,8-PeCDD	-	10.0	ND	878.7	88%	50-150
1,2,3,4,7,8-HxCDD	-	25.0	ND	746.3	75%	50-150
1,2,3,6,7,8-HxCDD	-	25.0	ND	811.2	81%	50-150
1,2,3,7,8,9-HxCDD	-	25.0	ND	846.0	85%	50-150
1,2,3,4,6,7,8-HpCDD	-	25.0	ND	746.4	75%	50-150
OCDD	94.6	50.0	ND	1644.9	82%	50-150
2,3,7,8-TCDF	68.4	10.0	ND	152.3	76%	50-150
1,2,3,7,8-PeCDF	-	10.0	ND	864.4	86%	50-150
2,3,4,7,8-PeCDF	-	10.0	ND	827.7	83%	50-150
1,2,3,4,7,8-HxCDF	-	25.0	ND	731.5	73%	50-150
1,2,3,6,7,8-HxCDF	-	25.0	ND	799.3	80%	50-150
2,3,4,6,7,8-HxCDF	-	25.0	ND	774.9	77%	50-150
1,2,3,7,8,9-HxCDF	-	25.0	ND	786.9	79%	50-150
1,2,3,4,6,7,8-HpCDF	-	25.0	ND	918.6	92%	50-150
1,2,3,4,7,8,9-HpCDF	-	25.0	ND	880.2	88%	50-150
OCDF	-	50.0	ND	1499.2	75%	50-150

TOTAL ANALYTES	CONC (PPQ)	EDL (PPQ)
TOTAL TCDD	28.7	10.0
TOTAL PeCDD	-	10.0
TOTAL HxCDD	-	25.0
TOTAL HpCDD	-	25.0
TOTAL OCDD	94.6	50.0
TOTAL TCDF	323.9	10.0
TOTAL PeCDF	65.9	10.0
TOTAL HxCDF	-	25.0
TOTAL HpCDF	-	25.0
TOTAL OCDF	-	50.0

Definitions:

- **CONC** — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
- **EDL** — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
- **BLANK** — The concentration of the blank.
- **MS (PPQ)** — The concentration of Matrix Spike recovered.
- **MS (%)** — The percent recovery of the Matrix Spike.
- **ND** — (Non-Detect) The concentration of the analyte is less than the detection limit.
- **NR** — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 513.13 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 6.93 PPQ

SCOEPA00008981

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901899 **REFERENCE: K9907412**
FILE: A15232 **SAMPLE: 020-GG-01**
LAB ID.: E9901899-008

Project ID/P.O	K9907412	Date collected:	10/19/99	RTWin / Col Pfm:	A15223
Sample origin:	GP-GW Sampling	Date received:	10/21/99	Beginning CCAL:	A15223
Sample matrix	Water	Date extracted:	10/26/99	Ending CCAL:	A15234
Sample size:	1 L	Date analyzed:	11/4/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	EDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	10.0	ND	158.5	79%	50-150
1,2,3,7,8-PeCDD	-	10.0	ND	878.7	88%	50-150
1,2,3,4,7,8-HxCDD	-	25.0	ND	746.3	75%	50-150
1,2,3,6,7,8-HxCDD	-	25.0	ND	811.2	81%	50-150
1,2,3,7,8,9-HxCDD	-	25.0	ND	846.0	85%	50-150
1,2,3,4,6,7,8-HpCDD	-	25.0	ND	746.4	75%	50-150
OCDD	-	50.0	ND	1644.9	82%	50-150
2,3,7,8-TCDF	-	10.0	ND	152.3	76%	50-150
1,2,3,7,8-PeCDF	-	10.0	ND	864.4	86%	50-150
2,3,4,7,8-PeCDF	-	10.0	ND	827.7	83%	50-150
1,2,3,4,7,8-HxCDF	-	25.0	ND	731.5	73%	50-150
1,2,3,6,7,8-HxCDF	-	25.0	ND	799.3	80%	50-150
2,3,4,6,7,8-HxCDF	-	25.0	ND	774.9	77%	50-150
1,2,3,7,8,9-HxCDF	-	25.0	ND	786.9	79%	50-150
1,2,3,4,6,7,8-HpCDF	-	25.0	ND	918.6	92%	50-150
1,2,3,4,7,8,9-HpCDF	-	25.0	ND	880.2	88%	50-150
OCDF	-	50.0	ND	1499.2	75%	50-150

TOTAL ANALYTES	CONC (PPQ)	EDL (PPQ)
TOTAL TCDD	-	10.0
TOTAL PeCDD	-	10.0
TOTAL HxCDD	-	25.0
TOTAL HpCDD	-	25.0
TOTAL OCDD	-	50.0
TOTAL TCDF	-	10.0
TOTAL PeCDF	-	10.0
TOTAL HxCDF	-	25.0
TOTAL HpCDF	-	25.0
TOTAL OCDF	-	50.0

Definitions:

CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).

EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).

BLANK — The concentration of the blank.

MS (PPQ) — The concentration of Matrix Spike recovered.

MS (%) — The percent recovery of the Matrix Spike.

ND — (Non-Detect) The concentration of the analyte is less than the detection limit.

NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: ND
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: ND

SCOEPA00008982

ANALYSIS REPORT

SCOEPA00008983

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901899
FILE: A15225
LAB ID.: E9901899-001

REFERENCE: K9907412
SAMPLE: 015-GG-01

Project ID/P.O.:	K9907412	Date collected:	10/18/99	RTWin / Col Pfm:	A15223
Sample origin:	GP-GW Sampling	Date received:	10/21/99	Beginning CCAL:	A15223
Sample matrix:	Water	Date extracted:	10/26/99	Ending CCAL:	A15234
Sample size:	1.05 L	Date analyzed:	11/4/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	63.4	10.0	0.72	24:10	
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	102.9	25.0	1.08	38:16	
OCDD	-	1020.9	50.0	0.91	43:00	
2,3,7,8-TCDF	-	ND	10.0	0.83	23:33	C
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	42.1	50.0	0.91	43:14	J

TOTAL ANALYTES	NO	CONC (PPQ)	MDL (PPQ)	FLAGS
TOTAL TCDD	6	8030.5	10.0	E
TOTAL PeCDD	3	535.0	10.0	
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	2	216.7	25.0	
TOTAL TCDF	10	16374.8	10.0	E
TOTAL PeCDF	3	2671.5	10.0	
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 12/2/99

SCOEPA00008984

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901899 **REFERENCE: K9907412**
FILE: A15225 **SAMPLE: 015-GG-01**
LAB ID.: E9901899-001

Project ID/P.O.:	K9907412	Date collected:	#######	RTWin / Col Pfm:	A15223
Sample origin:	GP-GW Sampling	Date received:	#######	Beginning CCAL:	A15223
Sample matrix:	Water	Date extracted:	#######	Ending CCAL:	A15234
Sample size:	1.05 L	Date analyzed:	11/4/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1292.3	67.8	0.77	24:09	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	1651.9	86.7	1.55	28:56	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1477.9	77.6	1.27	33:25	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1332.1	69.9	1.27	33:33	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1370.1	71.9	1.14	38:15	-
$^{13}C_{12}$-OCDD	2464.3	64.7	0.91	42:59	-
$^{13}C_{12}$-2,3,7,8-TCDF	935.9	49.1	0.73	23:30	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1782.3	93.6	1.60	27:41	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1412.4	74.2	1.57	28:32	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1370.6	72.0	0.53	32:23	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1339.6	70.3	0.54	32:32	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1235.3	64.9	0.52	33:16	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1004.4	52.7	0.48	34:26	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1591.7	83.6	0.46	36:48	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1207.8	63.4	0.47	38:55	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.81	23:59	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.33	34:02	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	706.1	92.7	24:10	-

SCOEPA00008985

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901899
FILE: A15226
LAB ID.: E9901899-002

REFERENCE: K9907412
SAMPLE: 015-GG-02

Project ID/P.O.:	K9907412	Date collected:	10/18/99	RTWin / Col Pfm:	A15223
Sample origin:	GP-GW Sampling	Date received:	10/21/99	Beginning CCAL:	A15223
Sample matrix:	Water	Date extracted:	10/26/99	Ending CCAL:	A15234
Sample size:	1 L	Date analyzed:	11/4/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	EDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	26.8	10.0	0.72	24:09	
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	64.7	25.0	0.89	38:16	
OCDD	-	639.1	50.0	0.92	42:59	
2,3,7,8-TCDF	-	108.2	10.0	0.77	23:31	C
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	22.6	50.0	0.81	43:14	J

TOTAL ANALYTES	NO	CONC (PPQ)	EDL (PPQ)	FLAGS
TOTAL TCDD	6	4528.1	10.0	E
TOTAL PeCDD	3	285.0	10.0	
TOTAL HxCDD	1	35.8	25.0	J
TOTAL HpCDD	2	128.7	25.0	
TOTAL TCDF	12	13807.7	10.0	E
TOTAL PeCDF	7	1881.7	10.0	
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 12/2/99

SCOEPA00008986

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901899 **REFERENCE: K9907412**
FILE: A15226 **SAMPLE: 015-GG-02**
LAB ID.: E9901899-002

Project ID/P.O.:	K9907412	Date collected:	#######	RTWin / Col Pfm:	A15223
Sample origin:	GP-GW Sampling	Date received:	#######	Beginning CCAL:	A15223
Sample matrix:	Water	Date extracted:	#######	Ending CCAL:	A15234
Sample size:	1 L	Date analyzed:	11/4/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1543.6	77.2	0.80	24:07	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2379.2	119.0	1.62	28:55	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1744.6	87.2	1.15	33:25	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1755.7	87.8	1.18	33:32	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1426.9	71.3	1.15	38:15	-
$^{13}C_{12}$-OCDD	2474.6	61.9	0.92	42:59	-
$^{13}C_{12}$-2,3,7,8-TCDF	1269.5	63.5	0.73	23:28	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	2122.8	106.1	1.60	27:40	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1990.6	99.5	1.61	28:31	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1612.4	80.6	0.53	32:22	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1475.5	73.8	0.50	32:31	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1404.7	70.2	0.53	33:15	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1255.8	62.8	0.52	34:25	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1164.3	58.2	0.40	36:47	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1240.7	62.0	0.43	38:55	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.84	23:58	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.15	34:01	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	634.4	79.3	24:08	-

SCOEPA00008987

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901899 **REFERENCE: K9907412**
FILE: A15390 **SAMPLE: 015-GG-01MS**
LAB ID.: E9901899-003MS

Project ID/P.O.:	K9907412	Date collected:	10/18/99	RTWin / Col Pfm:	A15382
Sample origin:	GP-GW Sampling	Date received:	10/21/99	Beginning CCAL:	A15382
Sample matrix:	Water	Date extracted:	10/26/99	Ending CCAL:	A15392
Sample size:	1.005 L	Date analyzed:	11/17/99	Initial CAL:	A092899
		Date processed:	12/1/99	Batch Number:	EB60017

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	205.7	10.0	0.66	24:09	
1,2,3,7,8-PeCDD	-	962.3	10.0	1.58	28:56	
1,2,3,4,7,8-HxCDD	-	815.2	25.0	1.20	33:25	
1,2,3,6,7,8-HxCDD	-	896.2	25.0	1.17	33:32	
1,2,3,7,8,9-HxCDD	-	862.6	25.0	1.15	34:01	
1,2,3,4,6,7,8-HpCDD	-	879.0	25.0	1.20	38:15	
OCDD	-	2182.9	50.0	0.88	42:59	
2,3,7,8-TCDF	-	911.4	10.0	0.74	23:31	
1,2,3,7,8-PeCDF	-	924.6	10.0	1.52	27:40	
2,3,4,7,8-PeCDF	-	862.2	10.0	1.45	28:32	
1,2,3,4,7,8-HxCDF	-	862.2	25.0	1.07	32:23	
1,2,3,6,7,8-HxCDF	-	880.4	25.0	1.10	32:31	
2,3,4,6,7,8-HxCDF	-	908.8	25.0	1.25	33:16	
1,2,3,7,8,9-HxCDF	-	871.7	25.0	1.12	34:26	
1,2,3,4,6,7,8-HpCDF	-	893.8	25.0	1.06	36:48	
1,2,3,4,7,8,9-HpCDF	-	828.8	25.0	1.02	38:55	
OCDF	-	1682.1	50.0	0.95	43:14	

TOTAL ANALYTES	NO	CONC (PPQ)	MDL (PPQ)	FLAGS
TOTAL TCDD	6	3785.0	10.0	
TOTAL PeCDD	3	1257.9	10.0	
TOTAL HxCDD	3	2574.0	25.0	
TOTAL HpCDD	1	879.0	25.0	
TOTAL TCDF	7	11841.3	10.0	E
TOTAL PeCDF	5	3457.2	10.0	
TOTAL HxCDF	4	3523.2	25.0	
TOTAL HpCDF	2	1722.6	25.0	

DATA REVIEWER: AMA 12/2/99

SCOEPA00008988

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901899 **REFERENCE: K9907412**
FILE: A15390 **SAMPLE: 015-GG-01MS**
LAB ID.: E9901899-003MS

Project ID/P.O.:	K9907412	Date collected:	#######	RTWin / Col Pfm:	A15382
Sample origin:	GP-GW Sampling	Date received:	#######	Beginning CCAL:	A15382
Sample matrix:	Water	Date extracted:	#######	Ending CCAL:	A15392
Sample size:	1.005 L	Date analyzed:	#######	Initial CAL:	A092899
		Date processed:	12/1/99	Batch Number:	EB60017

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1517.0	76.2	0.85	24:08	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	1987.1	99.9	1.65	28:55	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1787.9	89.8	1.28	33:24	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1691.8	85.0	1.36	33:31	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1847.3	92.8	1.02	38:14	-
$^{13}C_{12}$-OCDD	2011.4	50.5	0.89	42:58	-
$^{13}C_{12}$-2,3,7,8-TCDF	1345.7	67.6	0.78	23:29	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1913.5	96.2	1.71	27:40	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1763.6	88.6	1.64	28:31	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1354.6	68.1	0.46	32:22	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1306.3	65.6	0.49	32:30	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1221.1	61.4	0.46	33:15	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1213.7	61.0	0.52	34:25	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1750.9	88.0	0.50	36:47	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1764.6	88.7	0.47	38:54	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.83	23:58	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.12	34:00	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	618.2	77.7	24:09	-

SCOEPA00008989

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901899
FILE: A15391
LAB ID.: E9901899-003MSD

REFERENCE: K9907412
SAMPLE: 015-GG-01MSD

Project ID/P.O.:	K9907412	Date collected:	10/18/99	RTWin / Col Pfm:	A15382
Sample origin:	GP-GW Sampling	Date received:	10/21/99	Beginning CCAL:	A15382
Sample matrix:	Water	Date extracted:	10/26/99	Ending CCAL:	A15392
Sample size:	1 L	Date analyzed:	11/17/99	Initial CAL:	A092899
		Date processed:	12/1/99	Batch Number:	EB60017

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	193.4	10.0	0.65	24:09	
1,2,3,7,8-PeCDD	-	979.7	10.0	1.54	28:56	
1,2,3,4,7,8-HxCDD	-	757.2	25.0	1.17	33:25	
1,2,3,6,7,8-HxCDD	-	809.1	25.0	1.20	33:32	
1,2,3,7,8,9-HxCDD	-	765.8	25.0	1.16	34:01	
1,2,3,4,6,7,8-HpCDD	-	937.2	25.0	1.18	38:15	
OCDD	-	2272.2	50.0	0.89	42:59	
2,3,7,8-TCDF	-	1050.3	10.0	0.78	23:31	
1,2,3,7,8-PeCDF	-	971.9	10.0	1.62	27:40	
2,3,4,7,8-PeCDF	-	908.3	10.0	1.56	28:32	
1,2,3,4,7,8-HxCDF	-	897.1	25.0	1.18	32:23	
1,2,3,6,7,8-HxCDF	-	901.9	25.0	1.21	32:31	
2,3,4,6,7,8-HxCDF	-	871.7	25.0	1.14	33:15	
1,2,3,7,8,9-HxCDF	-	840.6	25.0	1.15	34:25	
1,2,3,4,6,7,8-HpCDF	-	995.3	25.0	1.07	36:47	
1,2,3,4,7,8,9-HpCDF	-	851.2	25.0	0.99	38:55	
OCDF	-	1750.4	50.0	0.92	43:12	

TOTAL ANALYTES	NO	CONC (PPQ)	MDL (PPQ)	FLAGS
TOTAL TCDD	7	4226.0	10.0	E
TOTAL PeCDD	3	1233.7	10.0	
TOTAL HxCDD	3	2332.1	25.0	
TOTAL HpCDD	2	1015.5	25.0	
TOTAL TCDF	7	12948.2	10.0	E
TOTAL PeCDF	5	3936.4	10.0	
TOTAL HxCDF	4	3511.3	25.0	
TOTAL HpCDF	2	1846.5	25.0	

DATA REVIEWER: AMA 12/2/99

SCOEPA00008990

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901899 **REFERENCE: K9907412**
FILE: A15391 **SAMPLE: 015-GG-01MSD**
LAB ID.: E9901899-003MSD

Project ID/P.O.:	K9907412	Date collected:	#######	RTWin / Col Pfm:	A15382
Sample origin:	GP-GW Sampling	Date received:	#######	Beginning CCAL:	A15382
Sample matrix:	Water	Date extracted:	#######	Ending CCAL:	A15392
Sample size:	1 L	Date analyzed:	#######	Initial CAL:	A092899
		Date processed:	12/1/99	Batch Number:	EB60017

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1658.3	82.9	0.81	24:08	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2034.7	101.7	1.61	28:55	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1924.3	96.2	1.24	33:24	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	2025.4	101.3	1.20	33:31	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2043.1	102.2	1.10	38:14	-
$^{13}C_{12}$-OCDD	2219.6	55.5	0.90	42:57	-
$^{13}C_{12}$-2,3,7,8-TCDF	1388.8	69.4	0.78	23:29	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1922.6	96.1	1.63	27:40	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1829.4	91.5	1.65	28:31	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1487.7	74.4	0.48	32:22	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1471.4	73.6	0.49	32:30	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1342.3	67.1	0.49	33:14	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1286.5	64.3	0.47	34:24	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	2025.5	101.3	0.44	36:46	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1730.4	86.5	0.44	38:53	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.83	23:58	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.20	34:00	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	654.1	81.8	24:09	-

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URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901899
FILE: A15228
LAB ID.: E9901899-004

REFERENCE: K9907412
SAMPLE: 016-GG-01

Project ID/P.O.:	K9907412	Date collected:	10/18/99	RTWin / Col Pfm:	A15223
Sample origin:	GP-GW Sampling	Date received:	10/21/99	Beginning CCAL:	A15223
Sample matrix:	Water	Date extracted:	10/26/99	Ending CCAL:	A15234
Sample size:	1.01 L	Date analyzed:	11/4/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	EDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	154.0	10.0	0.75	23:57	
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	34.6	50.0	0.97	42:52	J
2,3,7,8-TCDF	-	ND	10.0	0.78	23:25	C
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	EDL (PPQ)	FLAGS
TOTAL TCDD	1	154.0	10.0	
TOTAL PeCDD	2	8.7	10.0	J
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	12	21311.3	10.0	E
TOTAL PeCDF	5	481.1	10.0	
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: _____ 12/2/99
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URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901899 **REFERENCE: K9907412**
FILE: A15228 **SAMPLE: 016-GG-01**
LAB ID.: E9901899-004

Project ID/P.O.:	K9907412	Date collected:	#######	RTWin / Col Pfm:	A15223
Sample origin:	GP-GW Sampling	Date received:	#######	Beginning CCAL:	A15223
Sample matrix:	Water	Date extracted:	#######	Ending CCAL:	A15234
Sample size:	1.01 L	Date analyzed:	11/4/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1454.4	73.4	0.83	24:00	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2374.1	119.9	1.69	28:49	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1567.3	79.1	1.33	33:18	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1431.0	72.3	1.29	33:26	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1556.7	78.6	1.15	38:08	-
$^{13}C_{12}$-OCDD	2013.4	50.8	0.90	42:52	-
$^{13}C_{12}$-2,3,7,8-TCDF	1195.4	60.4	0.81	23:22	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1623.2	82.0	1.58	27:33	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1866.7	94.3	1.59	28:24	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1393.1	70.3	0.50	32:16	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1295.6	65.4	0.49	32:24	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1237.0	62.5	0.50	33:09	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1174.3	59.3	0.48	34:18	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1463.9	73.9	0.45	36:41	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1477.5	74.6	0.46	38:48	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.85	23:50	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.30	33:54	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	574.4	72.5	24:01	-

SCOEPA00008993

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901899 **REFERENCE: K9907412**
FILE: A15229 **SAMPLE: 017-GG-01**
LAB ID.: E9901899-005

Project ID/P.O.:	K9907412	Date collected:	10/18/99	RTWin / Col Pfm:	A15223
Sample origin:	GP-GW Sampling	Date received:	10/21/99	Beginning CCAL:	A15223
Sample matrix:	Water	Date extracted:	10/26/99	Ending CCAL:	A15234
Sample size:	0.89 L	Date analyzed:	11/4/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	EDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	38.4	50.0	0.96	42:59	J
2,3,7,8-TCDF	-	-	10.0	-		U
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	EDL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	5	98.2	10.0	
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	1	-	25.0	U
TOTAL TCDF	5	75314.8	10.0	E
TOTAL PeCDF	1	64.1	10.0	
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 12/2/99

SCOEPA00008994

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901899 **REFERENCE: K9907412**
FILE: A15229 **SAMPLE: 017-GG-01**
LAB ID.: E9901899-005

Project ID/P.O.:	K9907412	Date collected:	#######	RTWin / Col Pfm:	A15223
Sample origin:	GP-GW Sampling	Date received:	#######	Beginning CCAL:	A15223
Sample matrix:	Water	Date extracted:	#######	Ending CCAL:	A15234
Sample size:	0.89 L	Date analyzed:	11/4/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1515.8	67.5	0.89	24:07	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2195.8	97.7	1.73	28:55	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1756.6	78.2	1.29	33:24	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1860.3	82.8	1.28	33:31	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2074.8	92.3	1.05	38:14	-
$^{13}C_{12}$-OCDD	2592.4	57.7	0.90	42:57	-
$^{13}C_{12}$-2,3,7,8-TCDF	1631.9	72.6	0.80	23:28	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1879.5	83.6	1.55	27:39	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	2123.6	94.5	1.57	28:31	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1620.8	72.1	0.51	32:22	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1471.0	65.5	0.53	32:30	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1458.9	64.9	0.50	33:14	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1422.3	63.3	0.50	34:24	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1681.8	74.8	0.48	36:46	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1704.8	75.9	0.45	38:53	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.85	23:57	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.30	34:00	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	822.4	91.5	24:08	-

SCOEPA00008995

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901899
FILE: A15230
LAB ID.: E9901899-006

REFERENCE: K9907412
SAMPLE: 018-GG-01

Project ID/P.O.:	K9907412	Date collected:	10/19/99	RTWin / Col Pfm:	A15223
Sample origin:	GP-GW Sampling	Date received:	10/21/99	Beginning CCAL:	A15223
Sample matrix:	Water	Date extracted:	10/26/99	Ending CCAL:	A15234
Sample size:	1.05 L	Date analyzed:	11/4/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	EDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	58.4	50.0	0.89	43:00	J
2,3,7,8-TCDF	-	ND	10.0	0.68	23:31	C
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	EDL (PPQ)	FLAGS
TOTAL TCDD	5	93.6	10.0	
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	4	336.9	10.0	
TOTAL PeCDF	2	46.7	10.0	J
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 12/2/99

SCOEPA00008996

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901899 **REFERENCE: K9907412**
FILE: A15230 **SAMPLE: 018-GG-01**
LAB ID.: E9901899-006

Project ID/P.O.:	K9907412	Date collected:	#######	RTWin / Col Pfm:	A15223
Sample origin:	GP-GW Sampling	Date received:	#######	Beginning CCAL:	A15223
Sample matrix:	Water	Date extracted:	#######	Ending CCAL:	A15234
Sample size:	1.05 L	Date analyzed:	11/4/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1744.2	91.6	0.81	24:07	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2759.8	144.9	1.59	28:55	Y
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1707.8	89.7	1.21	33:25	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1802.1	94.6	1.23	33:32	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1703.9	89.5	1.03	38:15	-
$^{13}C_{12}$-OCDD	2455.8	64.5	0.92	42:59	-
$^{13}C_{12}$-2,3,7,8-TCDF	1335.6	70.1	0.79	23:29	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	2237.4	117.5	1.58	27:40	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	2261.7	118.7	1.58	28:31	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1493.3	78.4	0.51	32:22	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1296.5	68.1	0.52	32:31	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1287.3	67.6	0.50	33:16	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1443.2	75.8	0.54	34:25	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1660.3	87.2	0.42	36:48	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1560.1	81.9	0.42	38:54	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.80	23:58	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.19	34:01	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	568.4	74.6	24:08	-

SCOEPA00008997

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901899
FILE: A15231
LAB ID.: E9901899-007

REFERENCE: K9907412
SAMPLE: 017-GG-04

Project ID/P.O.:	K9907412	Date collected:	10/19/99	RTWin / Col Pfm:	A15223
Sample origin:	GP-GW Sampling	Date received:	10/21/99	Beginning CCAL:	A15223
Sample matrix:	Water	Date extracted:	10/26/99	Ending CCAL:	A15234
Sample size:	1 L	Date analyzed:	11/4/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	EDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	94.6	50.0	0.90	43:15	J
2,3,7,8-TCDF	-	ND	10.0	0.78	23:30	C
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	EDL (PPQ)	FLAGS
TOTAL TCDD	2	28.7	10.0	
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	5	323.9	10.0	
TOTAL PeCDF	2	65.9	10.0	
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 12/2/99

SCOEPA00008998

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901899 **REFERENCE: K9907412**
FILE: A15231 **SAMPLE: 017-GG-04**
LAB ID.: E9901899-007

Project ID/P.O.:	K9907412	Date collected:	#######	RTWin / Col Pfm:	A15223
Sample origin:	GP-GW Sampling	Date received:	#######	Beginning CCAL:	A15223
Sample matrix:	Water	Date extracted:	#######	Ending CCAL:	A15234
Sample size:	1 L	Date analyzed:	11/4/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1578.8	78.9	0.78	24:06	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2435.9	121.8	1.56	28:55	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1374.1	68.7	1.17	33:29	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1306.4	65.3	1.20	33:36	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1485.9	74.3	1.07	38:17	-
$^{13}C_{12}$-OCDD	2029.9	50.7	0.91	43:15	-
$^{13}C_{12}$-2,3,7,8-TCDF	1291.0	64.6	0.80	23:27	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	2047.8	102.4	1.61	27:39	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1955.5	97.8	1.58	28:31	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1156.6	57.8	0.52	32:24	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1032.4	51.6	0.53	32:34	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1026.8	51.3	0.52	33:19	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	973.0	48.6	0.52	34:27	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1150.6	57.5	0.41	36:49	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1362.4	68.1	0.42	38:57	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.80	23:57	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.18	34:04	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	616.6	77.1	24:07	-

SCOEPA00008999

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901899
FILE: A15232
LAB ID.: E9901899-008

REFERENCE: K9907412
SAMPLE: 020-GG-01

Project ID/P.O.:	K9907412	Date collected:	10/19/99	RTWin / Col Pfm:	A15223
Sample origin:	GP-GW Sampling	Date received:	10/21/99	Beginning CCAL:	A15223
Sample matrix:	Water	Date extracted:	10/26/99	Ending CCAL:	A15234
Sample size:	1 L	Date analyzed:	11/4/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	EDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	-	50.0	-		U
2,3,7,8-TCDF	-	-	10.0	-		U
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	EDL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	0	-	10.0	U
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 12/2/99

SCOEPA00009000

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901899 **REFERENCE: K9907412**
FILE: A15232 **SAMPLE: 020-GG-01**
LAB ID.: E9901899-008

Project ID/P.O.:	K9907412	Date collected:	#######	RTWin / Col Pfm:	A15223
Sample origin:	GP-GW Sampling	Date received:	#######	Beginning CCAL:	A15223
Sample matrix:	Water	Date extracted:	#######	Ending CCAL:	A15234
Sample size:	1 L	Date analyzed:	11/4/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1812.9	90.6	0.84	24:09	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	3068.5	153.4	1.60	28:57	Y
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	2028.2	101.4	1.20	33:26	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1825.9	91.3	1.23	33:34	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2324.9	116.2	1.11	38:16	-
$^{13}C_{12}$-OCDD	2747.8	68.7	0.90	42:59	-
$^{13}C_{12}$-2,3,7,8-TCDF	1487.0	74.4	0.78	23:30	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	2574.0	128.7	1.63	27:42	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	2397.4	119.9	1.62	28:33	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1688.8	84.4	0.54	32:24	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1547.4	77.4	0.53	32:32	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1647.7	82.4	0.54	33:17	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1715.4	85.8	0.53	34:27	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1944.8	97.2	0.43	36:49	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	2006.6	100.3	0.42	38:55	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.85	24:00	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.20	34:03	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	574.5	71.8	24:10	-

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QUALITY ASSURANCE DATA

SCOEPA00009002

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901899 **REFERENCE: K9907412**
FILE: A15389 **SAMPLE: Lab Spike**
LAB ID.: EB60017-LS

Project ID/P.O.:	K9907412	Date collected:	NA	RTWin / Col Pfm:	A15382
Sample origin:	GP-GW Sampling	Date received:	NA	Beginning CCAL:	A15382
Sample matrix:	Water	Date extracted:	10/26/99	Ending CCAL:	A15392
Sample size:	1 L	Date analyzed:	11/17/99	Initial CAL:	A092899
		Date processed:	12/1/99	Batch Number:	EB60017

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	158.5	10.0	0.72	24:09	
1,2,3,7,8-PeCDD	-	878.7	10.0	1.60	28:56	
1,2,3,4,7,8-HxCDD	-	746.3	25.0	1.21	33:25	
1,2,3,6,7,8-HxCDD	-	811.2	25.0	1.15	33:33	
1,2,3,7,8,9-HxCDD	-	846.0	25.0	1.26	34:02	
1,2,3,4,6,7,8-HpCDD	-	746.4	25.0	1.04	38:15	
OCDD	-	1644.9	50.0	0.93	43:00	
2,3,7,8-TCDF	-	152.3	10.0	0.83	23:30	
1,2,3,7,8-PeCDF	-	864.4	10.0	1.47	27:41	
2,3,4,7,8-PeCDF	-	827.7	10.0	1.78	28:32	
1,2,3,4,7,8-HxCDF	-	731.5	25.0	1.22	32:23	
1,2,3,6,7,8-HxCDF	-	799.3	25.0	1.14	32:32	
2,3,4,6,7,8-HxCDF	-	774.9	25.0	1.11	33:16	
1,2,3,7,8,9-HxCDF	-	786.9	25.0	1.14	34:26	
1,2,3,4,6,7,8-HpCDF	-	918.6	25.0	0.99	36:48	
1,2,3,4,7,8,9-HpCDF	-	880.2	25.0	1.08	38:56	
OCDF	-	1499.2	50.0	0.93	43:14	

TOTAL ANALYTES	NO	CONC (PPQ)	MDL (PPQ)	FLAGS
TOTAL TCDD	1	158.5	10.0	
TOTAL PeCDD	1	878.7	10.0	
TOTAL HxCDD	3	2403.5	25.0	
TOTAL HpCDD	1	746.4	25.0	
TOTAL TCDF	1	152.3	10.0	
TOTAL PeCDF	2	1692.1	10.0	
TOTAL HxCDF	4	3092.6	25.0	
TOTAL HpCDF	2	1798.9	25.0	

DATA REVIEWER: AMA 12/2/99

SCOEPA00009003

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901899 **REFERENCE: K9907412**
FILE: A15389 **SAMPLE: Lab Spike**
LAB ID.: EB60017-LS

Project ID/P.O.:	K9907412	Date collected:	NA	RTWin / Col Pfm:	A15382
Sample origin:	GP-GW Sampling	Date received:	NA	Beginning CCAL:	A15382
Sample matrix:	Water	Date extracted:	#######	Ending CCAL:	A15392
Sample size:	1 L	Date analyzed:	#######	Initial CAL:	A092899
		Date processed:	12/1/99	Batch Number:	EB60017

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1063.1	53.2	0.80	24:08	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	1276.9	63.8	1.63	28:56	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1056.7	52.8	1.28	33:24	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1157.0	57.8	1.42	33:32	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1206.4	60.3	1.12	38:15	-
$^{13}C_{12}$-OCDD	1189.1	29.7	0.89	42:59	Y
$^{13}C_{12}$-2,3,7,8-TCDF	918.9	45.9	0.75	23:29	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1206.0	60.3	1.73	27:40	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1166.7	58.3	1.52	28:31	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	846.6	42.3	0.46	32:22	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	890.3	44.5	0.46	32:31	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	799.4	40.0	0.49	33:15	Y
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	767.8	38.4	0.50	34:25	Y
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1040.2	52.0	0.47	36:48	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1031.5	51.6	0.45	38:55	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.84	23:58	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.20	34:01	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	365.6	45.7	24:09	-

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URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901899
FILE: A15224
LAB ID.: EB60017-MB

REFERENCE: K9907412
SAMPLE: Method Blank

Project ID/P.O.:	K9907412	Date collected:	NA	RTWin / Col Pfm:	A15223
Sample origin:	GP-GW Sampling	Date received:	NA	Beginning CCAL:	A15223
Sample matrix:	Water	Date extracted:	10/26/99	Ending CCAL:	A15234
Sample size:	1 L	Date analyzed:	11/4/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	·	·	10.0	·		U
1,2,3,7,8-PeCDD	·	·	10.0	·		U
1,2,3,4,7,8-HxCDD	·	·	25.0	·		U
1,2,3,6,7,8-HxCDD	·	·	25.0	·		U
1,2,3,7,8,9-HxCDD	·	·	25.0	·		U
1,2,3,4,6,7,8-HpCDD	·	·	25.0	·		U
OCDD	·	·	50.0	·		U
2,3,7,8-TCDF	·	·	10.0	·		U
1,2,3,7,8-PeCDF	·	·	10.0	·		U
2,3,4,7,8-PeCDF	·	·	10.0	·		U
1,2,3,4,7,8-HxCDF	·	·	25.0	·		U
1,2,3,6,7,8-HxCDF	·	·	25.0	·		U
2,3,4,6,7,8-HxCDF	·	·	25.0	·		U
1,2,3,7,8,9-HxCDF	·	·	25.0	·		U
1,2,3,4,6,7,8-HpCDF	·	·	25.0	·		U
1,2,3,4,7,8,9-HpCDF	·	·	25.0	·		U
OCDF	·	·	50.0	·		U

TOTAL ANALYTES	NO	CONC (PPQ)	MDL (PPQ)	FLAGS
TOTAL TCDD	0	·	10.0	U
TOTAL PeCDD	0	·	10.0	U
TOTAL HxCDD	0	·	25.0	U
TOTAL HpCDD	0	·	25.0	U
TOTAL TCDF	0	·	10.0	U
TOTAL PeCDF	0	·	10.0	U
TOTAL HxCDF	0	·	25.0	U
TOTAL HpCDF	0	·	25.0	U

DATA REVIEWER: AMA 12/2/99

SCOEPA00009005

Columbia Analytical Services, Inc.
An Employee-Owned Company

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Dec 2, 1999

Columbia Analytical Services-Houston Project E9901906
URS Greiner Woodward Clyde Project Number: 92C0804A.00

Objective

Ten water samples were analyzed for tetrachloro- through octachloro- dibenzo-p-dioxins and furans by EPA SW-846 Method 8290.

Sample Receiving

The laboratory received the samples on Oct 26, 1999. The samples were received in good condition. The following lab accession numbers were assigned:

Lab ID	Client ID
E9901906-001	019-GG-01
E9901906-002	021-GG-01
E9901906-003	022-GG-01
E9901906-004	023-GG-01
E9901906-005	024-GG-01
E9901906-006	025-GG-01
E9901906-007	026-GG-01
E9901906-008	027-GG-01
E9901906-009	028-GG-01
E9901906-010	029-GG-01
EB60017-LS	Lab Spike
EB60017-MB	Method Blank

Extraction

The samples were extracted according to the requirements of the Method. No discrepancies were encountered during extraction and cleanup.

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Analysis

The samples were analyzed by GC-MS according to the Method. Data are reported for tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans.
The following standards had recoveries outside the QC advisory limits:

Sample ID	*Internal Standard*	*Recovery (%)*
E9901906-002	13C12-1,2,3,7,8-PeCDD	137
E9901906-004	13C12-1,2,3,7,8-PeCDD	143
E9901906-007	13C12-2,3,7,8-TCDD	29
	13C12-1,2,3,7,8-PeCDD	36
E9901844-005	13C12-1,2,3,4,7,8-HxCDD	22
	13C12-1,2,3,6,7,8-HxCDD	28
	13C12-1,2,3,4,6,7,8-HpCDD	17
	13C12-OCDD	19
	13C12-2,3,7,8-TCDF	24
	13C12-1,2,3,7,8-PeCDF	31
	13C12-2,3,4,7,8-PeCDF	28
	13C12-1,2,3,4,7,8-HxCDF	24
	13C12-1,2,3,6,7,8-HxCDF	19
	13C12-2,3,4,6,7,8-HxCDF	17
	13C12-1,2,3,7,8,9-HxCDF	19
	13C12-1,2,3,4,6,7,8-HpCDF	20
	13C12-1,2,3,4,7,8,9-HpCDF	18
	37Cl4-TCDD	35
E9901906-008	13C12-1,2,3,7,8-PeCDD	162
	13C12-1,2,3,7,8-PeCDF	135
	13C12-2,3,4,7,8-PeCDF	139
E9901906-009	13C12-1,2,3,7,8-PeCDD	141

Quality Control

A Method Blank and Laboratory Spike were analyzed with the sample batch.

Respectfully submitted,

Amer M. Amer, Ph.D.
Lab Manager

SCOEPA00009007

ABBREVIATIONS AND FLAGS

Abbreviations and definitions

The following abbreviations and definitions are employed by Columbia Analytical Servces-Houston in its analytical reports for dioxin/furan analysis:

Cal	Calibration.
Conc	Concentration.
Dioxins	Polychlorinated dibenzo-p-dioxin(s).
EDL	Estimated detection limit.
EMPC	Estimated maximum possible concentration.
Flags	Data qualifiers.
Furans	Polychlorinated dibenzofuran(s).
g	Gram(s).
ID	Identifier.
Ions	Masses monitored for the analyte during data acquisition.
L	Liter(s).
LCS	Lab control sample.
MB	Method blank.
MDL	Method detection limit.
MS	Matrix spike.
MSD	Matrix spike duplicate.
NO	Number of peaks meeting all identification criteria
PCDD	Polychlorinated dibenzo-p-dioxin(s).
PCDF	Polychlorinated dibenzofuran(s).
ppb	Parts per billion.
ppq	Parts per quadrillion.
ppt	Parts per trillion.
QC	Quality control.
Ratio	Ratio of the areas from monitored ions for an analyte.
% Rec.	Percent recovery.
RRF	relative response factor.
RT	Retention time.
SDG	Sample Delivery Group.
S/N	Signal to noise ratio.
TEF	Toxicity equivalence factor.
TEQ	Toxicity equivalence.

Flags

The EPA qualifiers ("flags") for the Contract Laboratory Program are employed by Columbia Analytical Services. They are:

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B This flag is used when the analyte is found in the associated blank, as well as in the sample.

C Indicates that the value for the analyte was obtained by analysis using a DB-225 confirmation column.

D Indicates that the analysis was performed on a diluted extract. This is performed when the initial analysis indicates that one or more analytes are present at a concentration above theupper end of the linear calibration range.

E Indicates an estimated value. Employed when the analyte concentration is above the upper end of the linear calibration range.

J Indicates an estimated value. Employed when the analyte concentration is below the lower end of the linear calibration range, but above the detection limit.

M Indicates that the compound was quantified using a manual integration of the peak areas.

S Indicates that the analyte in question is, in the opinion of the GC–MS Interpretation Specialist, a PCDD/PCDF even though the [M–COCl]+ ion did not meet the requirement that the signal-to-noise be at least 2.5:1.

U Indicates that compound was analyzed for but not detected.

Y Indicates that recovery of labeled standard is outside the range specified by QA goals. These goals are not mandatory requirements.

SCOEPA00009009

SUMMARY REPORT

SCOEPA00009010

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901906
FILE: A15233
LAB ID.: E9901906-001

REFERENCE: 92C0804A.00
SAMPLE: 019-GG-01

Project ID/P.O	92C0804A.00	Date collected:	10/19/99	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	10/26/99	Beginning CCAL:	A15235
Sample matrix	Water	Date extracted:	10/26/99	Ending CCAL:	A15246
Sample size:	0.8 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	10.0	ND	158.5	79%	50-150
1,2,3,7,8-PeCDD	-	10.0	ND	878.7	88%	50-150
1,2,3,4,7,8-HxCDD	-	25.0	ND	746.3	75%	50-150
1,2,3,6,7,8-HxCDD	-	25.0	ND	811.2	81%	50-150
1,2,3,7,8,9-HxCDD	-	25.0	ND	846.0	85%	50-150
1,2,3,4,6,7,8-HpCDD	-	25.0	ND	746.4	75%	50-150
OCDD	-	50.0	ND	1644.9	82%	50-150
2,3,7,8-TCDF	-	10.0	ND	152.3	76%	50-150
1,2,3,7,8-PeCDF	-	10.0	ND	864.4	86%	50-150
2,3,4,7,8-PeCDF	-	10.0	ND	827.7	83%	50-150
1,2,3,4,7,8-HxCDF	-	25.0	ND	731.5	73%	50-150
1,2,3,6,7,8-HxCDF	-	25.0	ND	799.3	80%	50-150
2,3,4,6,7,8-HxCDF	-	25.0	ND	774.9	77%	50-150
1,2,3,7,8,9-HxCDF	-	25.0	ND	786.9	79%	50-150
1,2,3,4,6,7,8-HpCDF	-	25.0	ND	918.6	92%	50-150
1,2,3,4,7,8,9-HpCDF	-	25.0	ND	880.2	88%	50-150
OCDF	-	50.0	ND	1499.2	75%	50-150

TOTAL ANALYTES	CONC (PPQ)	MDL (PPQ)
TOTAL TCDD	-	10.0
TOTAL PeCDD	-	10.0
TOTAL HxCDD	-	25.0
TOTAL HpCDD	-	25.0
TOTAL OCDD	-	50.0
TOTAL TCDF	-	10.0
TOTAL PeCDF	-	10.0
TOTAL HxCDF	-	25.0
TOTAL HpCDF	-	25.0
TOTAL OCDF	-	50.0

Definitions:

- **CONC** — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
- **EDL** — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
- **BLANK** — The concentration of the blank.
- **MS (PPQ)** — The concentration of Matrix Spike recovered.
- **MS (%)** — The percent recovery of the Matrix Spike.
- **ND** — (Non-Detect) The concentration of the analyte is less than the detection limit.
- **NR** — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: ND
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: ND

SCOEPA00009011

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901906 **REFERENCE: 92C0804A.00**
FILE: A15237 **SAMPLE: 021-GG-01**
LAB ID.: E9901906-002

Project ID/P.O	92C0804A.00	Date collected:	10/20/99	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	10/26/99	Beginning CCAL:	A15235
Sample matrix	Water	Date extracted:	10/26/99	Ending CCAL:	A15246
Sample size:	0.94 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	10.0	ND	158.5	79%	50-150
1,2,3,7,8-PeCDD	-	10.0	ND	878.7	88%	50-150
1,2,3,4,7,8-HxCDD	-	25.0	ND	746.3	75%	50-150
1,2,3,6,7,8-HxCDD	-	25.0	ND	811.2	81%	50-150
1,2,3,7,8,9-HxCDD	-	25.0	ND	846.0	85%	50-150
1,2,3,4,6,7,8-HpCDD	-	25.0	ND	746.4	75%	50-150
OCDD	-	50.0	ND	1644.9	82%	50-150
2,3,7,8-TCDF	-	10.0	ND	152.3	76%	50-150
1,2,3,7,8-PeCDF	-	10.0	ND	864.4	86%	50-150
2,3,4,7,8-PeCDF	-	10.0	ND	827.7	83%	50-150
1,2,3,4,7,8-HxCDF	-	25.0	ND	731.5	73%	50-150
1,2,3,6,7,8-HxCDF	-	25.0	ND	799.3	80%	50-150
2,3,4,6,7,8-HxCDF	-	25.0	ND	774.9	77%	50-150
1,2,3,7,8,9-HxCDF	-	25.0	ND	786.9	79%	50-150
1,2,3,4,6,7,8-HpCDF	-	25.0	ND	918.6	92%	50-150
1,2,3,4,7,8,9-HpCDF	-	25.0	ND	880.2	88%	50-150
OCDF	-	50.0	ND	1499.2	75%	50-150

TOTAL ANALYTES	CONC (PPQ)	MDL (PPQ)
TOTAL TCDD	-	10.0
TOTAL PeCDD	-	10.0
TOTAL HxCDD	-	25.0
TOTAL HpCDD	-	25.0
TOTAL OCDD	-	50.0
TOTAL TCDF	-	10.0
TOTAL PeCDF	-	10.0
TOTAL HxCDF	-	25.0
TOTAL HpCDF	-	25.0
TOTAL OCDF	-	50.0

Definitions:

CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).

EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).

BLANK — The concentration of the blank.

MS (PPQ) — The concentration of Matrix Spike recovered.

MS (%) — The percent recovery of the Matrix Spike.

ND — (Non-Detect) The concentration of the analyte is less than the detection limit.

NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: ND

TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: ND

SCOEPA00009012

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901906 **REFERENCE: 92C0804A.00**
FILE: A15238 **SAMPLE: 022-GG-01**
LAB ID.: E9901906-003

Project ID/P.O	92C0804A.00	Date collected:	10/20/99	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	10/26/99	Beginning CCAL:	A15235
Sample matrix	Water	Date extracted:	10/26/99	Ending CCAL:	A15246
Sample size:	1.05 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	EDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	10.0	ND	158.5	79%	50-150
1,2,3,7,8-PeCDD	-	10.0	ND	878.7	88%	50-150
1,2,3,4,7,8-HxCDD	-	25.0	ND	746.3	75%	50-150
1,2,3,6,7,8-HxCDD	-	25.0	ND	811.2	81%	50-150
1,2,3,7,8,9-HxCDD	-	25.0	ND	846.0	85%	50-150
1,2,3,4,6,7,8-HpCDD	-	25.0	ND	746.4	75%	50-150
OCDD	56.3	50.0	ND	1644.9	82%	50-150
2,3,7,8-TCDF	-	10.0	ND	152.3	76%	50-150
1,2,3,7,8-PeCDF	-	10.0	ND	864.4	86%	50-150
2,3,4,7,8-PeCDF	-	10.0	ND	827.7	83%	50-150
1,2,3,4,7,8-HxCDF	-	25.0	ND	731.5	73%	50-150
1,2,3,6,7,8-HxCDF	-	25.0	ND	799.3	80%	50-150
2,3,4,6,7,8-HxCDF	-	25.0	ND	774.9	77%	50-150
1,2,3,7,8,9-HxCDF	-	25.0	ND	786.9	79%	50-150
1,2,3,4,6,7,8-HpCDF	-	25.0	ND	918.6	92%	50-150
1,2,3,4,7,8,9-HpCDF	-	25.0	ND	880.2	88%	50-150
OCDF	-	50.0	ND	1499.2	75%	50-150

TOTAL ANALYTES	CONC (PPQ)	EDL (PPQ)
TOTAL TCDD	-	10.0
TOTAL PeCDD	-	10.0
TOTAL HxCDD	-	25.0
TOTAL HpCDD	-	25.0
TOTAL OCDD	56.3	50.0
TOTAL TCDF	-	10.0
TOTAL PeCDF	-	10.0
TOTAL HxCDF	-	25.0
TOTAL HpCDF	-	25.0
TOTAL OCDF	-	50.0

Definitions:

CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).

EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).

BLANK — The concentration of the blank.

MS (PPQ) — The concentration of Matrix Spike recovered.

MS (%) — The percent recovery of the Matrix Spike.

ND — (Non-Detect) The concentration of the analyte is less than the detection limit.

NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 56.31 PPQ

TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 0.06 PPQ

SCOEPA00009013

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901906 **REFERENCE: 92C0804A.00**
FILE: A15239 **SAMPLE: 023-GG-01**
LAB ID.: E9901906-004

Project ID/P.O	92C0804A.00	Date collected:	10/21/99	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	10/26/99	Beginning CCAL:	A15235
Sample matrix	Water	Date extracted:	10/26/99	Ending CCAL:	A15246
Sample size:	1 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	EDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	10.0	ND	158.5	79%	50-150
1,2,3,7,8-PeCDD	-	10.0	ND	878.7	88%	50-150
1,2,3,4,7,8-HxCDD	-	25.0	ND	746.3	75%	50-150
1,2,3,6,7,8-HxCDD	-	25.0	ND	811.2	81%	50-150
1,2,3,7,8,9-HxCDD	-	25.0	ND	846.0	85%	50-150
1,2,3,4,6,7,8-HpCDD	-	25.0	ND	746.4	75%	50-150
OCDD	-	50.0	ND	1644.9	82%	50-150
2,3,7,8-TCDF	-	10.0	ND	152.3	76%	50-150
1,2,3,7,8-PeCDF	-	10.0	ND	864.4	86%	50-150
2,3,4,7,8-PeCDF	-	10.0	ND	827.7	83%	50-150
1,2,3,4,7,8-HxCDF	-	25.0	ND	731.5	73%	50-150
1,2,3,6,7,8-HxCDF	-	25.0	ND	799.3	80%	50-150
2,3,4,6,7,8-HxCDF	-	25.0	ND	774.9	77%	50-150
1,2,3,7,8,9-HxCDF	-	25.0	ND	786.9	79%	50-150
1,2,3,4,6,7,8-HpCDF	-	25.0	ND	918.6	92%	50-150
1,2,3,4,7,8,9-HpCDF	-	25.0	ND	880.2	88%	50-150
OCDF	-	50.0	ND	1499.2	75%	50-150

TOTAL ANALYTES	CONC (PPQ)	EDL (PPQ)
TOTAL TCDD	-	10.0
TOTAL PeCDD	-	10.0
TOTAL HxCDD	-	25.0
TOTAL HpCDD	-	25.0
TOTAL OCDD	-	50.0
TOTAL TCDF	-	10.0
TOTAL PeCDF	-	10.0
TOTAL HxCDF	-	25.0
TOTAL HpCDF	-	25.0
TOTAL OCDF	-	50.0

Definitions:

CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).

EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).

BLANK — The concentration of the blank.

MS (PPQ) — The concentration of Matrix Spike recovered.

MS (%) — The percent recovery of the Matrix Spike.

ND — (Non-Detect) The concentration of the analyte is less than the detection limit.

NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: ND
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: ND

SCOEPA00009014

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901906 **REFERENCE: 92C0804A.00**
FILE: A15240 **SAMPLE: 024-GG-01**
LAB ID.: E9901906-005

Project ID/P.O	92C0804A.00	Date collected:	10/21/99	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	10/26/99	Beginning CCAL:	A15235
Sample matrix	Water	Date extracted:	10/26/99	Ending CCAL:	A15246
Sample size:	0.68 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	EDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	10.0	ND	158.5	79%	50-150
1,2,3,7,8-PeCDD	-	10.0	ND	878.7	88%	50-150
1,2,3,4,7,8-HxCDD	-	25.0	ND	746.3	75%	50-150
1,2,3,6,7,8-HxCDD	-	25.0	ND	811.2	81%	50-150
1,2,3,7,8,9-HxCDD	-	25.0	ND	846.0	85%	50-150
1,2,3,4,6,7,8-HpCDD	-	25.0	ND	746.4	75%	50-150
OCDD	-	50.0	ND	1644.9	82%	50-150
2,3,7,8-TCDF	-	10.0	ND	152.3	76%	50-150
1,2,3,7,8-PeCDF	-	10.0	ND	864.4	86%	50-150
2,3,4,7,8-PeCDF	-	10.0	ND	827.7	83%	50-150
1,2,3,4,7,8-HxCDF	-	25.0	ND	731.5	73%	50-150
1,2,3,6,7,8-HxCDF	-	25.0	ND	799.3	80%	50-150
2,3,4,6,7,8-HxCDF	-	25.0	ND	774.9	77%	50-150
1,2,3,7,8,9-HxCDF	-	25.0	ND	786.9	79%	50-150
1,2,3,4,6,7,8-HpCDF	-	25.0	ND	918.6	92%	50-150
1,2,3,4,7,8,9-HpCDF	-	25.0	ND	880.2	88%	50-150
OCDF	-	50.0	ND	1499.2	75%	50-150

TOTAL ANALYTES	CONC (PPQ)	EDL (PPQ)
TOTAL TCDD	87.5	10.0
TOTAL PeCDD	-	10.0
TOTAL HxCDD	-	25.0
TOTAL HpCDD	-	25.0
TOTAL OCDD	-	50.0
TOTAL TCDF	138.4	10.0
TOTAL PeCDF	-	10.0
TOTAL HxCDF	-	25.0
TOTAL HpCDF	-	25.0
TOTAL OCDF	-	50.0

Definitions:

CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).

EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).

BLANK — The concentration of the blank.

MS (PPQ) — The concentration of Matrix Spike recovered.

MS (%) — The percent recovery of the Matrix Spike.

ND — (Non-Detect) The concentration of the analyte is less than the detection limit.

NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 225.93 PPQ

TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: ND

SCOEPA00009015

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901906 **REFERENCE: 92C0804A.00**
FILE: A15241 **SAMPLE: 025-GG-01**
LAB ID.: E9901906-006

Project ID/P.O	92C0804A.00	Date collected:	10/21/99	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	10/26/99	Beginning CCAL:	A15235
Sample matrix	Water	Date extracted:	10/26/99	Ending CCAL:	A15246
Sample size:	1 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	EDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	10.0	ND	158.5	79%	50-150
1,2,3,7,8-PeCDD	-	10.0	ND	878.7	88%	50-150
1,2,3,4,7,8-HxCDD	-	25.0	ND	746.3	75%	50-150
1,2,3,6,7,8-HxCDD	-	25.0	ND	811.2	81%	50-150
1,2,3,7,8,9-HxCDD	-	25.0	ND	846.0	85%	50-150
1,2,3,4,6,7,8-HpCDD	-	25.0	ND	746.4	75%	50-150
OCDD	-	50.0	ND	1644.9	82%	50-150
2,3,7,8-TCDF	-	10.0	ND	152.3	76%	50-150
1,2,3,7,8-PeCDF	-	10.0	ND	864.4	86%	50-150
2,3,4,7,8-PeCDF	-	10.0	ND	827.7	83%	50-150
1,2,3,4,7,8-HxCDF	-	25.0	ND	731.5	73%	50-150
1,2,3,6,7,8-HxCDF	-	25.0	ND	799.3	80%	50-150
2,3,4,6,7,8-HxCDF	-	25.0	ND	774.9	77%	50-150
1,2,3,7,8,9-HxCDF	-	25.0	ND	786.9	79%	50-150
1,2,3,4,6,7,8-HpCDF	-	25.0	ND	918.6	92%	50-150
1,2,3,4,7,8,9-HpCDF	-	25.0	ND	880.2	88%	50-150
OCDF	-	50.0	ND	1499.2	75%	50-150

TOTAL ANALYTES	CONC (PPQ)	EDL (PPQ)
TOTAL TCDD	-	10.0
TOTAL PeCDD	-	10.0
TOTAL HxCDD	-	25.0
TOTAL HpCDD	-	25.0
TOTAL OCDD	-	50.0
TOTAL TCDF	-	10.0
TOTAL PeCDF	-	10.0
TOTAL HxCDF	-	25.0
TOTAL HpCDF	-	25.0
TOTAL OCDF	-	50.0

Definitions:

CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).

EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).

BLANK — The concentration of the blank.

MS (PPQ) — The concentration of Matrix Spike recovered.

MS (%) — The percent recovery of the Matrix Spike.

ND — (Non-Detect) The concentration of the analyte is less than the detection limit.

NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: ND

TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: ND

SCOEPA00009016

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901906 **REFERENCE: 92C0804A.00**
FILE: A15242 **SAMPLE: 026-GG-01**
LAB ID.: E9901906-007

Project ID/P.O	92C0804A.00	Date collected:	10/21/99	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	10/26/99	Beginning CCAL:	A15235
Sample matrix	Water	Date extracted:	10/26/99	Ending CCAL:	A15246
Sample size:	1 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	EDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	10.0	ND	158.5	79%	50-150
1,2,3,7,8-PeCDD	-	10.0	ND	878.7	88%	50-150
1,2,3,4,7,8-HxCDD	-	25.0	ND	746.3	75%	50-150
1,2,3,6,7,8-HxCDD	-	25.0	ND	811.2	81%	50-150
1,2,3,7,8,9-HxCDD	-	25.0	ND	846.0	85%	50-150
1,2,3,4,6,7,8-HpCDD	-	25.0	ND	746.4	75%	50-150
OCDD	217.8	50.0	ND	1644.9	82%	50-150
2,3,7,8-TCDF	-	10.0	ND	152.3	76%	50-150
1,2,3,7,8-PeCDF	-	10.0	ND	864.4	86%	50-150
2,3,4,7,8-PeCDF	-	10.0	ND	827.7	83%	50-150
1,2,3,4,7,8-HxCDF	-	25.0	ND	731.5	73%	50-150
1,2,3,6,7,8-HxCDF	-	25.0	ND	799.3	80%	50-150
2,3,4,6,7,8-HxCDF	-	25.0	ND	774.9	77%	50-150
1,2,3,7,8,9-HxCDF	-	25.0	ND	786.9	79%	50-150
1,2,3,4,6,7,8-HpCDF	-	25.0	ND	918.6	92%	50-150
1,2,3,4,7,8,9-HpCDF	-	25.0	ND	880.2	88%	50-150
OCDF	-	50.0	ND	1499.2	75%	50-150

TOTAL ANALYTES	CONC (PPQ)	EDL (PPQ)
TOTAL TCDD	-	10.0
TOTAL PeCDD	-	10.0
TOTAL HxCDD	-	25.0
TOTAL HpCDD	-	25.0
TOTAL OCDD	217.8	50.0
TOTAL TCDF	194.2	10.0
TOTAL PeCDF	-	10.0
TOTAL HxCDF	-	25.0
TOTAL HpCDF	-	25.0
TOTAL OCDF	-	50.0

Definitions:

CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).

EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).

BLANK — The concentration of the blank.

MS (PPQ) — The concentration of Matrix Spike recovered.

MS (%) — The percent recovery of the Matrix Spike.

ND — (Non-Detect) The concentration of the analyte is less than the detection limit.

NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 411.98 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 0.22 PPQ

SCOEPA00009017

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901906 **REFERENCE: 92C0804A.00**
FILE: A15243 **SAMPLE: 027-GG-01**
LAB ID.: E9901906-008

Project ID/P.O	92C0804A.00	Date collected:	10/21/99	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	10/26/99	Beginning CCAL:	A15235
Sample matrix	Water	Date extracted:	10/26/99	Ending CCAL:	A15246
Sample size:	0.98 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	EDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	10.0	ND	158.5	79%	50-150
1,2,3,7,8-PeCDD	-	10.0	ND	878.7	88%	50-150
1,2,3,4,7,8-HxCDD	-	25.0	ND	746.3	75%	50-150
1,2,3,6,7,8-HxCDD	-	25.0	ND	811.2	81%	50-150
1,2,3,7,8,9-HxCDD	-	25.0	ND	846.0	85%	50-150
1,2,3,4,6,7,8-HpCDD	-	25.0	ND	746.4	75%	50-150
OCDD	-	50.0	ND	1644.9	82%	50-150
2,3,7,8-TCDF	-	10.0	ND	152.3	76%	50-150
1,2,3,7,8-PeCDF	-	10.0	ND	864.4	86%	50-150
2,3,4,7,8-PeCDF	-	10.0	ND	827.7	83%	50-150
1,2,3,4,7,8-HxCDF	-	25.0	ND	731.5	73%	50-150
1,2,3,6,7,8-HxCDF	-	25.0	ND	799.3	80%	50-150
2,3,4,6,7,8-HxCDF	-	25.0	ND	774.9	77%	50-150
1,2,3,7,8,9-HxCDF	-	25.0	ND	786.9	79%	50-150
1,2,3,4,6,7,8-HpCDF	-	25.0	ND	918.6	92%	50-150
1,2,3,4,7,8,9-HpCDF	-	25.0	ND	880.2	88%	50-150
OCDF	-	50.0	ND	1499.2	75%	50-150

TOTAL ANALYTES	CONC (PPQ)	EDL (PPQ)
TOTAL TCDD	-	10.0
TOTAL PeCDD	-	10.0
TOTAL HxCDD	-	25.0
TOTAL HpCDD	-	25.0
TOTAL OCDD	-	50.0
TOTAL TCDF	-	10.0
TOTAL PeCDF	-	10.0
TOTAL HxCDF	-	25.0
TOTAL HpCDF	-	25.0
TOTAL OCDF	-	50.0

Definitions:

- **CONC** — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
- **EDL** — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
- **BLANK** — The concentration of the blank.
- **MS (PPQ)** — The concentration of Matrix Spike recovered.
- **MS (%)** — The percent recovery of the Matrix Spike.
- **ND** — (Non-Detect) The concentration of the analyte is less than the detection limit.
- **NR** — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: ND
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: ND

SCOEPA00009018

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901906 **REFERENCE: 92C0804A.00**
FILE: A15244 **SAMPLE: 028-GG-01**
LAB ID.: E9901906-009

Project ID/P.O	92C0804A.00	Date collected:	10/21/99	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	10/26/99	Beginning CCAL:	A15235
Sample matrix	Water	Date extracted:	10/26/99	Ending CCAL:	A15246
Sample size:	0.97 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

	SAMPLE DATA			QUALITY ASSURANCE DATA		
SPECIFIC ANALYTES	CONC (PPQ)	EDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	10.0	ND	158.5	79%	50-150
1,2,3,7,8-PeCDD	-	10.0	ND	878.7	88%	50-150
1,2,3,4,7,8-HxCDD	-	25.0	ND	746.3	75%	50-150
1,2,3,6,7,8-HxCDD	-	25.0	ND	811.2	81%	50-150
1,2,3,7,8,9-HxCDD	-	25.0	ND	846.0	85%	50-150
1,2,3,4,6,7,8-HpCDD	-	25.0	ND	746.4	75%	50-150
OCDD	-	50.0	ND	1644.9	82%	50-150
2,3,7,8-TCDF	-	10.0	ND	152.3	76%	50-150
1,2,3,7,8-PeCDF	-	10.0	ND	864.4	86%	50-150
2,3,4,7,8-PeCDF	-	10.0	ND	827.7	83%	50-150
1,2,3,4,7,8-HxCDF	-	25.0	ND	731.5	73%	50-150
1,2,3,6,7,8-HxCDF	-	25.0	ND	799.3	80%	50-150
2,3,4,6,7,8-HxCDF	-	25.0	ND	774.9	77%	50-150
1,2,3,7,8,9-HxCDF	-	25.0	ND	786.9	79%	50-150
1,2,3,4,6,7,8-HpCDF	-	25.0	ND	918.6	92%	50-150
1,2,3,4,7,8,9-HpCDF	-	25.0	ND	880.2	88%	50-150
OCDF	-	50.0	ND	1499.2	75%	50-150

TOTAL ANALYTES	CONC (PPQ)	EDL (PPQ)
TOTAL TCDD	-	10.0
TOTAL PeCDD	-	10.0
TOTAL HxCDD	-	25.0
TOTAL HpCDD	-	25.0
TOTAL OCDD	-	50.0
TOTAL TCDF	-	10.0
TOTAL PeCDF	-	10.0
TOTAL HxCDF	-	25.0
TOTAL HpCDF	-	25.0
TOTAL OCDF	-	50.0

Definitions:

CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).

EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).

BLANK — The concentration of the blank.

MS (PPQ) — The concentration of Matrix Spike recovered.

MS (%) — The percent recovery of the Matrix Spike.

ND — (Non-Detect) The concentration of the analyte is less than the detection limit.

NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: ND
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: ND

SCOEPA00009019

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901906
FILE: A15245
LAB ID.: E9901906-010

REFERENCE: 92C0804A.00
SAMPLE: 029-GG-01

Project ID/P.O	92C0804A.00	Date collected:	10/21/99	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	10/26/99	Beginning CCAL:	A15235
Sample matrix	Water	Date extracted:	10/26/99	Ending CCAL:	A15246
Sample size:	1.04 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	EDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	10.0	ND	158.5	79%	50-150
1,2,3,7,8-PeCDD	-	10.0	ND	878.7	88%	50-150
1,2,3,4,7,8-HxCDD	-	25.0	ND	746.3	75%	50-150
1,2,3,6,7,8-HxCDD	-	25.0	ND	811.2	81%	50-150
1,2,3,7,8,9-HxCDD	-	25.0	ND	846.0	85%	50-150
1,2,3,4,6,7,8-HpCDD	-	25.0	ND	746.4	75%	50-150
OCDD	-	50.0	ND	1644.9	82%	50-150
2,3,7,8-TCDF	-	10.0	ND	152.3	76%	50-150
1,2,3,7,8-PeCDF	-	10.0	ND	864.4	86%	50-150
2,3,4,7,8-PeCDF	-	10.0	ND	827.7	83%	50-150
1,2,3,4,7,8-HxCDF	-	25.0	ND	731.5	73%	50-150
1,2,3,6,7,8-HxCDF	-	25.0	ND	799.3	80%	50-150
2,3,4,6,7,8-HxCDF	-	25.0	ND	774.9	77%	50-150
1,2,3,7,8,9-HxCDF	-	25.0	ND	786.9	79%	50-150
1,2,3,4,6,7,8-HpCDF	-	25.0	ND	918.6	92%	50-150
1,2,3,4,7,8,9-HpCDF	-	25.0	ND	880.2	88%	50-150
OCDF	-	50.0	ND	1499.2	75%	50-150

TOTAL ANALYTES	CONC (PPQ)	EDL (PPQ)
TOTAL TCDD	-	10.0
TOTAL PeCDD	-	10.0
TOTAL HxCDD	-	25.0
TOTAL HpCDD	-	25.0
TOTAL OCDD	-	50.0
TOTAL TCDF	-	10.0
TOTAL PeCDF	-	10.0
TOTAL HxCDF	-	25.0
TOTAL HpCDF	-	25.0
TOTAL OCDF	-	50.0

Definitions:

CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).

EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).

BLANK — The concentration of the blank.

MS (PPQ) — The concentration of Matrix Spike recovered.

MS (%) — The percent recovery of the Matrix Spike.

ND — (Non-Detect) The concentration of the analyte is less than the detection limit.

NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: ND
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: ND

SCOEPA00009020

ANALYSIS REPORT

SCOEPA00009021

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901906
FILE: A15233
LAB ID.: E9901906-001

REFERENCE: 92C0804A.00
SAMPLE: 019-GG-01

Project ID/P.O.:	92C0804A.00	Date collected:	10/19/99	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	10/26/99	Beginning CCAL:	A15235
Sample matrix:	Water	Date extracted:	10/26/99	Ending CCAL:	A15246
Sample size:	0.8 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	-	50.0	-		U
2,3,7,8-TCDF	-	-	10.0	-		U
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	MDL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	0	-	10.0	U
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 12/2/99

SCOEPA00009022

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901906 **REFERENCE: 92C0804A.00**
FILE: A15233 **SAMPLE: 019-GG-01**
LAB ID.: E9901906-001

Project ID/P.O.:	92C0804A.00	Date collected:	#######	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	#######	Beginning CCAL:	A15235
Sample matrix:	Water	Date extracted:	#######	Ending CCAL:	A15246
Sample size:	0.8 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1928.5	77.1	0.78	24:06	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2915.7	116.6	1.64	28:54	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	2331.7	93.3	1.26	33:23	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1748.5	69.9	1.24	33:30	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2464.4	98.6	1.17	38:13	-
$^{13}C_{12}$-OCDD	3346.8	66.9	0.91	42:56	-
$^{13}C_{12}$-2,3,7,8-TCDF	1469.7	58.8	0.79	23:27	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	2480.2	99.2	1.59	27:38	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	2458.7	98.3	1.57	28:28	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1945.4	77.8	0.51	32:20	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1750.3	70.0	0.50	32:29	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1624.1	65.0	0.52	33:13	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1734.2	69.4	0.53	34:23	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	2228.8	89.2	0.42	36:45	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	2324.7	93.0	0.43	38:52	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.78	23:56	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.25	33:59	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	672.2	67.2	24:06	-

SCOEPA00009023

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901906 **REFERENCE: 92C0804A.00**
FILE: A15237 **SAMPLE: 021-GG-01**
LAB ID.: E9901906-002

Project ID/P.O.:	92C0804A.00	Date collected:	10/20/99	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	10/26/99	Beginning CCAL:	A15235
Sample matrix:	Water	Date extracted:	10/26/99	Ending CCAL:	A15246
Sample size:	0.94 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	-	50.0	-		U
2,3,7,8-TCDF	-	-	10.0	-		U
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	MDL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	0	-	10.0	U
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 12/2/99

SCOEPA00009024

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901906 **REFERENCE: 92C0804A.00**
FILE: A15237 **SAMPLE: 021-GG-01**
LAB ID.: E9901906-002

Project ID/P.O.:	92C0804A.00	Date collected:	#######	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	#######	Beginning CCAL:	A15235
Sample matrix:	Water	Date extracted:	#######	Ending CCAL:	A15246
Sample size:	0.94 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	2388.9	112.3	0.88	24:06	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2923.5	137.4	1.67	28:53	Y
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	2184.2	102.7	1.23	33:22	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	2152.3	101.2	1.26	33:30	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2445.5	114.9	1.04	38:12	-
$^{13}C_{12}$-OCDD	2885.7	67.8	0.92	42:56	-
$^{13}C_{12}$-2,3,7,8-TCDF	2044.0	96.1	0.88	23:27	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	2623.7	123.3	1.47	27:38	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	2337.2	109.8	1.49	28:28	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	2060.6	96.8	0.50	32:20	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1813.2	85.2	0.50	32:29	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1949.4	91.6	0.52	33:13	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1831.1	86.1	0.49	34:23	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	2147.1	100.9	0.46	36:45	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	2154.2	101.2	0.42	38:52	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.88	23:56	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.27	33:59	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	939.7	110.4	24:07	-

SCOEPA00009025

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901906 **REFERENCE: 92C0804A.00**
FILE: A15238 **SAMPLE: 022-GG-01**
LAB ID.: E9901906-003

Project ID/P.O.:	92C0804A.00	Date collected:	10/20/99	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	10/26/99	Beginning CCAL:	A15235
Sample matrix:	Water	Date extracted:	10/26/99	Ending CCAL:	A15246
Sample size:	1.05 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	EDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	56.3	50.0	0.76	42:57	J
2,3,7,8-TCDF	-	-	10.0	-		U
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	EDL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	0	-	10.0	U
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 12/2/99

SCOEPA00009026

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901906 **REFERENCE: 92C0804A.00**
FILE: A15238 **SAMPLE: 022-GG-01**
LAB ID.: E9901906-003

Project ID/P.O.:	92C0804A.00	Date collected:	#######	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	#######	Beginning CCAL:	A15235
Sample matrix:	Water	Date extracted:	#######	Ending CCAL:	A15246
Sample size:	1.05 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1420.8	74.6	0.82	24:04	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	1986.5	104.3	1.61	28:53	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1566.8	82.3	1.37	33:22	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1606.4	84.3	1.32	33:29	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1665.0	87.4	1.02	38:11	-
$^{13}C_{12}$-OCDD	1948.3	51.1	0.91	42:56	-
$^{13}C_{12}$-2,3,7,8-TCDF	1238.0	65.0	0.78	23:26	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1733.6	91.0	1.58	27:37	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1596.3	83.8	1.47	28:27	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1534.4	80.6	0.51	32:19	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1266.4	66.5	0.51	32:28	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1219.9	64.0	0.50	33:13	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1275.3	67.0	0.47	34:22	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1595.5	83.8	0.46	36:44	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1422.3	74.7	0.41	38:51	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.82	23:55	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.34	33:58	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	646.5	84.9	24:06	-

SCOEPA00009027

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901906 **REFERENCE: 92C0804A.00**
FILE: A15239 **SAMPLE: 023-GG-01**
LAB ID.: E9901906-004

Project ID/P.O.:	92C0804A.00	Date collected:	10/21/99	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	10/26/99	Beginning CCAL:	A15235
Sample matrix:	Water	Date extracted:	10/26/99	Ending CCAL:	A15246
Sample size:	1 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	EDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	-	50.0	-		U
2,3,7,8-TCDF	-	-	10.0	-		U
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	EDL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	0	-	10.0	U
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: _____ 12/2/99
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SCOEPA00009028

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PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901906 **REFERENCE: 92C0804A.00**
FILE: A15239 **SAMPLE: 023-GG-01**
LAB ID.: E9901906-004

Project ID/P.O.:	92C0804A.00	Date collected:	#######	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	#######	Beginning CCAL:	A15235
Sample matrix:	Water	Date extracted:	#######	Ending CCAL:	A15246
Sample size:	1 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1972.2	98.6	0.81	24:06	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2857.1	142.9	1.71	28:54	Y
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1928.6	96.4	1.34	33:23	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1850.1	92.5	1.26	33:31	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2088.4	104.4	1.02	38:13	-
$^{13}C_{12}$-OCDD	2388.3	59.7	0.93	42:57	-
$^{13}C_{12}$-2,3,7,8-TCDF	1669.9	83.5	0.87	23:28	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	2398.3	119.9	1.57	27:39	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	2139.7	107.0	1.57	28:30	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1737.3	86.9	0.51	32:21	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1588.2	79.4	0.45	32:30	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1503.0	75.1	0.47	33:14	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1665.9	83.3	0.49	34:24	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1846.2	92.3	0.46	36:46	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1781.7	89.1	0.45	38:53	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.83	23:57	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.32	34:00	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	739.2	92.4	24:07	-

SCOEPA00009029

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901906 **REFERENCE: 92C0804A.00**
FILE: A15240 **SAMPLE: 024-GG-01**
LAB ID.: E9901906-005

Project ID/P.O.:	92C0804A.00	Date collected:	10/21/99	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	10/26/99	Beginning CCAL:	A15235
Sample matrix:	Water	Date extracted:	10/26/99	Ending CCAL:	A15246
Sample size:	0.68 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	EDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	-	50.0	-		U
2,3,7,8-TCDF	20.5	-	10.0	1.25	23:28	U
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	EDL (PPQ)	FLAGS
TOTAL TCDD	3	87.5	10.0	
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	3	138.4	10.0	
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 12/2/99

SCOEPA00009030

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901906 **REFERENCE: 92C0804A.00**
FILE: A15240 **SAMPLE: 024-GG-01**
LAB ID.: E9901906-005

Project ID/P.O.:	92C0804A.00	Date collected:	#######	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	#######	Beginning CCAL:	A15235
Sample matrix:	Water	Date extracted:	#######	Ending CCAL:	A15246
Sample size:	0.68 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	2284.5	77.7	0.79	24:03	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	3354.5	114.1	1.69	28:52	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	2655.8	90.3	1.34	33:22	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	2483.4	84.4	1.41	33:29	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2666.8	90.7	1.00	38:11	-
$^{13}C_{12}$-OCDD	3089.3	52.5	0.90	42:55	-
$^{13}C_{12}$-2,3,7,8-TCDF	1962.2	66.7	0.83	23:26	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	2784.5	94.7	1.51	27:37	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	2625.8	89.3	1.49	28:27	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	2372.4	80.7	0.49	32:19	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1901.3	64.6	0.48	32:28	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1909.2	64.9	0.49	33:12	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1811.1	61.6	0.49	34:22	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	2459.4	83.6	0.44	36:44	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	2335.9	79.4	0.45	38:51	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.78	23:55	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.33	33:58	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	938.7	79.8	24:04	-

SCOEPA00009031

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PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901906 **REFERENCE: 92C0804A.00**
FILE: A15241 **SAMPLE: 025-GG-01**
LAB ID.: E9901906-006

Project ID/P.O.:	92C0804A.00	Date collected:	10/21/99	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	10/26/99	Beginning CCAL:	A15235
Sample matrix:	Water	Date extracted:	10/26/99	Ending CCAL:	A15246
Sample size:	1 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	EDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	-	50.0	-		U
2,3,7,8-TCDF	-	-	10.0	-		U
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	EDL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	0	-	10.0	U
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 12/2/99

SCOEPA00009032

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901906 **REFERENCE: 92C0804A.00**
FILE: A15241 **SAMPLE: 025-GG-01**
LAB ID.: E9901906-006

Project ID/P.O.:	92C0804A.00	Date collected:	#######	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	#######	Beginning CCAL:	A15235
Sample matrix:	Water	Date extracted:	#######	Ending CCAL:	A15246
Sample size:	1 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1302.5	65.1	0.83	24:07	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2043.3	102.2	1.44	28:54	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1582.7	79.1	1.28	33:23	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1489.3	74.5	1.27	33:31	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1494.9	74.7	1.14	38:13	-
$^{13}C_{12}$-OCDD	2004.1	50.1	0.90	42:56	-
$^{13}C_{12}$-2,3,7,8-TCDF	1228.3	61.4	0.78	23:28	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1724.6	86.2	1.50	27:39	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1696.2	84.8	1.60	28:30	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1162.5	58.1	0.50	32:21	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1136.4	56.8	0.48	32:30	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1124.3	56.2	0.49	33:14	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1049.5	52.5	0.50	34:23	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1477.7	73.9	0.42	36:46	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1436.6	71.8	0.45	38:53	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.78	23:57	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.38	33:59	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	573.5	71.7	24:08	-

SCOEPA00009033

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901906 **REFERENCE: 92C0804A.00**
FILE: A15242 **SAMPLE: 026-GG-01**
LAB ID.: E9901906-007

Project ID/P.O.:	92C0804A.00	Date collected:	10/21/99	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	10/26/99	Beginning CCAL:	A15235
Sample matrix:	Water	Date extracted:	10/26/99	Ending CCAL:	A15246
Sample size:	1 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	EDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	217.8	50.0	0.86	42:58	
2,3,7,8-TCDF	-	-	10.0	-		U
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	EDL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	1	194.2	10.0	
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 12/2/99

SCOEPA00009034

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901906 **REFERENCE: 92C0804A.00**
FILE: A15242 **SAMPLE: 026-GG-01**
LAB ID.: E9901906-007

Project ID/P.O.:	92C0804A.00	Date collected:	#######	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	#######	Beginning CCAL:	A15235
Sample matrix:	Water	Date extracted:	#######	Ending CCAL:	A15246
Sample size:	1 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	585.3	29.3	0.78	24:09	Y
$^{13}C_{12}$-1,2,3,7,8-PeCDD	724.6	36.2	1.49	28:56	Y
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	434.8	21.7	1.27	33:25	Y
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	555.1	27.8	1.20	33:33	Y
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	345.8	17.3	1.04	38:13	Y
$^{13}C_{12}$-OCDD	761.2	19.0	0.92	42:58	Y
$^{13}C_{12}$-2,3,7,8-TCDF	485.2	24.3	0.82	23:30	Y
$^{13}C_{12}$-1,2,3,7,8-PeCDF	628.8	31.4	1.66	27:40	Y
$^{13}C_{12}$-2,3,4,7,8-PeCDF	554.6	27.7	1.55	28:31	Y
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	475.7	23.8	0.51	32:22	Y
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	383.1	19.2	0.48	32:31	Y
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	349.4	17.5	0.44	33:17	Y
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	373.7	18.7	0.52	34:25	Y
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	395.5	19.8	0.40	36:47	Y
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	356.9	17.8	0.45	38:53	Y

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.85	23:58	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.40	34:02	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	276.6	34.6	24:09	Y

SCOEPA00009035

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901906 **REFERENCE: 92C0804A.00**
FILE: A15243 **SAMPLE: 027-GG-01**
LAB ID.: E9901906-008

Project ID/P.O.:	92C0804A.00	Date collected:	10/21/99	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	10/26/99	Beginning CCAL:	A15235
Sample matrix:	Water	Date extracted:	10/26/99	Ending CCAL:	A15246
Sample size:	0.98 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	EDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	-	50.0	-		U
2,3,7,8-TCDF	-	-	10.0	-		U
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	EDL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	0	-	10.0	U
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 12/2/99

SCOEPA00009036

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901906 **REFERENCE: 92C0804A.00**
FILE: A15243 **SAMPLE: 027-GG-01**
LAB ID.: E9901906-008

Project ID/P.O.:	92C0804A.00	Date collected:	#######	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	#######	Beginning CCAL:	A15235
Sample matrix:	Water	Date extracted:	#######	Ending CCAL:	A15246
Sample size:	0.98 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	2395.0	117.4	0.79	24:04	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	3296.7	161.5	1.55	28:53	Y
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	2551.3	125.0	1.32	33:22	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	2376.5	116.4	1.33	33:29	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2135.2	104.6	1.07	38:11	-
$^{13}C_{12}$-OCDD	3353.5	82.2	0.89	42:55	-
$^{13}C_{12}$-2,3,7,8-TCDF	2050.6	100.5	0.80	23:26	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	2761.4	135.3	1.47	27:37	Y
$^{13}C_{12}$-2,3,4,7,8-PeCDF	2844.5	139.4	1.54	28:28	Y
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1947.4	95.4	0.50	32:19	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1575.6	77.2	0.49	32:28	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1588.3	77.8	0.49	33:13	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1696.3	83.1	0.51	34:22	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	2239.5	109.7	0.44	36:44	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	2315.1	113.4	0.43	38:51	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.82	23:55	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.36	33:58	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	915.3	112.1	24:06	-

SCOEPA00009037

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901906 **REFERENCE: 92C0804A.00**
FILE: A15244 **SAMPLE: 028-GG-01**
LAB ID.: E9901906-009

Project ID/P.O.:	92C0804A.00	Date collected:	10/21/99	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	10/26/99	Beginning CCAL:	A15235
Sample matrix:	Water	Date extracted:	10/26/99	Ending CCAL:	A15246
Sample size:	0.97 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	EDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	-	50.0	-		U
2,3,7,8-TCDF	-	-	10.0	-		U
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	EDL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	0	-	10.0	U
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 12/2/99

SCOEPA00009038

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901906 **REFERENCE: 92C0804A.00**
FILE: A15244 **SAMPLE: 028-GG-01**
LAB ID.: E9901906-009

Project ID/P.O.:	92C0804A.00	Date collected:	#######	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	#######	Beginning CCAL:	A15235
Sample matrix:	Water	Date extracted:	#######	Ending CCAL:	A15246
Sample size:	0.97 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	2037.7	98.8	0.81	24:07	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2905.1	140.9	1.72	28:54	Y
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	2052.3	99.5	1.33	33:23	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1913.2	92.8	1.28	33:31	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1928.6	93.5	0.99	38:13	-
$^{13}C_{12}$-OCDD	2609.2	63.3	0.89	42:56	-
$^{13}C_{12}$-2,3,7,8-TCDF	1700.7	82.5	0.79	23:28	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	2330.7	113.0	1.42	27:39	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	2334.2	113.2	1.46	28:30	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1438.8	69.8	0.45	32:20	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1555.8	75.5	0.51	32:30	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1284.7	62.3	0.46	33:14	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1498.6	72.7	0.48	34:23	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1836.0	89.0	0.44	36:46	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1631.3	79.1	0.43	38:52	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.86	23:57	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.33	33:59	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	737.9	89.5	24:08	-

SCOEPA00009039

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901906 **REFERENCE: 92C0804A.00**
FILE: A15245 **SAMPLE: 029-GG-01**
LAB ID.: E9901906-010

Project ID/P.O.:	92C0804A.00	Date collected:	10/21/99	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	10/26/99	Beginning CCAL:	A15235
Sample matrix:	Water	Date extracted:	10/26/99	Ending CCAL:	A15246
Sample size:	1.04 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	EDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	-	50.0	-		U
2,3,7,8-TCDF	-	-	10.0	-		U
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	EDL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	0	-	10.0	U
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 12/2/99

SCOEPA00009040

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901906 **REFERENCE: 92C0804A.00**
FILE: A15245 **SAMPLE: 029-GG-01**
LAB ID.: E9901906-010

Project ID/P.O.:	92C0804A.00	Date collected:	#######	RTWin / Col Pfm:	A15235
Sample origin:	RPAC Task #44	Date received:	#######	Beginning CCAL:	A15235
Sample matrix:	Water	Date extracted:	#######	Ending CCAL:	A15246
Sample size:	1.04 L	Date analyzed:	11/5/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1613.1	83.9	0.80	24:03	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2197.9	114.3	1.73	28:52	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1548.3	80.5	1.24	33:20	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1448.1	75.3	1.26	33:28	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1651.5	85.9	1.17	38:10	-
$^{13}C_{12}$-OCDD	1995.1	51.9	0.88	42:53	-
$^{13}C_{12}$-2,3,7,8-TCDF	1313.0	68.3	0.82	23:25	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1840.4	95.7	1.52	27:36	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1713.9	89.1	1.42	28:26	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1458.7	75.9	0.48	32:18	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1332.5	69.3	0.48	32:27	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1188.3	61.8	0.50	33:11	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1248.3	64.9	0.47	34:21	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1640.1	85.3	0.43	36:43	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1643.8	85.5	0.42	38:50	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.80	23:53	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.34	33:57	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	622.4	80.9	24:04	-

SCOEPA00009041

QUALITY ASSURANCE DATA

SCOEPA00009042

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901906 **REFERENCE: 92C0804A.00**
FILE: A15389 **SAMPLE: Lab Spike**
LAB ID.: EB60017-LS

Project ID/P.O.:	92C0804A.00	Date collected:	NA	RTWin / Col Pfm:	A15382
Sample origin:	RPAC Task #44	Date received:	NA	Beginning CCAL:	A15382
Sample matrix:	Water	Date extracted:	10/26/99	Ending CCAL:	A15392
Sample size:	1 L	Date analyzed:	11/17/99	Initial CAL:	A092899
		Date processed:	12/1/99	Batch Number:	EB60017

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	158.5	10.0	0.72	24:09	
1,2,3,7,8-PeCDD	-	878.7	10.0	1.60	28:56	
1,2,3,4,7,8-HxCDD	-	746.3	25.0	1.21	33:25	
1,2,3,6,7,8-HxCDD	-	811.2	25.0	1.15	33:33	
1,2,3,7,8,9-HxCDD	-	846.0	25.0	1.26	34:02	
1,2,3,4,6,7,8-HpCDD	-	746.4	25.0	1.04	38:15	
OCDD	-	1644.9	50.0	0.93	43:00	
2,3,7,8-TCDF	-	152.3	10.0	0.83	23:30	
1,2,3,7,8-PeCDF	-	864.4	10.0	1.47	27:41	
2,3,4,7,8-PeCDF	-	827.7	10.0	1.78	28:32	
1,2,3,4,7,8-HxCDF	-	731.5	25.0	1.22	32:23	
1,2,3,6,7,8-HxCDF	-	799.3	25.0	1.14	32:32	
2,3,4,6,7,8-HxCDF	-	774.9	25.0	1.11	33:16	
1,2,3,7,8,9-HxCDF	-	786.9	25.0	1.14	34:26	
1,2,3,4,6,7,8-HpCDF	-	918.6	25.0	0.99	36:48	
1,2,3,4,7,8,9-HpCDF	-	880.2	25.0	1.08	38:56	
OCDF	-	1499.2	50.0	0.93	43:14	

TOTAL ANALYTES	NO	CONC (PPQ)	MDL (PPQ)	FLAGS
TOTAL TCDD	1	158.5	10.0	
TOTAL PeCDD	1	878.7	10.0	
TOTAL HxCDD	3	2403.5	25.0	
TOTAL HpCDD	1	746.4	25.0	
TOTAL TCDF	1	152.3	10.0	
TOTAL PeCDF	2	1692.1	10.0	
TOTAL HxCDF	4	3092.6	25.0	
TOTAL HpCDF	2	1798.9	25.0	

DATA REVIEWER: AMA 12/2/99

SCOEPA00009043

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901906
FILE: A15389
LAB ID.: EB60017-LS

REFERENCE: 92C0804A.00
SAMPLE: Lab Spike

Project ID/P.O.:	92C0804A.00	Date collected:	NA	RTWin / Col Pfm:	A15382
Sample origin:	RPAC Task #44	Date received:	NA	Beginning CCAL:	A15382
Sample matrix:	Water	Date extracted:	#######	Ending CCAL:	A15392
Sample size:	1 L	Date analyzed:	#######	Initial CAL:	A092899
		Date processed:	12/1/99	Batch Number:	EB60017

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1063.1	53.2	0.80	24:08	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	1276.9	63.8	1.63	28:56	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1056.7	52.8	1.28	33:24	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1157.0	57.8	1.42	33:32	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1206.4	60.3	1.12	38:15	-
$^{13}C_{12}$-OCDD	1189.1	29.7	0.89	42:59	Y
$^{13}C_{12}$-2,3,7,8-TCDF	918.9	45.9	0.75	23:29	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1206.0	60.3	1.73	27:40	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1166.7	58.3	1.52	28:31	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	846.6	42.3	0.46	32:22	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	890.3	44.5	0.46	32:31	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	799.4	40.0	0.49	33:15	Y
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	767.8	38.4	0.50	34:25	Y
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1040.2	52.0	0.47	36:48	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1031.5	51.6	0.45	38:55	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.84	23:58	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.20	34:01	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	365.6	45.7	24:09	-

SCOEPA00009044

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901906
FILE: A15224
LAB ID.: EB60017-MB

REFERENCE: 92C0804A.00
SAMPLE: Method Blank

Project ID/P.O.:	92C0804A.00	Date collected:	NA	RTWin / Col Pfm:	A15223
Sample origin:	RPAC Task #44	Date received:	NA	Beginning CCAL:	A15223
Sample matrix:	Water	Date extracted:	10/26/99	Ending CCAL:	A15234
Sample size:	1 L	Date analyzed:	11/4/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	-	50.0	-		U
2,3,7,8-TCDF	-	-	10.0	-		U
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	MDL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	0	-	10.0	U
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 12/2/99

SCOEPA00009045

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901906 **REFERENCE: 92C0804A.00**
FILE: A15224 **SAMPLE: Method Blank**
LAB ID.: EB60017-MB

Project ID/P.O.:	92C0804A.00	Date collected:	NA	RTWin / Col Pfm:	A15223
Sample origin:	RPAC Task #44	Date received:	NA	Beginning CCAL:	A15223
Sample matrix:	Water	Date extracted:	#######	Ending CCAL:	A15234
Sample size:	1 L	Date analyzed:	11/4/99	Initial CAL:	A092899
		Date processed:	11/5/99	Batch Number:	EB60017

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	2000.1	100.0	0.80	24:06	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2779.7	139.0	1.60	28:54	Y
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	2255.3	112.8	1.33	33:23	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	2232.8	111.6	1.32	33:31	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1928.1	96.4	1.04	38:14	-
$^{13}C_{12}$-OCDD	3975.1	99.4	0.90	42:57	-
$^{13}C_{12}$-2,3,7,8-TCDF	1333.1	66.7	0.81	23:27	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	2430.2	121.5	1.56	27:38	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	2174.1	108.7	1.55	28:30	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	2078.1	103.9	0.45	32:21	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	2068.8	103.4	0.47	32:30	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1698.6	84.9	0.45	33:14	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1757.3	87.9	0.43	34:24	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1911.2	95.6	0.42	36:46	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1770.9	88.5	0.41	38:53	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.83	23:56	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.32	34:00	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	655.4	81.9	24:07	-

SCOEPA00009046

Columbia Analytical Services, Inc.
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Dec 4, 1999

Columbia Analytical Services-Houston Project E9901911/1916/1920
URS Greiner Woodward Clyde Project Number: 92C0804A.00

Objective

Thirteen water samples were analyzed for tetrachloro- through octachloro- dibenzo-p-dioxins and furans by EPA SW-846 Method 8290.

Sample Receiving

The laboratory received the samples on Oct 28, 1999. The samples were received in good condition. The following lab accession numbers were assigned:

Lab ID	Client ID
E9901911-001	030-GG-01
E9901911-001MS	030-GG-01 MS
E9901911-001MSD	030-GG-01 MSD
E9901911-002	030-GG-02
E9901911-003	031-GG-01
E9901916-001	032-GG-01
E9901916-002	033-GG-01
E9901916-003	034-GG-01
E9901916-004	035-GG-01
E9901916-005	036-GG-~~01~~-04 12/6/99 KS
E9901916-006	037-GG-01
E9901916-007	038-GG-01
E9901920-001	039-GG-01
E9901920-002	040-GG-01
E9901920-003	041-GG-01
EB60023-LS	Lab Spike
EB60023-MB	Method Blank

SCOEPA00009047

Extraction

The samples were extracted according to the requirements of the Method. No discrepancies were encountered during extraction and cleanup.

Analysis

The samples were analyzed by GC-MS according to the Method. Data are reported for tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans.

During analysis, the matrix spike duplicate (030-GG-01 MSD) was discovered to have not been spiked with the dioxin/furan analyte solution. Therefore, data for the MSD is not available. The validity of the data, however, was not compromised due to nondetected or low level hits in the samples in the analytical batch and due to satifactory results obtained for the matrix spike (030-GG-01 MS).

The following standards had recoveries outside the QC advisory limits:

Sample ID	*Internal Standard*	*Recovery (%)*
E9901911-001	13C12-1,2,3,6,7,8-HxCDF	37.7
	13C12-2,3,4,6,7,8-HxCDF	39.1
E9901911-002	13C12-1,2,3,7,8-PeCDD	178.2
	13C12-1,2,3,7,8-PeCDF	148.1
	13C12-2,3,4,7,8-PeCDF	153.6
E9901911-001MS	13C12-1,2,3,7,8-PeCDD	167.2
E9901916-001	13C12-1,2,3,7,8,9-HxCDF	7.2
E9901916-002	13C12-1,2,3,7,8-PeCDD	139.2
E9901916-003	13C12-1,2,3,7,8-PeCDD	162.7
E9901916-004	13C12-1,2,3,7,8-PeCDD	141.0
E9901916-005	13C12-1,2,3,7,8-PeCDD	198.9
	13C12-1,2,3,4,6,7,8-HpCDD	164.8
	13C12-1,2,3,7,8-PeCDF	159.7
	13C12-2,3,4,7,8-PeCDF	153.8
E9901916-006	13C12-1,2,3,7,8-PeCDD	157.8
	13C12-1,2,3,4,6,7,8-HpCDD	140.4

Respectfully submitted,

Amer M. Amer, Ph.D.
Laboratory Director

SCOEPA00009048

ABBREVIATIONS AND FLAGS

Abbreviations and definitions

The following abbreviations and definitions are employed by Columbia Analytical Servces-Houston in its analytical reports for dioxin/furan analysis:

Cal	Calibration.
Conc	Concentration.
Dioxins	Polychlorinated dibenzo-p-dioxin(s).
EDL	Estimated detection limit.
EMPC	Estimated maximum possible concentration.
Flags	Data qualifiers.
Furans	Polychlorinated dibenzofuran(s).
g	Gram(s).
ID	Identifier.
Ions	Masses monitored for the analyte during data acquisition.
L	Liter(s).
LCS	Lab control sample.
MB	Method blank.
MDL	Method detection limit.
MS	Matrix spike.
MSD	Matrix spike duplicate.
NO	Number of peaks meeting all identification criteria
PCDD	Polychlorinated dibenzo-p-dioxin(s).
PCDF	Polychlorinated dibenzofuran(s).
ppb	Parts per billion.
ppq	Parts per quadrillion.
ppt	Parts per trillion.
QC	Quality control.
Ratio	Ratio of the areas from monitored ions for an analyte.
% Rec.	Percent recovery.
RRF	relative response factor.
RT	Retention time.
SDG	Sample Delivery Group.
S/N	Signal to noise ratio.
TEF	Toxicity equivalence factor.
TEQ	Toxicity equivalence.

Flags

The EPA qualifiers ("flags") for the Contract Laboratory Program are employed by Columbia Analytical Services. They are:

SCOEPA00009049

B This flag is used when the analyte is found in the associated blank, as well as in the sample.

C Indicates that the value for the analyte was obtained by analysis using a DB-225 confirmation column.

D Indicates that the analysis was performed on a diluted extract. This is performed when the initial analysis indicates that one or more analytes are present at a concentration above theupper end of the linear calibration range.

E Indicates an estimated value. Employed when the analyte concentration is above the upper end of the linear calibration range.

J Indicates an estimated value. Employed when the analyte concentration is below the lower end of the linear calibration range, but above the detection limit.

M Indicates that the compound was quantified using a manual integration of the peak areas.

S Indicates that the analyte in question is, in the opinion of the GC–MS Interpretation Specialist, a PCDD/PCDF even though the [M–COCl]+ ion did not meet the requirement that the signal-to-noise be at least 2.5:1.

U Indicates that compound was analyzed for but not detected.

Y Indicates that recovery of labeled standard is outside the range specified by QA goals. These goals are not mandatory requirements.

SCOEPA00009050

SUMMARY REPORT

SCOEPA00009051

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901911 **REFERENCE: 92C0804A.00**
FILE: A15285 **SAMPLE: 030-GG-01**
LAB ID.: E9901911-001

Project ID/P.O	92C0804A.00	Date collected:	10/25/99	RTWin / Col Pfm:	A15281
Sample origin:	RPAC Task # 45-GW Samp	Date received:	10/28/99	Beginning CCAL:	A15281
Sample matrix	Water	Date extracted:	11/2/99	Ending CCAL:	A15288
Sample size:	1.035 L	Date analyzed:	11/11/99	Initial CAL:	A092899
		Date processed:	11/12/99	Batch Number:	EB60023

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	13.1	ND	184.1	92%	50-150
1,2,3,7,8-PeCDD	-	28.7	ND	654.2	65%	50-150
1,2,3,4,7,8-HxCDD	-	37.2	ND	607.5	61%	50-150
1,2,3,6,7,8-HxCDD	-	36.6	ND	572.0	57%	50-150
1,2,3,7,8,9-HxCDD	-	36.5	ND	619.8	62%	50-150
1,2,3,4,6,7,8-HpCDD	-	80.4	ND	635.9	64%	50-150
OCDD	67.8	11.2	ND	1143.3	57%	50-150
2,3,7,8-TCDF	-	10.5	ND	190.0	95%	50-150
1,2,3,7,8-PeCDF	-	19.6	ND	607.6	61%	50-150
2,3,4,7,8-PeCDF	-	18.2	ND	590.4	59%	50-150
1,2,3,4,7,8-HxCDF	-	18.8	ND	592.0	59%	50-150
1,2,3,6,7,8-HxCDF	-	19.5	ND	650.9	65%	50-150
2,3,4,6,7,8-HxCDF	-	20.4	ND	584.4	58%	50-150
1,2,3,7,8,9-HxCDF	-	18.5	ND	642.8	64%	50-150
1,2,3,4,6,7,8-HpCDF	-	14.7	ND	632.0	63%	50-150
1,2,3,4,7,8,9-HpCDF	-	15.1	ND	643.7	64%	50-150
OCDF	-	8.0	ND	1061.7	53%	50-150

TOTAL ANALYTES	CONC (PPQ)	MDL (PPQ)
TOTAL TCDD	-	13.1
TOTAL PeCDD	-	28.7
TOTAL HxCDD	-	37.2
TOTAL HpCDD	-	80.4
TOTAL OCDD	67.8	11.2
TOTAL TCDF	-	10.5
TOTAL PeCDF	-	19.6
TOTAL HxCDF	-	20.4
TOTAL HpCDF	-	15.1
TOTAL OCDF	-	8.0

Definitions:

CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
BLANK — The concentration of the blank.
MS (PPQ) — The concentration of Matrix Spike recovered.
MS (%) — The percent recovery of the Matrix Spike.
ND — (Non-Detect) The concentration of the analyte is less than the detection limit.
NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 67.82 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 0.07 PPQ

SCOEPA00009052

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901911
FILE: A15289
LAB ID.: E9901911-001MS

REFERENCE: 92C0804A.00
SAMPLE: 030-GG-01 MS

Project ID/P.O	92C0804A.00	Date collected:	10/25/99	RTWin / Col Pfm:	A15281
Sample origin:	RPAC Task # 45-GW Samp	Date received:	10/28/99	Beginning CCAL:	A15281
Sample matrix	Water	Date extracted:	11/2/99	Ending CCAL:	A15288
Sample size:	1.05 L	Date analyzed:	11/11/99	Initial CAL:	A092899
		Date processed:	11/12/99	Batch Number:	EB60023

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MDL (PPQ)	BLANK (PPQ)	MS (PPQ)	MS (%)	QC Limits
2,3,7,8-TCDD	180.8	1.8	ND	180.8	95%	50-150
1,2,3,7,8-PeCDD	871.2	4.3	ND	871.2	91%	50-150
1,2,3,4,7,8-HxCDD	779.0	4.5	ND	779.0	82%	50-150
1,2,3,6,7,8-HxCDD	840.7	5.5	ND	840.7	88%	50-150
1,2,3,7,8,9-HxCDD	880.6	5.0	ND	880.6	92%	50-150
1,2,3,4,6,7,8-HpCDD	740.9	11.3	ND	740.9	78%	50-150
OCDD	1619.0	2.8	ND	1619.0	85%	50-150
2,3,7,8-TCDF	164.4	1.9	ND	164.4	86%	50-150
1,2,3,7,8-PeCDF	802.0	2.5	ND	802.0	84%	50-150
2,3,4,7,8-PeCDF	815.0	2.3	ND	815.0	86%	50-150
1,2,3,4,7,8-HxCDF	812.4	3.0	ND	812.4	85%	50-150
1,2,3,6,7,8-HxCDF	769.4	3.1	ND	769.4	81%	50-150
2,3,4,6,7,8-HxCDF	788.3	3.2	ND	788.3	83%	50-150
1,2,3,7,8,9-HxCDF	735.0	3.0	ND	735.0	77%	50-150
1,2,3,4,6,7,8-HpCDF	857.4	4.7	ND	857.4	90%	50-150
1,2,3,4,7,8,9-HpCDF	872.0	4.8	ND	872.0	92%	50-150
OCDF	1615.8	2.0	ND	1615.8	85%	50-150

TOTAL ANALYTES	CONC (PPQ)	MDL (PPQ)
TOTAL TCDD	180.8	1.8
TOTAL PeCDD	871.2	4.3
TOTAL HxCDD	2500.3	5.5
TOTAL HpCDD	740.9	11.3
TOTAL OCDD	1619.0	2.8
TOTAL TCDF	164.4	1.9
TOTAL PeCDF	1617.0	2.5
TOTAL HxCDF	3105.1	3.2
TOTAL HpCDF	1729.5	4.8
TOTAL OCDF	1615.8	2.0

Definitions:

- **CONC** — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
- **EDL** — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
- **BLANK** — The concentration of the blank.
- **MS (PPQ)** — The concentration of Matrix Spike recovered.
- **MS (%)** — The percent recovery of the Matrix Spike.
- **ND** — (Non-Detect) The concentration of the analyte is less than the detection limit.
- **NR** — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 14143.99 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 1668.95 PPQ

SCOEPA00009053

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901911 **REFERENCE: 92C0804A.00**
FILE: A15286 **SAMPLE: 030-GG-02**
LAB ID.: E9901911-002

Project ID/P.O	92C0804A.00	Date collected:	10/25/99	RTWin / Col Pfm:	A15281
Sample origin:	RPAC Task # 45-GW Samp	Date received:	10/28/99	Beginning CCAL:	A15281
Sample matrix	Water	Date extracted:	11/2/99	Ending CCAL:	A15288
Sample size:	1.04 L	Date analyzed:	11/11/99	Initial CAL:	A092899
		Date processed:	11/12/99	Batch Number:	EB60023

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	7.8	ND	184.1	92%	50-150
1,2,3,7,8-PeCDD	-	14.1	ND	654.2	65%	50-150
1,2,3,4,7,8-HxCDD	-	16.6	ND	607.5	61%	50-150
1,2,3,6,7,8-HxCDD	-	17.4	ND	572.0	57%	50-150
1,2,3,7,8,9-HxCDD	-	16.8	ND	619.8	62%	50-150
1,2,3,4,6,7,8-HpCDD	-	33.1	ND	635.9	64%	50-150
OCDD	-	6.1	ND	1143.3	57%	50-150
2,3,7,8-TCDF	-	7.3	ND	190.0	95%	50-150
1,2,3,7,8-PeCDF	-	7.0	ND	607.6	61%	50-150
2,3,4,7,8-PeCDF	-	6.5	ND	590.4	59%	50-150
1,2,3,4,7,8-HxCDF	-	8.5	ND	592.0	59%	50-150
1,2,3,6,7,8-HxCDF	-	8.9	ND	650.9	65%	50-150
2,3,4,6,7,8-HxCDF	-	9.2	ND	584.4	58%	50-150
1,2,3,7,8,9-HxCDF	-	8.4	ND	642.8	64%	50-150
1,2,3,4,6,7,8-HpCDF	-	11.3	ND	632.0	63%	50-150
1,2,3,4,7,8,9-HpCDF	-	11.6	ND	643.7	64%	50-150
OCDF	-	4.4	ND	1061.7	53%	50-150

TOTAL ANALYTES	CONC (PPQ)	MDL (PPQ)
TOTAL TCDD	-	7.8
TOTAL PeCDD	-	14.1
TOTAL HxCDD	-	17.4
TOTAL HpCDD	-	33.1
TOTAL OCDD	-	6.1
TOTAL TCDF	-	7.3
TOTAL PeCDF	-	7.0
TOTAL HxCDF	-	9.2
TOTAL HpCDF	-	11.6
TOTAL OCDF	-	4.4

Definitions:

- **CONC** — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
- **EDL** — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
- **BLANK** — The concentration of the blank.
- **MS (PPQ)** — The concentration of Matrix Spike recovered.
- **MS (%)** — The percent recovery of the Matrix Spike.
- **ND** — (Non-Detect) The concentration of the analyte is less than the detection limit.
- **NR** — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: ND
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: ND

SCOEPA00009054

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901911 **REFERENCE: 92C0804A.00**
FILE: A15287 **SAMPLE: 031-GG-01**
LAB ID.: E9901911-003

Project ID/P.O	92C0804A.00	Date collected:	10/25/99	RTWin / Col Pfm:	A15281
Sample origin:	RPAC Task # 45-GW Samp	Date received:	10/28/99	Beginning CCAL:	A15281
Sample matrix	Water	Date extracted:	11/2/99	Ending CCAL:	A15288
Sample size:	1.045 L	Date analyzed:	11/11/99	Initial CAL:	A092899
		Date processed:	11/12/99	Batch Number:	EB60023

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	2.6	ND	184.1	92%	50-150
1,2,3,7,8-PeCDD	-	5.8	ND	654.2	65%	50-150
1,2,3,4,7,8-HxCDD	-	8.5	ND	607.5	61%	50-150
1,2,3,6,7,8-HxCDD	-	10.4	ND	572.0	57%	50-150
1,2,3,7,8,9-HxCDD	-	9.3	ND	619.8	62%	50-150
1,2,3,4,6,7,8-HpCDD	-	21.1	ND	635.9	64%	50-150
OCDD	246.5	4.3	ND	1143.3	57%	50-150
2,3,7,8-TCDF	11.8	2.6	ND	190.0	95%	50-150
1,2,3,7,8-PeCDF	-	3.8	ND	607.6	61%	50-150
2,3,4,7,8-PeCDF	-	3.6	ND	590.4	59%	50-150
1,2,3,4,7,8-HxCDF	-	4.0	ND	592.0	59%	50-150
1,2,3,6,7,8-HxCDF	-	4.2	ND	650.9	65%	50-150
2,3,4,6,7,8-HxCDF	-	4.4	ND	584.4	58%	50-150
1,2,3,7,8,9-HxCDF	-	4.0	ND	642.8	64%	50-150
1,2,3,4,6,7,8-HpCDF	-	6.6	ND	632.0	63%	50-150
1,2,3,4,7,8,9-HpCDF	-	6.8	ND	643.7	64%	50-150
OCDF	-	3.1	ND	1061.7	53%	50-150

TOTAL ANALYTES	CONC (PPQ)	MDL (PPQ)
TOTAL TCDD	-	2.6
TOTAL PeCDD	-	5.8
TOTAL HxCDD	-	10.4
TOTAL HpCDD	69.2	21.1
TOTAL OCDD	246.5	4.3
TOTAL TCDF	16.3	2.6
TOTAL PeCDF	-	3.8
TOTAL HxCDF	-	4.4
TOTAL HpCDF	-	6.8
TOTAL OCDF	-	3.1

Definitions:

CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
BLANK — The concentration of the blank.
MS (PPQ) — The concentration of Matrix Spike recovered.
MS (%) — The percent recovery of the Matrix Spike.
ND — (Non-Detect) The concentration of the analyte is less than the detection limit.
NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 332.04 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 1.43 PPQ

SCOEPA00009055

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901916 **REFERENCE: 92C0804A.00**
FILE: A15388 **SAMPLE: 032-GG-01**
LAB ID.: E9901916-001

Project ID/P.O	92C0804A.00	Date collected:	10/27/99	RTWin / Col Pfm:	A15382
Sample origin:	RPAC Task # 44	Date received:	10/29/99	Beginning CCAL:	A15382
Sample matrix	Water	Date extracted:	11/2/99	Ending CCAL:	A15392
Sample size:	1.03 L	Date analyzed:	11/17/99	Initial CAL:	A092899
		Date processed:	11/18/99	Batch Number:	EB60023

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	10.0	ND	184.1	92%	50-150
1,2,3,7,8-PeCDD	-	10.0	ND	654.2	65%	50-150
1,2,3,4,7,8-HxCDD	-	25.0	ND	607.5	61%	50-150
1,2,3,6,7,8-HxCDD	-	25.0	ND	572.0	57%	50-150
1,2,3,7,8,9-HxCDD	-	25.0	ND	619.8	62%	50-150
1,2,3,4,6,7,8-HpCDD	-	25.0	ND	635.9	64%	50-150
OCDD	-	50.0	ND	1143.3	57%	50-150
2,3,7,8-TCDF	-	10.0	ND	190.0	95%	50-150
1,2,3,7,8-PeCDF	-	10.0	ND	607.6	61%	50-150
2,3,4,7,8-PeCDF	-	10.0	ND	590.4	59%	50-150
1,2,3,4,7,8-HxCDF	-	25.0	ND	592.0	59%	50-150
1,2,3,6,7,8-HxCDF	-	25.0	ND	650.9	65%	50-150
2,3,4,6,7,8-HxCDF	-	25.0	ND	584.4	58%	50-150
1,2,3,7,8,9-HxCDF	-	25.0	ND	642.8	64%	50-150
1,2,3,4,6,7,8-HpCDF	-	25.0	ND	632.0	63%	50-150
1,2,3,4,7,8,9-HpCDF	-	25.0	ND	643.7	64%	50-150
OCDF	-	50.0	ND	1061.7	53%	50-150

TOTAL ANALYTES	CONC (PPQ)	MDL (PPQ)
TOTAL TCDD	-	10.0
TOTAL PeCDD	-	10.0
TOTAL HxCDD	-	25.0
TOTAL HpCDD	-	25.0
TOTAL OCDD	-	50.0
TOTAL TCDF	-	10.0
TOTAL PeCDF	-	10.0
TOTAL HxCDF	-	25.0
TOTAL HpCDF	-	25.0
TOTAL OCDF	-	50.0

Definitions:

CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).

EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).

BLANK — The concentration of the blank.

MS (PPQ) — The concentration of Matrix Spike recovered.

MS (%) — The percent recovery of the Matrix Spike.

ND — (Non-Detect) The concentration of the analyte is less than the detection limit.

NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: ND
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: ND

SCOEPA00009056

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901916 **REFERENCE: 92C0804A.00**
FILE: A15291 **SAMPLE: 033-GG-01**
LAB ID.: E9901916-002

Project ID/P.O	92C0804A.00	Date collected:	10/27/99	RTWin / Col Pfm:	A15288
Sample origin:	RPAC Task # 44	Date received:	10/29/99	Beginning CCAL:	A15288
Sample matrix	Water	Date extracted:	11/2/99	Ending CCAL:	A15297
Sample size:	1.03 L	Date analyzed:	11/11/99	Initial CAL:	A092899
		Date processed:	11/12/99	Batch Number:	EB60023

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	EDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	1.7	ND	184.1	92%	50-150
1,2,3,7,8-PeCDD	-	2.2	ND	654.2	65%	50-150
1,2,3,4,7,8-HxCDD	-	4.7	ND	607.5	61%	50-150
1,2,3,6,7,8-HxCDD	-	5.3	ND	572.0	57%	50-150
1,2,3,7,8,9-HxCDD	-	5.0	ND	619.8	62%	50-150
1,2,3,4,6,7,8-HpCDD	-	9.8	ND	635.9	64%	50-150
OCDD	-	2.1	ND	1143.3	57%	50-150
2,3,7,8-TCDF	-	1.5	ND	190.0	95%	50-150
1,2,3,7,8-PeCDF	-	2.9	ND	607.6	61%	50-150
2,3,4,7,8-PeCDF	-	2.7	ND	590.4	59%	50-150
1,2,3,4,7,8-HxCDF	-	2.2	ND	592.0	59%	50-150
1,2,3,6,7,8-HxCDF	-	2.3	ND	650.9	65%	50-150
2,3,4,6,7,8-HxCDF	-	2.4	ND	584.4	58%	50-150
1,2,3,7,8,9-HxCDF	-	2.2	ND	642.8	64%	50-150
1,2,3,4,6,7,8-HpCDF	-	3.1	ND	632.0	63%	50-150
1,2,3,4,7,8,9-HpCDF	-	3.2	ND	643.7	64%	50-150
OCDF	-	1.5	ND	1061.7	53%	50-150

TOTAL ANALYTES	CONC (PPQ)	EDL (PPQ)
TOTAL TCDD	-	1.7
TOTAL PeCDD	-	2.2
TOTAL HxCDD	-	5.3
TOTAL HpCDD	-	9.8
TOTAL OCDD	-	2.1
TOTAL TCDF	-	1.5
TOTAL PeCDF	-	2.9
TOTAL HxCDF	-	2.4
TOTAL HpCDF	-	3.2
TOTAL OCDF	-	1.5

Definitions:

CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).

EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).

BLANK — The concentration of the blank.

MS (PPQ) — The concentration of Matrix Spike recovered.

MS (%) — The percent recovery of the Matrix Spike.

ND — (Non-Detect) The concentration of the analyte is less than the detection limit.

NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: ND
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: ND

SCOEPA00009057

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901916
FILE: A15292
LAB ID.: E9901916-003

REFERENCE: 92C0804A.00
SAMPLE: 034-GG-01

Project ID/P.O	92C0804A.00	Date collected:	10/26/99	RTWin / Col Pfm:	A15288
Sample origin:	RPAC Task # 44	Date received:	10/29/99	Beginning CCAL:	A15288
Sample matrix	Water	Date extracted:	11/2/99	Ending CCAL:	A15297
Sample size:	1.035 L	Date analyzed:	11/11/99	Initial CAL:	A092899
		Date processed:	11/12/99	Batch Number:	EB60023

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	EDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	7.1	ND	184.1	92%	50-150
1,2,3,7,8-PeCDD	-	7.8	ND	654.2	65%	50-150
1,2,3,4,7,8-HxCDD	-	17.8	ND	607.5	61%	50-150
1,2,3,6,7,8-HxCDD	-	21.9	ND	572.0	57%	50-150
1,2,3,7,8,9-HxCDD	-	19.7	ND	619.8	62%	50-150
1,2,3,4,6,7,8-HpCDD	-	31.8	ND	635.9	64%	50-150
OCDD	-	6.0	ND	1143.3	57%	50-150
2,3,7,8-TCDF	-	6.5	ND	190.0	95%	50-150
1,2,3,7,8-PeCDF	-	10.0	ND	607.6	61%	50-150
2,3,4,7,8-PeCDF	-	9.3	ND	590.4	59%	50-150
1,2,3,4,7,8-HxCDF	-	9.0	ND	592.0	59%	50-150
1,2,3,6,7,8-HxCDF	-	9.4	ND	650.9	65%	50-150
2,3,4,6,7,8-HxCDF	-	9.8	ND	584.4	58%	50-150
1,2,3,7,8,9-HxCDF	-	8.9	ND	642.8	64%	50-150
1,2,3,4,6,7,8-HpCDF	-	12.0	ND	632.0	63%	50-150
1,2,3,4,7,8,9-HpCDF	-	12.3	ND	643.7	64%	50-150
OCDF	-	4.3	ND	1061.7	53%	50-150

TOTAL ANALYTES	CONC (PPQ)	EDL (PPQ)
TOTAL TCDD	-	7.1
TOTAL PeCDD	-	7.8
TOTAL HxCDD	-	21.9
TOTAL HpCDD	-	31.8
TOTAL OCDD	-	6.0
TOTAL TCDF	-	6.5
TOTAL PeCDF	-	10.0
TOTAL HxCDF	-	9.8
TOTAL HpCDF	-	12.3
TOTAL OCDF	-	4.3

Definitions:

CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).

EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).

BLANK — The concentration of the blank.

MS (PPQ) — The concentration of Matrix Spike recovered.

MS (%) — The percent recovery of the Matrix Spike.

ND — (Non-Detect) The concentration of the analyte is less than the detection limit.

NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: ND
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: ND

SCOEPA00009058

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901916 **REFERENCE: 92C0804A.00**
FILE: A15293 **SAMPLE: 035-GG-01**
LAB ID.: E9901916-004

Project ID/P.O	92C0804A.00	Date collected:	10/26/99	RTWin / Col Pfm:	A15288
Sample origin:	RPAC Task # 44	Date received:	10/29/99	Beginning CCAL:	A15288
Sample matrix	Water	Date extracted:	11/2/99	Ending CCAL:	A15297
Sample size:	0.98 L	Date analyzed:	11/11/99	Initial CAL:	A092899
		Date processed:	11/12/99	Batch Number:	EB60023

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	EDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	7.2	ND	184.1	92%	50-150
1,2,3,7,8-PeCDD	-	8.3	ND	654.2	65%	50-150
1,2,3,4,7,8-HxCDD	-	22.6	ND	607.5	61%	50-150
1,2,3,6,7,8-HxCDD	-	27.7	ND	572.0	57%	50-150
1,2,3,7,8,9-HxCDD	-	24.9	ND	619.8	62%	50-150
1,2,3,4,6,7,8-HpCDD	-	33.2	ND	635.9	64%	50-150
OCDD	-	9.8	ND	1143.3	57%	50-150
2,3,7,8-TCDF	-	8.9	ND	190.0	95%	50-150
1,2,3,7,8-PeCDF	-	11.1	ND	607.6	61%	50-150
2,3,4,7,8-PeCDF	-	10.3	ND	590.4	59%	50-150
1,2,3,4,7,8-HxCDF	-	11.1	ND	592.0	59%	50-150
1,2,3,6,7,8-HxCDF	-	11.6	ND	650.9	65%	50-150
2,3,4,6,7,8-HxCDF	-	12.1	ND	584.4	58%	50-150
1,2,3,7,8,9-HxCDF	-	11.0	ND	642.8	64%	50-150
1,2,3,4,6,7,8-HpCDF	-	16.8	ND	632.0	63%	50-150
1,2,3,4,7,8,9-HpCDF	-	17.2	ND	643.7	64%	50-150
OCDF	-	7.0	ND	1061.7	53%	50-150

TOTAL ANALYTES	CONC (PPQ)	EDL (PPQ)
TOTAL TCDD	-	7.2
TOTAL PeCDD	-	8.3
TOTAL HxCDD	-	27.7
TOTAL HpCDD	-	33.2
TOTAL OCDD	-	9.8
TOTAL TCDF	-	8.9
TOTAL PeCDF	-	11.1
TOTAL HxCDF	-	12.1
TOTAL HpCDF	-	17.2
TOTAL OCDF	-	7.0

Definitions:

CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).

EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).

BLANK — The concentration of the blank.

MS (PPQ) — The concentration of Matrix Spike recovered.

MS (%) — The percent recovery of the Matrix Spike.

ND — (Non-Detect) The concentration of the analyte is less than the detection limit.

NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: ND
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: ND

SCOEPA00009059

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901916
FILE: A15294
LAB ID.: E9901916-005

REFERENCE: 92C0804A.00
SAMPLE: 036-GG-~~01~~ -04

12/6/99 KS

Project ID/P.O	92C0804A.00	Date collected:	10/27/99	RTWin / Col Pfm:	A15288
Sample origin:	RPAC Task # 44	Date received:	10/29/99	Beginning CCAL:	A15288
Sample matrix	Water	Date extracted:	11/2/99	Ending CCAL:	A15297
Sample size:	1.01 L	Date analyzed:	11/11/99	Initial CAL:	A092899
		Date processed:	11/12/99	Batch Number:	EB60023

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	EDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	5.3	ND	184.1	92%	50-150
1,2,3,7,8-PeCDD	-	5.6	ND	654.2	65%	50-150
1,2,3,4,7,8-HxCDD	-	12.2	ND	607.5	61%	50-150
1,2,3,6,7,8-HxCDD	-	15.0	ND	572.0	57%	50-150
1,2,3,7,8,9-HxCDD	-	13.5	ND	619.8	62%	50-150
1,2,3,4,6,7,8-HpCDD	-	22.4	ND	635.9	64%	50-150
OCDD	-	6.1	ND	1143.3	57%	50-150
2,3,7,8-TCDF	-	6.4	ND	190.0	95%	50-150
1,2,3,7,8-PeCDF	-	7.8	ND	607.6	61%	50-150
2,3,4,7,8-PeCDF	-	7.2	ND	590.4	59%	50-150
1,2,3,4,7,8-HxCDF	-	7.5	ND	592.0	59%	50-150
1,2,3,6,7,8-HxCDF	-	7.8	ND	650.9	65%	50-150
2,3,4,6,7,8-HxCDF	-	8.2	ND	584.4	58%	50-150
1,2,3,7,8,9-HxCDF	-	7.4	ND	642.8	64%	50-150
1,2,3,4,6,7,8-HpCDF	-	10.4	ND	632.0	63%	50-150
1,2,3,4,7,8,9-HpCDF	-	10.6	ND	643.7	64%	50-150
OCDF	-	4.4	ND	1061.7	53%	50-150

TOTAL ANALYTES	CONC (PPQ)	EDL (PPQ)
TOTAL TCDD	-	5.3
TOTAL PeCDD	-	5.6
TOTAL HxCDD	-	15.0
TOTAL HpCDD	-	22.4
TOTAL OCDD	-	6.1
TOTAL TCDF	-	6.4
TOTAL PeCDF	-	7.8
TOTAL HxCDF	-	8.2
TOTAL HpCDF	-	10.6
TOTAL OCDF	-	4.4

Definitions:

- **CONC** — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
- **EDL** — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
- **BLANK** — The concentration of the blank.
- **MS (PPQ)** — The concentration of Matrix Spike recovered.
- **MS (%)** — The percent recovery of the Matrix Spike.
- **ND** — (Non-Detect) The concentration of the analyte is less than the detection limit.
- **NR** — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: ND
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: ND

SCOEPA00009060

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901916 **REFERENCE: 92C0804A.00**
FILE: A15295 **SAMPLE: 037-GG-01**
LAB ID.: E9901916-006

Project ID/P.O	92C0804A.00	Date collected:	10/27/99	RTWin / Col Pfm:	A15288
Sample origin:	RPAC Task # 44	Date received:	10/29/99	Beginning CCAL:	A15288
Sample matrix	Water	Date extracted:	11/2/99	Ending CCAL:	A15297
Sample size:	0.8 L	Date analyzed:	11/12/99	Initial CAL:	A092899
		Date processed:	11/12/99	Batch Number:	EB60023

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	EDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	8.3	ND	184.1	92%	50-150
1,2,3,7,8-PeCDD	-	15.7	ND	654.2	65%	50-150
1,2,3,4,7,8-HxCDD	-	24.9	ND	607.5	61%	50-150
1,2,3,6,7,8-HxCDD	-	23.8	ND	572.0	57%	50-150
1,2,3,7,8,9-HxCDD	-	24.1	ND	619.8	62%	50-150
1,2,3,4,6,7,8-HpCDD	-	39.7	ND	635.9	64%	50-150
OCDD	-	10.4	ND	1143.3	57%	50-150
2,3,7,8-TCDF	-	10.5	ND	190.0	95%	50-150
1,2,3,7,8-PeCDF	-	8.3	ND	607.6	61%	50-150
2,3,4,7,8-PeCDF	-	7.8	ND	590.4	59%	50-150
1,2,3,4,7,8-HxCDF	-	11.8	ND	592.0	59%	50-150
1,2,3,6,7,8-HxCDF	-	12.3	ND	650.9	65%	50-150
2,3,4,6,7,8-HxCDF	-	12.8	ND	584.4	58%	50-150
1,2,3,7,8,9-HxCDF	-	11.7	ND	642.8	64%	50-150
1,2,3,4,6,7,8-HpCDF	-	18.2	ND	632.0	63%	50-150
1,2,3,4,7,8,9-HpCDF	-	18.6	ND	643.7	64%	50-150
OCDF	-	7.5	ND	1061.7	53%	50-150

TOTAL ANALYTES	CONC (PPQ)	EDL (PPQ)
TOTAL TCDD	-	8.3
TOTAL PeCDD	-	15.7
TOTAL HxCDD	-	24.9
TOTAL HpCDD	-	39.7
TOTAL OCDD	-	10.4
TOTAL TCDF	-	10.5
TOTAL PeCDF	-	8.3
TOTAL HxCDF	-	12.8
TOTAL HpCDF	-	18.6
TOTAL OCDF	-	7.5

Definitions:

CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).

EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).

BLANK — The concentration of the blank.

MS (PPQ) — The concentration of Matrix Spike recovered.

MS (%) — The percent recovery of the Matrix Spike.

ND — (Non-Detect) The concentration of the analyte is less than the detection limit.

NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: ND

TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: ND

SCOEPA00009061

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901916 **REFERENCE: 92C0804A.00**
FILE: A15296 **SAMPLE: 038-GG-01**
LAB ID.: E9901916-007

Project ID/P.O	92C0804A.00	Date collected:	10/27/99	RTWin / Col Pfm:	A15288
Sample origin:	RPAC Task # 44	Date received:	10/29/99	Beginning CCAL:	A15288
Sample matrix	Water	Date extracted:	11/2/99	Ending CCAL:	A15297
Sample size:	0.87 L	Date analyzed:	11/12/99	Initial CAL:	A092899
		Date processed:	11/12/99	Batch Number:	EB60023

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	EDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	11.0	ND	184.1	92%	50-150
1,2,3,7,8-PeCDD	-	20.9	ND	654.2	65%	50-150
1,2,3,4,7,8-HxCDD	-	25.4	ND	607.5	61%	50-150
1,2,3,6,7,8-HxCDD	-	31.2	ND	572.0	57%	50-150
1,2,3,7,8,9-HxCDD	-	28.0	ND	619.8	62%	50-150
1,2,3,4,6,7,8-HpCDD	-	58.3	ND	635.9	64%	50-150
OCDD	-	13.1	ND	1143.3	57%	50-150
2,3,7,8-TCDF	-	10.2	ND	190.0	95%	50-150
1,2,3,7,8-PeCDF	-	11.6	ND	607.6	61%	50-150
2,3,4,7,8-PeCDF	-	10.8	ND	590.4	59%	50-150
1,2,3,4,7,8-HxCDF	-	16.9	ND	592.0	59%	50-150
1,2,3,6,7,8-HxCDF	-	17.6	ND	650.9	65%	50-150
2,3,4,6,7,8-HxCDF	-	18.4	ND	584.4	58%	50-150
1,2,3,7,8,9-HxCDF	-	16.7	ND	642.8	64%	50-150
1,2,3,4,6,7,8-HpCDF	-	24.3	ND	632.0	63%	50-150
1,2,3,4,7,8,9-HpCDF	-	24.8	ND	643.7	64%	50-150
OCDF	-	9.4	ND	1061.7	53%	50-150

TOTAL ANALYTES	CONC (PPQ)	EDL (PPQ)
TOTAL TCDD	-	11.0
TOTAL PeCDD	-	20.9
TOTAL HxCDD	-	31.2
TOTAL HpCDD	-	58.3
TOTAL OCDD	-	13.1
TOTAL TCDF	-	10.2
TOTAL PeCDF	-	11.6
TOTAL HxCDF	-	18.4
TOTAL HpCDF	-	24.8
TOTAL OCDF	-	9.4

Definitions:

CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).

EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).

BLANK — The concentration of the blank.

MS (PPQ) — The concentration of Matrix Spike recovered.

MS (%) — The percent recovery of the Matrix Spike.

ND — (Non-Detect) The concentration of the analyte is less than the detection limit.

NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: ND

TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: ND

SCOEPA00009062

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901920 **REFERENCE: 92C0804A.00**
FILE: A15301 **SAMPLE: 039-GG-01**
LAB ID.: E9901920-001

Project ID/P.O	92C0804A.00	Date collected:	10/28/99	RTWin / Col Pfm:	A15297
Sample origin:	RPAC Task # 44	Date received:	11/2/99	Beginning CCAL:	A15297
Sample matrix	Water	Date extracted:	11/2/99	Ending CCAL:	A15308
Sample size:	0.93 L	Date analyzed:	11/12/99	Initial CAL:	A092899
		Date processed:	11/12/99	Batch Number:	EB60023

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	43.3	ND	184.1	92%	50-150
1,2,3,7,8-PeCDD	-	130.8	ND	654.2	65%	50-150
1,2,3,4,7,8-HxCDD	-	149.6	ND	607.5	61%	50-150
1,2,3,6,7,8-HxCDD	-	183.6	ND	572.0	57%	50-150
1,2,3,7,8,9-HxCDD	-	164.9	ND	619.8	62%	50-150
1,2,3,4,6,7,8-HpCDD	-	330.1	ND	635.9	64%	50-150
OCDD	-	81.5	ND	1143.3	57%	50-150
2,3,7,8-TCDF	-	55.7	ND	190.0	95%	50-150
1,2,3,7,8-PeCDF	-	71.4	ND	607.6	61%	50-150
2,3,4,7,8-PeCDF	-	66.5	ND	590.4	59%	50-150
1,2,3,4,7,8-HxCDF	-	88.5	ND	592.0	59%	50-150
1,2,3,6,7,8-HxCDF	-	92.1	ND	650.9	65%	50-150
2,3,4,6,7,8-HxCDF	-	96.1	ND	584.4	58%	50-150
1,2,3,7,8,9-HxCDF	-	87.4	ND	642.8	64%	50-150
1,2,3,4,6,7,8-HpCDF	-	108.2	ND	632.0	63%	50-150
1,2,3,4,7,8,9-HpCDF	-	110.7	ND	643.7	64%	50-150
OCDF	-	58.5	ND	1061.7	53%	50-150

TOTAL ANALYTES	CONC (PPQ)	MDL (PPQ)
TOTAL TCDD	-	43.3
TOTAL PeCDD	-	130.8
TOTAL HxCDD	-	183.6
TOTAL HpCDD	-	330.1
TOTAL OCDD	-	81.5
TOTAL TCDF	-	55.7
TOTAL PeCDF	-	71.4
TOTAL HxCDF	-	96.1
TOTAL HpCDF	-	110.7
TOTAL OCDF	-	58.5

Definitions:

- **CONC** — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
- **EDL** — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
- **BLANK** — The concentration of the blank.
- **MS (PPQ)** — The concentration of Matrix Spike recovered.
- **MS (%)** — The percent recovery of the Matrix Spike.
- **ND** — (Non-Detect) The concentration of the analyte is less than the detection limit.
- **NR** — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: ND
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: ND

SCOEPA00009063

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901920
FILE: A15302
LAB ID.: E9901920-002

REFERENCE: 92C0804A.00
SAMPLE: 040-GG-01

Project ID/P.O	92C0804A.00	Date collected:	10/28/99	RTWin / Col Pfm:	A15297
Sample origin:	RPAC Task # 44	Date received:	11/2/99	Beginning CCAL:	A15297
Sample matrix	Water	Date extracted:	11/2/99	Ending CCAL:	A15308
Sample size:	1.01 L	Date analyzed:	11/12/99	Initial CAL:	A092899
		Date processed:	11/12/99	Batch Number:	EB60023

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	12.7	ND	184.1	92%	50-150
1,2,3,7,8-PeCDD	-	29.5	ND	654.2	65%	50-150
1,2,3,4,7,8-HxCDD	-	35.6	ND	607.5	61%	50-150
1,2,3,6,7,8-HxCDD	-	43.7	ND	572.0	57%	50-150
1,2,3,7,8,9-HxCDD	-	39.2	ND	619.8	62%	50-150
1,2,3,4,6,7,8-HpCDD	-	102.3	ND	635.9	64%	50-150
OCDD	-	18.4	ND	1143.3	57%	50-150
2,3,7,8-TCDF	-	13.1	ND	190.0	95%	50-150
1,2,3,7,8-PeCDF	-	16.3	ND	607.6	61%	50-150
2,3,4,7,8-PeCDF	-	15.2	ND	590.4	59%	50-150
1,2,3,4,7,8-HxCDF	-	20.8	ND	592.0	59%	50-150
1,2,3,6,7,8-HxCDF	-	21.6	ND	650.9	65%	50-150
2,3,4,6,7,8-HxCDF	-	22.6	ND	584.4	58%	50-150
1,2,3,7,8,9-HxCDF	-	20.5	ND	642.8	64%	50-150
1,2,3,4,6,7,8-HpCDF	-	33.4	ND	632.0	63%	50-150
1,2,3,4,7,8,9-HpCDF	-	34.1	ND	643.7	64%	50-150
OCDF	-	13.2	ND	1061.7	53%	50-150

TOTAL ANALYTES	CONC (PPQ)	MDL (PPQ)
TOTAL TCDD	-	12.7
TOTAL PeCDD	-	29.5
TOTAL HxCDD	-	43.7
TOTAL HpCDD	-	102.3
TOTAL OCDD	-	18.4
TOTAL TCDF	-	13.1
TOTAL PeCDF	-	16.3
TOTAL HxCDF	-	22.6
TOTAL HpCDF	-	34.1
TOTAL OCDF	-	13.2

Definitions:

- **CONC** — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
- **EDL** — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
- **BLANK** — The concentration of the blank.
- **MS (PPQ)** — The concentration of Matrix Spike recovered.
- **MS (%)** — The percent recovery of the Matrix Spike.
- **ND** — (Non-Detect) The concentration of the analyte is less than the detection limit.
- **NR** — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: ND
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: ND

SCOEPA00009064

URS Greiner Woodward Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E9901920
FILE: A15300
LAB ID.: E9901920-003

REFERENCE: 92C0804A.00
SAMPLE: 041-GG-01

Project ID/P.O	92C0804A.00	Date collected:	10/28/99	RTWin / Col Pfm:	A15297
Sample origin:	RPAC Task # 44	Date received:	11/2/99	Beginning CCAL:	A15297
Sample matrix	Water	Date extracted:	11/2/99	Ending CCAL:	A15308
Sample size:	0.93 L	Date analyzed:	11/12/99	Initial CAL:	A092899
		Date processed:	11/12/99	Batch Number:	EB60023

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	8.6	ND	184.1	92%	50-150
1,2,3,7,8-PeCDD	-	17.2	ND	654.2	65%	50-150
1,2,3,4,7,8-HxCDD	-	21.6	ND	607.5	61%	50-150
1,2,3,6,7,8-HxCDD	-	26.5	ND	572.0	57%	50-150
1,2,3,7,8,9-HxCDD	-	23.8	ND	619.8	62%	50-150
1,2,3,4,6,7,8-HpCDD	-	48.8	ND	635.9	64%	50-150
OCDD	-	11.5	ND	1143.3	57%	50-150
2,3,7,8-TCDF	-	9.9	ND	190.0	95%	50-150
1,2,3,7,8-PeCDF	-	9.3	ND	607.6	61%	50-150
2,3,4,7,8-PeCDF	-	8.7	ND	590.4	59%	50-150
1,2,3,4,7,8-HxCDF	-	13.3	ND	592.0	59%	50-150
1,2,3,6,7,8-HxCDF	-	13.9	ND	650.9	65%	50-150
2,3,4,6,7,8-HxCDF	-	14.5	ND	584.4	58%	50-150
1,2,3,7,8,9-HxCDF	-	13.2	ND	642.8	64%	50-150
1,2,3,4,6,7,8-HpCDF	-	16.0	ND	632.0	63%	50-150
1,2,3,4,7,8,9-HpCDF	-	16.4	ND	643.7	64%	50-150
OCDF	-	8.2	ND	1061.7	53%	50-150

TOTAL ANALYTES	CONC (PPQ)	MDL (PPQ)
TOTAL TCDD	-	8.6
TOTAL PeCDD	-	17.2
TOTAL HxCDD	-	26.5
TOTAL HpCDD	-	48.8
TOTAL OCDD	-	11.5
TOTAL TCDF	-	9.9
TOTAL PeCDF	-	9.3
TOTAL HxCDF	-	14.5
TOTAL HpCDF	-	16.4
TOTAL OCDF	-	8.2

Definitions:

- **CONC** — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
- **EDL** — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
- **BLANK** — The concentration of the blank.
- **MS (PPQ)** — The concentration of Matrix Spike recovered.
- **MS (%)** — The percent recovery of the Matrix Spike.
- **ND** — (Non-Detect) The concentration of the analyte is less than the detection limit.
- **NR** — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: ND
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: ND

SCOEPA00009065

ANALYSIS REPORT

SCOEPA00009066

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901911 **REFERENCE: 92C0804A.00**
FILE: A15285 **SAMPLE: 030-GG-01**
LAB ID.: E9901911-001

Project ID/P.O.:	92C0804A.00	Date collected:	10/25/99	RTWin / Col Pfm:	A15281
Sample origin:	RPAC Task # 45-GW Sampling	Date received:	10/28/99	Beginning CCAL:	A15281
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15288
Sample size:	1.035 L	Date analyzed:	11/11/99	Initial CAL:	A092899
		Date processed:	11/12/99	Batch Number:	EB60023

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	67.8	50.0	0.91	43:03	J
2,3,7,8-TCDF	-	-	10.0	-		U
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	0	-	10.0	U
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 12/9/99

SCOEPA00009067

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901911 **REFERENCE: 92C0804A.00**
FILE: A15285 **SAMPLE: 030-GG-01**
LAB ID.: E9901911-001

Project ID/P.O.:	92C0804A.00	Date collected:	#######	RTWin / Col Pfm:	A15281
Sample origin:	RPAC Task # 45-GW Samp	Date received:	#######	Beginning CCAL:	A15281
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15288
Sample size:	1.035 L	Date analyzed:	#######	Initial CAL:	A092899
		Date processed:	#######	Batch Number:	EB60023

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1133.5	58.7	0.87	24:10	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	1504.9	77.9	1.58	28:58	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	927.6	48.0	1.33	33:27	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1178.2	61.0	1.31	33:35	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	921.4	47.7	1.05	38:18	-
$^{13}C_{12}$-OCDD	1925.0	49.8	0.90	43:02	-
$^{13}C_{12}$-2,3,7,8-TCDF	985.3	51.0	0.79	23:31	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1049.6	54.3	1.62	27:42	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1015.6	52.6	1.66	28:33	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	786.8	40.7	0.56	32:25	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	728.8	37.7	0.51	32:34	Y
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	755.9	39.1	0.54	33:18	Y
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	824.0	42.6	0.53	34:28	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1562.5	80.9	0.41	36:51	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	912.4	47.2	0.41	38:57	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.81	24:00	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.32	34:04	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	352.6	45.6	24:11	-

SCOEPA00009068

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901911 **REFERENCE: 92C0804A.00**
FILE: A15289 **SAMPLE: 030-GG-01 MS**
LAB ID.: E9901911-001MS

Project ID/P.O.:	92C0804A.00	Date collected:	10/25/99	RTWin / Col Pfm:	A15281
Sample origin:	RPAC Task # 45-GW Sampling	Date received:	10/28/99	Beginning CCAL:	A15281
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15288
Sample size:	1.05 L	Date analyzed:	11/11/99	Initial CAL:	A092899
		Date processed:	11/12/99	Batch Number:	EB60023

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	180.8	10.0	0.89	24:08	
1,2,3,7,8-PeCDD	-	871.2	10.0	1.73	28:56	
1,2,3,4,7,8-HxCDD	-	779.0	25.0	1.28	33:25	
1,2,3,6,7,8-HxCDD	-	840.7	25.0	1.30	33:33	
1,2,3,7,8,9-HxCDD	-	880.6	25.0	1.30	34:01	
1,2,3,4,6,7,8-HpCDD	-	740.9	25.0	0.99	38:15	
OCDD	-	1619.0	50.0	0.90	42:59	
2,3,7,8-TCDF	-	164.4	10.0	0.80	23:29	
1,2,3,7,8-PeCDF	-	802.0	10.0	1.57	27:40	
2,3,4,7,8-PeCDF	-	815.0	10.0	1.58	28:32	
1,2,3,4,7,8-HxCDF	-	812.4	25.0	1.05	32:23	
1,2,3,6,7,8-HxCDF	-	769.4	25.0	1.14	32:31	
2,3,4,6,7,8-HxCDF	-	788.3	25.0	1.05	33:16	
1,2,3,7,8,9-HxCDF	-	735.0	25.0	1.19	34:26	
1,2,3,4,6,7,8-HpCDF	-	857.4	25.0	1.04	36:48	
1,2,3,4,7,8,9-HpCDF	-	872.0	25.0	1.02	38:55	
OCDF	-	1615.8	50.0	0.88	43:14	

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	1	180.8	10.0	
TOTAL PeCDD	1	871.2	10.0	
TOTAL HxCDD	3	2500.3	25.0	
TOTAL HpCDD	1	740.9	25.0	
TOTAL TCDF	1	164.4	10.0	
TOTAL PeCDF	2	1617.0	10.0	
TOTAL HxCDF	4	3105.1	25.0	
TOTAL HpCDF	2	1729.5	25.0	

DATA REVIEWER: CMA 12/9/99

SCOEPA00009069

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901911 **REFERENCE: 92C0804A.00**
FILE: A15289 **SAMPLE: 030-GG-01 MS**
LAB ID.: E9901911-001MS

Project ID/P.O.:	92C0804A.00	Date collected:	#######	RTWin / Col Pfm:	A15281
Sample origin:	RPAC Task # 45-GW Samp	Date received:	#######	Beginning CCAL:	A15281
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15288
Sample size:	1.05 L	Date analyzed:	#######	Initial CAL:	A092899
		Date processed:	#######	Batch Number:	EB60023

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1885.9	99.0	0.84	24:07	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	3185.6	167.2	1.55	28:56	Y
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	2179.8	114.4	1.33	33:24	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1956.1	102.7	1.29	33:31	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2142.2	112.5	1.10	38:14	-
$^{13}C_{12}$-OCDD	2575.6	67.6	0.91	42:59	-
$^{13}C_{12}$-2,3,7,8-TCDF	1472.4	77.3	0.77	23:29	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	2471.7	129.8	1.59	27:40	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	2520.4	132.3	1.55	28:31	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1675.5	88.0	0.53	32:22	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1594.6	83.7	0.54	32:31	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1649.4	86.6	0.53	33:15	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1640.9	86.1	0.54	34:24	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1777.6	93.3	0.48	36:47	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1824.8	95.8	0.47	38:54	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.87	23:57	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.31	34:00	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	700.8	92.0	24:08	-

SCOEPA00009070

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901911 **REFERENCE: 92C0804A.00**
FILE: A15286 **SAMPLE: 030-GG-02**
LAB ID.: E9901911-002

Project ID/P.O.:	92C0804A.00	Date collected:	10/25/99	RTWin / Col Pfm:	A15281
Sample origin:	RPAC Task # 45-GW Sampling	Date received:	10/28/99	Beginning CCAL:	A15281
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15288
Sample size:	1.04 L	Date analyzed:	11/11/99	Initial CAL:	A092899
		Date processed:	11/12/99	Batch Number:	EB60023

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	-	50.0	-		U
2,3,7,8-TCDF	-	-	10.0	-		U
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	0	-	10.0	U
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 12/9/99

SCOEPA00009071

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901911 **REFERENCE: 92C0804A.00**
FILE: A15286 **SAMPLE: 030-GG-02**
LAB ID.: E9901911-002

Project ID/P.O.:	92C0804A.00	Date collected:	#######	RTWin / Col Pfm:	A15281
Sample origin:	RPAC Task # 45-GW Samp	Date received:	#######	Beginning CCAL:	A15281
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15288
Sample size:	1.04 L	Date analyzed:	#######	Initial CAL:	A092899
		Date processed:	#######	Batch Number:	EB60023

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1823.2	94.8	0.77	24:09	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	3427.5	178.2	1.64	28:57	Y
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1826.5	95.0	1.33	33:27	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1938.6	100.8	1.29	33:34	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2216.7	115.3	1.00	38:17	-
$^{13}C_{12}$-OCDD	3439.6	89.4	0.91	43:01	-
$^{13}C_{12}$-2,3,7,8-TCDF	1516.4	78.9	0.78	23:30	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	2848.9	148.1	1.63	27:41	Y
$^{13}C_{12}$-2,3,4,7,8-PeCDF	2954.0	153.6	1.59	28:33	Y
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1752.1	91.1	0.52	32:24	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1524.1	79.3	0.54	32:33	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1698.7	88.3	0.51	33:17	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1648.4	85.7	0.54	34:27	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	2071.7	107.7	0.44	36:50	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	2075.7	107.9	0.43	38:56	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.80	23:59	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.36	34:03	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	642.1	83.5	24:10	-

SCOEPA00009072

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901911 **REFERENCE: 92C0804A.00**
FILE: A15287 **SAMPLE: 031-GG-01**
LAB ID.: E9901911-003

Project ID/P.O.:	92C0804A.00	Date collected:	10/25/99	RTWin / Col Pfm:	A15281
Sample origin:	RPAC Task # 45-GW Sampling	Date received:	10/28/99	Beginning CCAL:	A15281
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15288
Sample size:	1.045 L	Date analyzed:	11/11/99	Initial CAL:	A092899
		Date processed:	11/12/99	Batch Number:	EB60023

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	27.4	-	25.0	0.86	38:17	U
OCDD	-	246.5	50.0	0.97	43:02	
2,3,7,8-TCDF	-	11.8	10.0	0.72	23:31	
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	2	69.2	25.0	
TOTAL TCDF	2	16.3	10.0	
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 12/9/99

SCOEPA00009073

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901911 **REFERENCE: 92C0804A.00**
FILE: A15287 **SAMPLE: 031-GG-01**
LAB ID.: E9901911-003

Project ID/P.O.:	92C0804A.00	Date collected:	#######	RTWin / Col Pfm:	A15281
Sample origin:	RPAC Task # 45-GW Samp	Date received:	#######	Beginning CCAL:	A15281
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15288
Sample size:	1.045 L	Date analyzed:	#######	Initial CAL:	A092899
		Date processed:	#######	Batch Number:	EB60023

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1599.2	83.6	0.86	24:08	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2292.9	119.8	1.62	28:57	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1523.0	79.6	1.34	33:26	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1613.0	84.3	1.29	33:33	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1402.9	73.3	1.06	38:16	-
$^{13}C_{12}$-OCDD	1933.6	50.5	0.91	43:01	-
$^{13}C_{12}$-2,3,7,8-TCDF	1327.8	69.4	0.80	23:30	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1690.2	88.3	1.59	27:41	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1606.5	83.9	1.62	28:32	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1431.0	74.8	0.53	32:23	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1310.4	68.5	0.52	32:32	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1283.1	67.0	0.54	33:17	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1383.2	72.3	0.52	34:26	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1360.0	71.1	0.42	36:49	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1422.1	74.3	0.43	38:55	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.84	23:58	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.34	34:02	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	567.3	74.1	24:09	-

SCOEPA00009074

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901916 **REFERENCE: 92C0804A.00**
FILE: A15388 **SAMPLE: 032-GG-01**
LAB ID.: E9901916-001

Project ID/P.O.:	92C0804A.00	Date collected:	10/27/99	RTWin / Col Pfm:	A15382
Sample origin:	RPAC Task # 44	Date received:	10/29/99	Beginning CCAL:	A15382
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15392
Sample size:	1.03 L	Date analyzed:	11/17/99	Initial CAL:	A092899
		Date processed:	11/18/99	Batch Number:	EB60023

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	-	50.0	-		U
2,3,7,8-TCDF	-	-	10.0	-		U
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	0	-	10.0	U
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 12/9/99

SCOEPA00009075

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901916 **REFERENCE: 92C0804A.00**
FILE: A15388 **SAMPLE: 032-GG-01**
LAB ID.: E9901916-001

Project ID/P.O.:	92C0804A.00	Date collected:	#######	RTWin / Col Pfm:	A15382
Sample origin:	RPAC Task # 44	Date received:	#######	Beginning CCAL:	A15382
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15392
Sample size:	1.03 L	Date analyzed:	#######	Initial CAL:	A092899
		Date processed:	#######	Batch Number:	EB60023

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1504.3	77.5	0.86	24:07	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2234.0	115.1	1.57	28:55	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1875.2	96.6	1.15	33:24	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1772.9	91.3	1.22	33:31	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2120.9	109.2	1.07	38:14	-
$^{13}C_{12}$-OCDD	2110.9	54.4	0.92	42:58	-
$^{13}C_{12}$-2,3,7,8-TCDF	1366.9	70.4	0.79	23:29	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	2056.0	105.9	1.62	27:40	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1981.0	102.0	1.65	28:31	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1454.0	74.9	0.49	32:22	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1477.6	76.1	0.51	32:30	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1176.6	60.6	0.50	34:25	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	139.0	7.2	0.50	38:54	Y
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1885.5	97.1	0.44	36:47	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1769.0	91.1	0.45	38:54	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.80	23:57	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.26	34:00	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	541.4	69.7	24:08	-

SCOEPA00009076

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901916 **REFERENCE: 92C0804A.00**
FILE: A15291 **SAMPLE: 033-GG-01**
LAB ID.: E9901916-002

Project ID/P.O.:	92C0804A.00	Date collected:	10/27/99	RTWin / Col Pfm:	A15288
Sample origin:	RPAC Task # 44	Date received:	10/29/99	Beginning CCAL:	A15288
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15297
Sample size:	1.03 L	Date analyzed:	11/11/99	Initial CAL:	A092899
		Date processed:	11/12/99	Batch Number:	EB60023

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	-	50.0	-		U
2,3,7,8-TCDF	-	-	10.0	-		U
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	0	-	10.0	U
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 12/9/99

SCOEPA00009077

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901916 **REFERENCE: 92C0804A.00**
FILE: A15291 **SAMPLE: 033-GG-01**
LAB ID.: E9901916-002

Project ID/P.O.:	92C0804A.00	Date collected:	#######	RTWin / Col Pfm:	A15288
Sample origin:	RPAC Task # 44	Date received:	#######	Beginning CCAL:	A15288
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15297
Sample size:	1.03 L	Date analyzed:	#######	Initial CAL:	A092899
		Date processed:	#######	Batch Number:	EB60023

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1558.2	80.2	0.80	24:07	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2703.6	139.2	1.61	28:55	Y
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1703.8	87.7	1.32	33:24	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1637.7	84.3	1.30	33:31	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1772.8	91.3	1.08	38:14	-
$^{13}C_{12}$-OCDD	2545.0	65.5	0.90	42:59	-
$^{13}C_{12}$-2,3,7,8-TCDF	1241.2	63.9	0.80	23:28	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1963.4	101.1	1.53	27:39	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1902.9	98.0	1.53	28:31	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1475.8	76.0	0.53	32:22	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1371.8	70.6	0.54	32:30	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1367.6	70.4	0.53	33:15	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1476.9	76.1	0.54	34:24	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1655.9	85.3	0.46	36:47	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1645.3	84.7	0.48	38:54	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.81	23:56	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.30	34:00	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	558.3	71.9	24:07	-

SCOEPA00009078

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901916 **REFERENCE: 92C0804A.00**
FILE: A15292 **SAMPLE: 034-GG-01**
LAB ID.: E9901916-003

Project ID/P.O.:	92C0804A.00	Date collected:	10/26/99	RTWin / Col Pfm:	A15288
Sample origin:	RPAC Task # 44	Date received:	10/29/99	Beginning CCAL:	A15288
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15297
Sample size:	1.035 L	Date analyzed:	11/11/99	Initial CAL:	A092899
		Date processed:	11/12/99	Batch Number:	EB60023

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	-	50.0	-		U
2,3,7,8-TCDF	-	-	10.0	-		U
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	0	-	10.0	U
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 12/9/99

SCOEPA00009079

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901916 **REFERENCE: 92C0804A.00**
FILE: A15292 **SAMPLE: 034-GG-01**
LAB ID.: E9901916-003

Project ID/P.O.:	92C0804A.00	Date collected:	#######	RTWin / Col Pfm:	A15288
Sample origin:	RPAC Task # 44	Date received:	#######	Beginning CCAL:	A15288
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15297
Sample size:	1.035 L	Date analyzed:	#######	Initial CAL:	A092899
		Date processed:	#######	Batch Number:	EB60023

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1659.7	85.9	0.83	24:08	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	3143.1	162.7	1.66	28:56	Y
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1650.2	85.4	1.32	33:25	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1566.3	81.1	1.37	33:32	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1981.1	102.5	1.12	38:15	-
$^{13}C_{12}$-OCDD	2823.5	73.1	0.89	42:59	-
$^{13}C_{12}$-2,3,7,8-TCDF	1280.8	66.3	0.78	23:29	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	2354.6	121.9	1.53	27:40	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	2224.7	115.1	1.55	28:31	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1347.6	69.7	0.54	32:22	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1305.6	67.6	0.52	32:31	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1234.1	63.9	0.54	33:16	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1396.5	72.3	0.53	34:25	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1576.0	81.6	0.48	36:48	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1673.5	86.6	0.46	38:54	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.83	23:58	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.32	34:01	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	537.6	69.6	24:09	-

SCOEPA00009080

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901916 **REFERENCE: 92C0804A.00**
FILE: A15293 **SAMPLE: 035-GG-01**
LAB ID.: E9901916-004

Project ID/P.O.:	92C0804A.00	Date collected:	10/26/99	RTWin / Col Pfm:	A15288
Sample origin:	RPAC Task # 44	Date received:	10/29/99	Beginning CCAL:	A15288
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15297
Sample size:	0.98 L	Date analyzed:	11/11/99	Initial CAL:	A092899
		Date processed:	11/12/99	Batch Number:	EB60023

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	-	50.0	-		U
2,3,7,8-TCDF	-	-	10.0	-		U
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	0	-	10.0	U
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: CAMA 12/9/99

SCOEPA00009081

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901916 **REFERENCE: 92C0804A.00**
FILE: A15293 **SAMPLE: 035-GG-01**
LAB ID.: E9901916-004

Project ID/P.O.:	92C0804A.00	Date collected:	#######	RTWin / Col Pfm:	A15288
Sample origin:	RPAC Task # 44	Date received:	#######	Beginning CCAL:	A15288
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15297
Sample size:	0.98 L	Date analyzed:	#######	Initial CAL:	A092899
		Date processed:	#######	Batch Number:	EB60023

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1604.0	78.6	0.82	24:08	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2877.7	141.0	1.66	28:56	Y
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1766.5	86.6	1.36	33:26	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1614.8	79.1	1.35	33:33	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2429.5	119.0	1.08	38:16	-
$^{13}C_{12}$-OCDD	2416.2	59.2	0.91	43:00	-
$^{13}C_{12}$-2,3,7,8-TCDF	971.1	47.6	0.79	23:30	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	2313.0	113.3	1.50	27:41	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	2236.0	109.6	1.58	28:32	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1479.2	72.5	0.52	32:23	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1365.6	66.9	0.51	32:32	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1426.7	69.9	0.54	33:16	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1563.4	76.6	0.51	34:26	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1516.3	74.3	0.50	36:49	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1662.3	81.5	0.47	38:55	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.80	23:58	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.30	34:02	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	503.3	61.7	24:09	-

SCOEPA00009082

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901916
FILE: A15294
LAB ID.: E9901916-005

REFERENCE: 92C0804A.00
SAMPLE: 036-GG-~~01~~ -04

Corrected 12/10/99 KS

Project ID/P.O.:	92C0804A.00	Date collected:	10/27/99	RTWin / Col Pfm:	A15288
Sample origin:	RPAC Task # 44	Date received:	10/29/99	Beginning CCAL:	A15288
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15297
Sample size:	1.01 L	Date analyzed:	11/11/99	Initial CAL:	A092899
		Date processed:	11/12/99	Batch Number:	EB60023

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	-	50.0	-		U
2,3,7,8-TCDF	-	-	10.0	-		U
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	0	-	10.0	U
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 12/9/99

SCOEPA00009083

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901916
FILE: A15294
LAB ID.: E9901916-005

REFERENCE: 92C0804A.00
SAMPLE: 036-GG-~~01~~ 04

Corrected 12/10/99 HS

Project ID/P.O.:	92C0804A.00	Date collected:	#######	RTWin / Col Pfm:	A15288
Sample origin:	RPAC Task # 44	Date received:	#######	Beginning CCAL:	A15288
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15297
Sample size:	1.01 L	Date analyzed:	#######	Initial CAL:	A092899
		Date processed:	#######	Batch Number:	EB60023

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	2165.8	109.4	0.81	24:08	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	3938.5	198.9	1.61	28:56	Y
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	2208.0	111.5	1.35	33:25	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	2216.7	111.9	1.34	33:32	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	3263.4	164.8	1.04	38:15	Y
$^{13}C_{12}$-OCDD	3411.5	86.1	0.90	43:00	-
$^{13}C_{12}$-2,3,7,8-TCDF	1345.2	67.9	0.79	23:29	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	3161.5	159.7	1.61	27:40	Y
$^{13}C_{12}$-2,3,4,7,8-PeCDF	3045.6	153.8	1.63	28:31	Y
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1881.8	95.0	0.55	32:23	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1776.2	89.7	0.55	32:31	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1861.2	94.0	0.53	33:16	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1831.8	92.5	0.52	34:25	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	2259.3	114.1	0.47	36:48	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	2299.5	116.1	0.48	38:55	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.80	23:58	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.28	34:01	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	656.5	82.9	24:09	-

SCOEPA00009084

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901916 **REFERENCE: 92C0804A.00**
FILE: A15295 **SAMPLE: 037-GG-01**
LAB ID.: E9901916-006

Project ID/P.O.:	92C0804A.00	Date collected:	10/27/99	RTWin / Col Pfm:	A15288
Sample origin:	RPAC Task # 44	Date received:	10/29/99	Beginning CCAL:	A15288
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15297
Sample size:	0.8 L	Date analyzed:	11/12/99	Initial CAL:	A092899
		Date processed:	11/12/99	Batch Number:	EB60023

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	-	50.0	-		U
2,3,7,8-TCDF	-	-	10.0	-		U
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	0	-	10.0	U
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 12/9/99

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URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901916 **REFERENCE: 92C0804A.00**
FILE: A15295 **SAMPLE: 037-GG-01**
LAB ID.: E9901916-006

Project ID/P.O.:	92C0804A.00	Date collected:	#######	RTWin / Col Pfm:	A15288
Sample origin:	RPAC Task # 44	Date received:	#######	Beginning CCAL:	A15288
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15297
Sample size:	0.8 L	Date analyzed:	#######	Initial CAL:	A092899
		Date processed:	#######	Batch Number:	EB60023

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	2453.1	98.1	0.81	24:08	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	3945.8	157.8	1.58	28:55	Y
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	2301.7	92.1	1.33	33:25	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	2440.2	97.6	1.34	33:32	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	3509.4	140.4	1.07	38:15	Y
$^{13}C_{12}$-OCDD	3681.3	73.6	0.90	42:59	-
$^{13}C_{12}$-2,3,7,8-TCDF	1398.4	55.9	0.79	23:29	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	3320.9	132.8	1.62	27:40	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	3149.9	126.0	1.59	28:31	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	2080.2	83.2	0.52	32:22	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1883.1	75.3	0.52	32:31	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1901.8	76.1	0.55	33:16	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	2030.5	81.2	0.53	34:25	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	2240.1	89.6	0.48	36:48	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	2311.8	92.5	0.48	38:54	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.80	23:58	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.34	34:01	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	749.6	75.0	24:09	-

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PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901916 **REFERENCE: 92C0804A.00**
FILE: A15296 **SAMPLE: 038-GG-01**
LAB ID.: E9901916-007

Project ID/P.O.:	92C0804A.00	Date collected:	10/27/99	RTWin / Col Pfm:	A15288
Sample origin:	RPAC Task # 44	Date received:	10/29/99	Beginning CCAL:	A15288
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15297
Sample size:	0.87 L	Date analyzed:	11/12/99	Initial CAL:	A092899
		Date processed:	11/12/99	Batch Number:	EB60023

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	-	50.0	-		U
2,3,7,8-TCDF	-	-	10.0	-		U
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	0	-	10.0	U
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 12/9/99

SCOEPA00009087

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901916 **REFERENCE: 92C0804A.00**
FILE: A15296 **SAMPLE: 038-GG-01**
LAB ID.: E9901916-007

Project ID/P.O.:	92C0804A.00	Date collected:	#######	RTWin / Col Pfm:	A15288
Sample origin:	RPAC Task # 44	Date received:	#######	Beginning CCAL:	A15288
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15297
Sample size:	0.87 L	Date analyzed:	#######	Initial CAL:	A092899
		Date processed:	#######	Batch Number:	EB60023

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1875.3	81.6	0.78	24:07	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2804.1	122.0	1.63	28:55	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	2275.9	99.0	1.41	33:24	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	2042.3	88.8	1.22	33:31	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2950.5	128.3	1.10	38:14	-
$^{13}C_{12}$-OCDD	3396.0	73.9	0.89	42:58	-
$^{13}C_{12}$-2,3,7,8-TCDF	1410.6	61.4	0.77	23:29	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	2356.1	102.5	1.58	27:39	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	2219.0	96.5	1.62	28:31	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1811.6	78.8	0.53	32:22	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1745.5	75.9	0.54	32:31	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1563.8	68.0	0.55	33:15	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1717.2	74.7	0.56	34:24	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	2132.9	92.8	0.48	36:47	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	2236.8	97.3	0.47	38:53	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.84	23:57	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.30	34:00	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	593.7	64.6	24:08	-

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URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901920 **REFERENCE: 92C0804A.00**
FILE: A15301 **SAMPLE: 039-GG-01**
LAB ID.: E9901920-001

Project ID/P.O.:	92C0804A.00	Date collected:	10/28/99	RTWin / Col Pfm:	A15297
Sample origin:	RPAC Task # 44	Date received:	11/2/99	Beginning CCAL:	A15297
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15308
Sample size:	0.93 L	Date analyzed:	11/12/99	Initial CAL:	A092899
		Date processed:	11/12/99	Batch Number:	EB60023

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	-	50.0	-		U
2,3,7,8-TCDF	-	-	10.0	-		U
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	0	-	10.0	U
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 12/9/99

SCOEPA00009089

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901920 **REFERENCE: 92C0804A.00**
FILE: A15301 **SAMPLE: 039-GG-01**
LAB ID.: E9901920-001

Project ID/P.O.:	92C0804A.00	Date collected:	#######	RTWin / Col Pfm:	A15297
Sample origin:	RPAC Task # 44	Date received:	11/2/99	Beginning CCAL:	A15297
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15308
Sample size:	0.93 L	Date analyzed:	#######	Initial CAL:	A092899
		Date processed:	#######	Batch Number:	EB60023

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1749.6	81.4	0.77	24:07	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2178.5	101.3	1.58	28:53	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1946.0	90.5	1.24	33:22	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1722.1	80.1	1.31	33:29	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1869.8	86.9	1.16	38:12	-
$^{13}C_{12}$-OCDD	2751.8	64.0	0.88	42:55	-
$^{13}C_{12}$-2,3,7,8-TCDF	1232.7	57.3	0.81	23:28	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1777.6	82.7	1.55	27:38	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1823.6	84.8	1.44	28:28	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1584.7	73.7	0.53	32:20	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1645.4	76.5	0.48	32:28	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1579.9	73.5	0.52	33:13	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1484.6	69.0	0.46	34:23	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1825.0	84.9	0.49	36:45	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1925.1	89.5	0.50	38:52	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.74	23:56	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.28	33:58	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	483.3	56.2	24:08	-

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URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901920 **REFERENCE: 92C0804A.00**
FILE: A15302 **SAMPLE: 040-GG-01**
LAB ID.: E9901920-002

Project ID/P.O.:	92C0804A.00	Date collected:	10/28/99	RTWin / Col Pfm:	A15297
Sample origin:	RPAC Task # 44	Date received:	11/2/99	Beginning CCAL:	A15297
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15308
Sample size:	1.01 L	Date analyzed:	11/12/99	Initial CAL:	A092899
		Date processed:	11/12/99	Batch Number:	EB60023

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	MRL	-		U
1,2,3,7,8-PeCDD	-	-	MRL	-		U
1,2,3,4,7,8-HxCDD	-	-	MRL	-		U
1,2,3,6,7,8-HxCDD	-	-	MRL	-		U
1,2,3,7,8,9-HxCDD	-	-	MRL	-		U
1,2,3,4,6,7,8-HpCDD	-	-	MRL	-		U
OCDD	-	-	MRL	-		U
2,3,7,8-TCDF	-	-	MRL	-		U
1,2,3,7,8-PeCDF	-	-	MRL	-		U
2,3,4,7,8-PeCDF	-	-	MRL	-		U
1,2,3,4,7,8-HxCDF	-	-	MRL	-		U
1,2,3,6,7,8-HxCDF	-	-	MRL	-		U
2,3,4,6,7,8-HxCDF	-	-	MRL	-		U
1,2,3,7,8,9-HxCDF	-	-	MRL	-		U
1,2,3,4,6,7,8-HpCDF	-	-	MRL	-		U
1,2,3,4,7,8,9-HpCDF	-	-	MRL	-		U
OCDF	-	-	MRL	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	0	-	0.0	U
TOTAL PeCDD	0	-	0.0	U
TOTAL HxCDD	0	-	0.0	U
TOTAL HpCDD	0	-	0.0	U
TOTAL TCDF	0	-	0.0	U
TOTAL PeCDF	0	-	0.0	U
TOTAL HxCDF	0	-	0.0	U
TOTAL HpCDF	0	-	0.0	U

DATA REVIEWER: AMA 12/9/99

SCOEPA00009091

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901920 **REFERENCE: 92C0804A.00**
FILE: A15302 **SAMPLE: 040-GG-01**
LAB ID.: E9901920-002

Project ID/P.O.:	92C0804A.00	Date collected:	#######	RTWin / Col Pfm:	A15297
Sample origin:	RPAC Task # 44	Date received:	11/2/99	Beginning CCAL:	A15297
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15308
Sample size:	1.01 L	Date analyzed:	#######	Initial CAL:	A092899
		Date processed:	#######	Batch Number:	EB60023

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1883.3	95.1	0.87	24:06	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2445.3	123.5	1.66	28:53	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	2088.9	105.5	1.29	33:21	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1883.6	95.1	1.33	33:28	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2255.4	113.9	1.09	38:10	-
$^{13}C_{12}$-OCDD	3113.8	78.6	0.90	42:53	-
$^{13}C_{12}$-2,3,7,8-TCDF	1371.2	69.2	0.82	23:27	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	2010.4	101.5	1.57	27:37	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	2017.0	101.9	1.63	28:27	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1757.2	88.7	0.52	32:19	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1725.1	87.1	0.51	32:27	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1672.3	84.5	0.54	33:12	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1629.2	82.3	0.49	34:21	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1923.9	97.2	0.48	36:44	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	2034.6	102.7	0.49	38:50	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.86	23:56	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.34	33:57	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	573.9	72.5	24:07	-

SCOEPA00009092

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901920 **REFERENCE: 92C0804A.00**
FILE: A15300 **SAMPLE: 041-GG-01**
LAB ID.: E9901920-003

Project ID/P.O.:	92C0804A.00	Date collected:	10/28/99	RTWin / Col Pfm:	A15297
Sample origin:	RPAC Task # 44	Date received:	11/2/99	Beginning CCAL:	A15297
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15308
Sample size:	0.93 L	Date analyzed:	11/12/99	Initial CAL:	A092899
		Date processed:	11/12/99	Batch Number:	EB60023

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	-	50.0	-		U
2,3,7,8-TCDF	-	-	10.0	-		U
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	0	-	10.0	U
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 12/9/99

SCOEPA00009093

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901920 **REFERENCE: 92C0804A.00**
FILE: A15300 **SAMPLE: 041-GG-01**
LAB ID.: E9901920-003

Project ID/P.O.:	92C0804A.00	Date collected:	#######	RTWin / Col Pfm:	A15297
Sample origin:	RPAC Task # 44	Date received:	11/2/99	Beginning CCAL:	A15297
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15308
Sample size:	0.93 L	Date analyzed:	#######	Initial CAL:	A092899
		Date processed:	#######	Batch Number:	EB60023

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1649.3	76.7	0.74	24:04	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2720.4	126.5	1.63	28:53	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1759.6	81.8	1.35	33:21	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1684.1	78.3	1.31	33:29	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1898.4	88.3	1.13	38:11	-
$^{13}C_{12}$-OCDD	2267.6	52.7	0.91	42:53	-
$^{13}C_{12}$-2,3,7,8-TCDF	1106.7	51.5	0.76	23:27	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	2063.2	95.9	1.63	27:37	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	2062.8	95.9	1.67	28:27	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1226.4	57.0	0.50	32:19	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1266.2	58.9	0.49	32:28	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1267.7	58.9	0.52	33:12	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1328.0	61.8	0.52	34:21	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1764.5	82.1	0.44	36:44	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1732.6	80.6	0.45	38:50	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.78	23:55	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.30	33:57	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	468.6	54.5	24:06	-

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QUALITY ASSURANCE DATA

SCOEPA00009095

URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901911/1916/1920 **REFERENCE: 92C0804A.00**
FILE: A15282 **SAMPLE: Lab Spike**
LAB ID.: EB60023-LS

Project ID/P.O.:	92C0804A.00	Date collected:	NA	RTWin / Col Pfm:	A15281
Sample origin:	NA	Date received:	NA	Beginning CCAL:	A15281
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15288
Sample size:	1 L	Date analyzed:	11/12/99	Initial CAL:	A092899
		Date processed:	11/12/99	Batch Number:	EB60023

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	184.1	10.0	0.87	24:14	
1,2,3,7,8-PeCDD	-	654.2	10.0	1.37	29:02	
1,2,3,4,7,8-HxCDD	-	607.5	25.0	1.23	33:31	
1,2,3,6,7,8-HxCDD	-	572.0	25.0	1.28	33:38	
1,2,3,7,8,9-HxCDD	-	619.8	25.0	1.18	34:07	
1,2,3,4,6,7,8-HpCDD	-	635.9	25.0	1.17	38:22	
OCDD	-	1143.3	50.0	0.94	43:06	
2,3,7,8-TCDF	-	190.0	10.0	0.80	23:36	
1,2,3,7,8-PeCDF	-	607.6	10.0	1.47	27:47	
2,3,4,7,8-PeCDF	-	590.4	10.0	1.63	28:37	
1,2,3,4,7,8-HxCDF	-	592.0	25.0	1.12	32:29	
1,2,3,6,7,8-HxCDF	-	650.9	25.0	1.09	32:38	
2,3,4,6,7,8-HxCDF	-	584.4	25.0	1.15	33:22	
1,2,3,7,8,9-HxCDF	-	642.8	25.0	1.07	34:31	
1,2,3,4,6,7,8-HpCDF	-	632.0	25.0	1.05	36:54	
1,2,3,4,7,8,9-HpCDF	-	643.7	25.0	1.09	39:01	
OCDF	-	1061.7	50.0	0.83	43:21	

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	1	184.1	10.0	
TOTAL PeCDD	1	654.2	10.0	
TOTAL HxCDD	3	1799.3	25.0	
TOTAL HpCDD	1	635.9	25.0	
TOTAL TCDF	1	190.0	10.0	
TOTAL PeCDF	2	1197.9	10.0	
TOTAL HxCDF	4	2470.1	25.0	
TOTAL HpCDF	2	1275.7	25.0	

DATA REVIEWER: AMA 12/9/99

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URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901911/1916/1920 **REFERENCE: 92C0804A.00**
FILE: A15282 **SAMPLE: Lab Spike**
LAB ID.: EB60023-LS

Project ID/P.O.:	92C0804A.00	Date collected:	NA	RTWin / Col Pfm:	A15281
Sample origin:	NA	Date received:	NA	Beginning CCAL:	A15281
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15288
Sample size:	1 L	Date analyzed:	#######	Initial CAL:	A092899
		Date processed:	#######	Batch Number:	EB60023

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1885.0	94.3	0.86	24:13	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2041.1	102.1	1.63	29:01	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1445.2	72.3	1.32	33:30	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1714.8	85.7	1.27	33:38	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1666.0	83.3	1.15	38:20	-
$^{13}C_{12}$-OCDD	2714.2	67.9	0.87	43:05	-
$^{13}C_{12}$-2,3,7,8-TCDF	1705.0	85.2	0.78	23:36	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1887.6	94.4	1.60	27:46	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1727.4	86.4	1.49	28:36	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1335.9	66.8	0.51	32:28	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1090.1	54.5	0.55	32:37	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1093.6	54.7	0.47	33:21	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	962.5	48.1	0.48	34:30	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	2397.7	119.9	0.44	36:53	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1490.4	74.5	0.46	39:00	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.86	24:03	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.27	34:06	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	526.1	65.8	24:14	-

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URS Greiner Woodward Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E9901911/1916/1920 **REFERENCE: 92C0804A.00**
FILE: A15307 **SAMPLE: Method Blank**
LAB ID.: EB60023-MB

Project ID/P.O.:	92C0804A.00	Date collected:	NA	RTWin / Col Pfm:	A15297
Sample origin:	NA	Date received:	NA	Beginning CCAL:	A15297
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15308
Sample size:	1 L	Date analyzed:	11/12/99	Initial CAL:	A092899
		Date processed:	11/12/99	Batch Number:	EB60023

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MRL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	-	50.0	-		U
2,3,7,8-TCDF	-	-	10.0	-		U
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	MRL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	0	-	10.0	U
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 12/9/99

SCOEPA00009098

URS Greiner Woodward Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E9901911/1916/1920 **REFERENCE: 92C0804A.00**
FILE: A15307 **SAMPLE: Method Blank**
LAB ID.: EB60023-MB

Project ID/P.O.:	92C0804A.00	Date collected:	NA	RTWin / Col Pfm:	A15297
Sample origin:	NA	Date received:	NA	Beginning CCAL:	A15297
Sample matrix:	Water	Date extracted:	11/2/99	Ending CCAL:	A15308
Sample size:	1 L	Date analyzed:	#######	Initial CAL:	A092899
		Date processed:	#######	Batch Number:	EB60023

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1277.0	63.9	0.77	24:06	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2524.9	126.2	1.61	28:54	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1492.1	74.6	1.33	33:22	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1572.7	78.6	1.32	33:30	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2676.2	133.8	1.12	38:12	-
$^{13}C_{12}$-OCDD	2926.6	73.2	0.90	42:56	-
$^{13}C_{12}$-2,3,7,8-TCDF	1115.9	55.8	0.79	23:27	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	2015.9	100.8	1.59	27:38	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1979.2	99.0	1.59	28:28	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1321.3	66.1	0.51	32:20	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1334.3	66.7	0.51	32:29	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1292.4	64.6	0.51	33:13	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1299.3	65.0	0.51	34:22	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1829.0	91.4	0.47	36:45	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1883.8	94.2	0.46	38:52	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.82	23:56	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.31	33:58	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	498.3	62.3	24:07	-

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Case Narrative

CLIENT: URS Greiner Woodward Clyde
PROJECT: RPAC
PROJECT #: 92C0804A\44

October 15, 1999
NCA #s: P908517, P908536, P908537
P908562, P909001, P909032 & P909058

1.0 DESCRIPTION OF CASE

North Creek Analytical, Beaverton received a total of twenty-one water samples from 8/27/99 through 9/2/99 from URS Greiner Woodward Clyde for analysis by one or more of the following EPA Methods: 6020 Dissolved Metals, 7470A Dissolved Mercury, Isobutyl Alcohol by GC/FID, 8041 Phenols, 8151A Chlorinated Herbicides, 8260B Volatile Organics and, Diesel and Heavy Range Hydrocarbons by NWTPH-Dx. The samples were logged in as the seven NCA project numbers referenced above. Sample 009-GG-01 (NCA# P909001-01) was logged-in as an "other wet" matrix. Results and raw data for all sample analyses are reported in a single combined *Analytical Report* and included as one data package, respectively.

2.0 SAMPLE LIST

Refer to the *Chain of Custody* documents for a summary of sample information.

Each sub-group of samples received together for the entire sample delivery group is given an NCA #, proceeded by a "P" for Portland. This number consists of a one-digit code for the year, a two-digit code for the month and a sequential number for the group within the month. Each sample within the sub-group is numbered sequentially by placing a dash after the NCA#.

3.0 COMMENTS ON ANALYSIS

3.1 Sample Receipt

The samples were received intact from URS Greiner Woodward Clyde. The samples were clearly labeled and matched the chain of custody. Sample travel blank temperatures were measured directly upon receipt using a Digi-Thermo Probe. Temperature is recorded with the sample log-in information.

3.2 Analysis

The samples were analyzed following the procedures outlined in the applicable methods. The samples were refrigerated at 4 °C and were extracted and analyzed within the EPA recommended holding times without incident; any exceptions are footnoted and described in the *Notes and Definitions* section of the *Analytical Report*. Exceptions requiring more detail are as follows:

Dissolved Metals
Some samples were reanalyzed for Vanadium, as indicated by the "*Date Analyzed*" date noted on the *Analytical Report*, due to sample matrix interference during analysis.

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Case Narrative

CLIENT: URS Greiner Woodward Clyde
PROJECT: RPAC
PROJECT #: 92C0804A\44

October 15, 1999
NCA #s: P908517, P908536, P908537
P908562, P909001, P909032 & P909058

Phenols by 8041
Sample extracts included in batches 0990037 and 0990206 were re-concentrated because they were initially taken to a higher final volume than required to achieve MRLs.

Samples 009-GG-01 (P909001-01) was extracted as an oil/ waste dilution due to the matrix.

Herbicides by 8151
Samples were subcontracted to NCA Bothell for herbicide analysis. Samples were extracted at the NCA-Bothell Laboratory. To facilitate turn-around-time, sample extracts were split and half the sample extracts were diazomethane derivitized and analyzed by NCA Portland. The remainder of the extracts were kept at the Bothell Laboratory. The analysis of extracts followed standard EPA 8151A procedures. NCA Bothell then derivitized and analyzed the split extracts to evaluate anomalies due to extraction and matrix interferences experienced by NCA Portland. Results from reanalysis are included in Appendix 1 of the *Analytical Report*.

4.0 QC RESULTS

Surrogate and quality control parameters that were outside control limits are noted on the appropriate pages of the *Analytical Report*. Additional Quality Control issues are as follows:

Phenols by 8041
High analyte concentration and/or matrix interference caused unacceptable recoveries of one or both surrogates in some samples. In cases of high dilution of a sample, if possible the surrogate and/or MS/MSD recovery was calculated from a value below the MRL. The recovery was then flagged as an estimated value.

Recoveries of 4-Chloro-3-methylphenol and 4-Nitrophenol in all spiked QC samples (BS, MS/MSD) of Batch # 09900206 were above the acceptance limit. The high bias did not negatively impact the sample data since results were "ND". Additionally, reported acceptance limits are derived from analyses of water rather than waste dilution matrices.

One surrogate recovery of the method blank for Batch # 09900228 was calculated from 2.5% above the calibration curve. The batch was inadvertently extracted without a blank spike sample.

Herbicides by 8151

Surrogate recoveries in the method blanks are below the established control limits. Review of associated QC spikes and samples indicates that low surrogate recovery was isolated to the method blanks. Target analytes were not detected in the method blanks above the method reporting limits. However, the reported quantitation limit is approximate due to the low surrogate recovery.

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Case Narrative

CLIENT: URS Greiner Woodward Clyde
PROJECT: RPAC
PROJECT #: 92C0804A\44

October 15, 1999
NCA #s: P908517, P908536, P908537 P908562, P909001, P909032 & P909058

Surrogate recoveries on QC spikes exhibit a high bias. Matrix spike recoveries in batches 0990408 and 0990409 are affected by sample matrix interactions. All blank spike results meet laboratory control criteria.

All quality control parameters other than those noted above or on the *Analytical Report* were within established control limits.

5.0 SAMPLE RESULTS

Where applicable, qualifiers have been added to sample results as footnotes and are detailed in the *Notes and Definitions* section of the analytical report. Factors impacting reported sample results and requiring a more detailed explanation than available in the *Notes and Definitions* section of the *Analytical Report* are as follows:

Phenols by 8041

The high bias of 4-Chloro-3-methylphenol and 4-Nitrophenol in all spiked QC samples (BS, MS/MSD) of Batch # 09900206 did not negatively impact the sample data since results were "ND". Sample data integrity however is indeterminate when surrogate recoveries are unavailable due to dilution or matrix interference.

Despite the absence of blank spike data for the batch, data accuracy for sample 013-GG-01 (P9090332)/ batch # 0990228 is validated by acceptable surrogate recovery and MS/MSD target analyte recoveries for the sample.

Herbicides by 8151

The high bias of 2,4-DCAA in samples and spike QC samples (BS1, BS2, MS/MSD) of batch 0990408 indicate that interferences derived from derivatization or matrix/column interaction are affecting surrogate recovery. Sample matrix induced high bias of 2,4-D in spike samples MS1, MSD1 of batch 0990408. Due to high bias in QC samples, positive results for 2,4-D near the reporting limits should be viewed as estimated and/or tentatively identified.

Due to low surrogate recoveries in the blank, and matrix spike anomalies an additional aliquot of each extract was derivitized in NCA-Bothell and analyzed by EPA 8151A. The results of reanalysis are provided as Appendix 1 of the *Analytical Report*. Results of reanalysis confirm low surrogate recoveries in the method blanks. The presence of 2,4-D was confirmed in all high level samples. Several low level hits for 2,4-D and 2,4,5-T did not confirm upon reanalysis. QC criteria for batch blank spikes and matrix spikes was met for each reanalysis batch. MCPA was detected in the reanalysis of sample (001-GG-01) P908517-01; this analyte was not confirmed by initial analysis.

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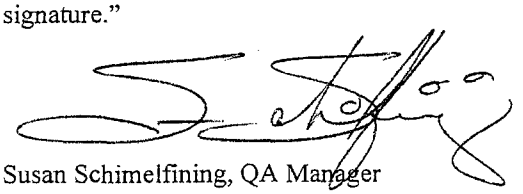
Case Narrative

CLIENT: URS Greiner Woodward Clyde
PROJECT: RPAC
PROJECT #: 92C0804A\44

October 15, 1999
NCA #s: P908517, P908536, P908537
P908562, P909001, P909032 & P909058

The dilution factor for a sample, if applicable, is depicted on the *Analytical Report* as the MRL(s) for the quantitated analytes being raised by the dilution factor. The method blank sample may be referenced for the initial MRL.

" I certify that this data package is in compliance with the method, both technically and for completeness, for all conditions other than those listed above. Release of the data in this hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature."



Susan Schimelfining, QA Manager
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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
001-GG-01	P908517-01	Water	8/26/99
005-GG-01	P908536-01	Water	8/27/99
006-GG-01	P908536-02	Water	8/27/99
007-GG-01	P908536-03	Water	8/27/99
TRIP BLANK	P908536-04	Water	8/27/99
002-GG-01	P908537-01	Water	8/27/99
003-GG-01	P908537-02	Water	8/27/99
GG-02	P908537-03	Water	8/27/99
TRIP BLANK	P908537-04	Water	8/27/99
008-GG-01	P908562-01	Water	8/30/99
005-GG-01	P908562-02	Water	8/30/99
TRIP BLANK	P908562-03	Water	8/30/99
009-GG-01	P909001-01	Other wet	8/31/99
010-GG-01	P909001-02	Water	8/31/99
TRIP	P909001-03	Water	8/31/99
011-GG-01	P909032-01	Water	8/31/99
012-GG-01	P909032-02	Water	9/1/99
013-GG-01	P909032-03	Water	9/1/99
Trip Blank	P909032-04	Water	9/1/99
014-GG-01	P909058-01	Water	9/2/99

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled:	8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received:	8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported:	10/4/99 09:25

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
TRIP BLANK	P909058-02	Water	9/2/99

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	92C0804A/44	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
001-GG-01			**P908517-01**				**Water**	
Diesel Range Organics	0990068	9/2/99	9/2/99		0.250	**1.23**	mg/l	1
Heavy Oil Range Hydrocarbons	"	"	"		0.500	**2.57**	"	
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*31.2*	%	2
006-GG-01			**P908536-02**				**Water**	
Diesel Range Organics	0990068	9/2/99	9/2/99		0.250	ND	mg/l	
Heavy Oil Range Hydrocarbons	"	"	"		0.500	ND	"	
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*89.1*	%	
007-GG-01			**P908536-03**				**Water**	
Diesel Range Organics	0990068	9/2/99	9/2/99		0.250	**45.1**	mg/l	3
Heavy Oil Range Hydrocarbons	"	"	"		0.500	**1.00**	"	3
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*102*	%	
002-GG-01			**P908537-01**				**Water**	
Diesel Range Organics	0990068	9/2/99	9/2/99		0.250	**0.430**	mg/l	4
Heavy Oil Range Hydrocarbons	"	"	"		0.500	**0.604**	"	
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*74.5*	%	
003-GG-01			**P908537-02**				**Water**	
Diesel Range Organics	0990068	9/2/99	9/2/99		0.250	**20.0**	mg/l	3
Heavy Oil Range Hydrocarbons	"	"	"		0.500	**0.708**	"	3
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*70.5*	%	
004-GG-02			**P908537-03**				**Water**	
Diesel Range Organics	0990068	9/2/99	9/2/99		0.250	**36.3**	mg/l	3
Heavy Oil Range Hydrocarbons	"	"	"		0.500	ND	"	3
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*90.6*	%	
008-GG-01			**P908562-01**				**Water**	
Diesel Range Organics	0990068	9/2/99	9/2/99		0.450	ND	mg/l	5
Heavy Oil Range Hydrocarbons	"	"	"		0.900	ND	"	5
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*88.9*	%	
005-GG-01			**P908562-02**				**Water**	
Diesel Range Organics	0990068	9/2/99	9/2/99		0.250	**2.49**	mg/l	6
Heavy Oil Range Hydrocarbons	"	"	"		0.500	**1.15**	"	6
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*81.0*	%	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
009-GG-01			**P909001-01**				**Other wet**	
Diesel Range Organics	0990068		9/2/99		0.750	**5.82**	mg/l	5,7
Heavy Oil Range Hydrocarbons	"	"	"		1.50	**4.74**	"	5,7
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*79.5*	*%*	
013-GG-01			**P909032-03**				**Water**	
Diesel Range Organics	0990068	9/2/99	9/3/99		0.250	**0.457**	mg/l	8
Heavy Oil Range Hydrocarbons	"	"	"		0.500	ND	"	
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*81.5*	*%*	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Dissolved Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
001-GG-01			P908517-01				Water	
Arsenic	0990214	9/8/99	9/9/99	EPA 6020	0.00100	**0.0117**	mg/l	
Cadmium	"	"	"	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	ND	"	
Copper	"	"	"	EPA 6020	0.00200	**0.00271**	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.00302**	"	
Vanadium	"	"	"	EPA 6020	0.00500	**0.00597**	"	
Zinc	"	"	"	EPA 6020	0.00500	ND	"	
Mercury	0990203	9/9/99	"	EPA 7470A	0.000200	ND	"	
005-GG-01			P908536-01				Water	
Arsenic	0990214	9/8/99	9/9/99	EPA 6020	0.00100	ND	mg/l	
[illegible]mium	"	"	"	EPA 6020	0.00100	ND	"	
[illegible]omium	"	"	"	EPA 6020	0.00100	**0.00108**	"	
Copper	"	"	"	EPA 6020	0.00200	ND	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.00945**	"	
Vanadium	"	"	"	EPA 6020	0.00500	**0.00737**	"	
Zinc	"	"	"	EPA 6020	0.00500	**0.00571**	"	
Mercury	0990203	9/9/99	"	EPA 7470A	0.000200	ND	"	
006-GG-01			P908536-02				Water	
Arsenic	0990214	9/8/99	9/9/99	EPA 6020	0.00100	**0.00807**	mg/l	
Cadmium	"	"	"	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	**0.00179**	"	
Copper	"	"	"	EPA 6020	0.00200	**0.00377**	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.0616**	"	
Vanadium	"	"	9/13/99	EPA 6020	0.0500	ND	"	9
Zinc	"	"	9/9/99	EPA 6020	0.00500	**0.0281**	"	
Mercury	0990203	9/9/99	"	EPA 7470A	0.000200	ND	"	
007-GG-01			P908536-03				Water	
Arsenic	0990214	9/8/99	9/9/99	EPA 6020	0.00100	**0.00321**	mg/l	
Cadmium	"	"	"	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	**0.00175**	"	
Copper	"	"	"	EPA 6020	0.00200	ND	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Dissolved Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
007-GG-01 (continued)			P908536-03				Water	
Nickel	0990214	9/8/99	9/9/99	EPA 6020	0.00200	**0.0345**	mg/l	
Vanadium	"	"	"	EPA 6020	0.00500	ND	"	
Zinc	"	"	"	EPA 6020	0.00500	**0.0109**	"	
Mercury	0990203	9/9/99	"	EPA 7470A	0.000200	ND	"	
002-GG-01			P908537-01				Water	
Arsenic	0990214	9/8/99	9/9/99	EPA 6020	0.00100	**0.00379**	mg/l	
Cadmium	"	"	"	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	ND	"	
Copper	"	"	"	EPA 6020	0.00200	ND	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.0191**	"	
Vanadium	"	"	9/13/99	EPA 6020	0.0500	ND	"	9
Zinc	"	"	9/9/99	EPA 6020	0.00500	**0.0148**	"	
Mercury	0990203	9/9/99	"	EPA 7470A	0.000200	ND	"	
003-GG-01			P908537-02				Water	
Arsenic	0990214	9/8/99	9/9/99	EPA 6020	0.00100	ND	mg/l	
Cadmium	"	"	"	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	ND	"	
Copper	"	"	"	EPA 6020	0.00200	ND	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.0122**	"	
Vanadium	"	"	9/13/99	EPA 6020	0.0500	ND	"	9
Zinc	"	"	9/9/99	EPA 6020	0.00500	**0.0127**	"	
Mercury	0990203	9/9/99	"	EPA 7470A	0.000200	ND	"	
004-GG-02			P908537-03				Water	
Arsenic	0990214	9/8/99	9/9/99	EPA 6020	0.00100	ND	mg/l	
Cadmium	"	"	"	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	**0.00112**	"	
Copper	"	"	"	EPA 6020	0.00200	ND	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.0117**	"	
Vanadium	"	"	9/13/99	EPA 6020	0.0500	ND	"	9
Zinc	"	"	9/9/99	EPA 6020	0.00500	**0.00990**	"	
Mercury	0990203	9/9/99	"	EPA 7470A	0.000200	ND	"	

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Dissolved Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
008-GG-01			**P908562-01**				**Water**	
Arsenic	0990214	9/8/99	9/9/99	EPA 6020	0.00100	**0.00491**	mg/l	
Cadmium	"	"	"	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	ND	"	
Copper	"	"	"	EPA 6020	0.00200	**0.00345**	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.00554**	"	
Vanadium	"	"	"	EPA 6020	0.00500	ND	"	
Zinc	"	"	"	EPA 6020	0.00500	**0.00585**	"	
Mercury	0990203	9/9/99	"	EPA 7470A	0.000200	ND	"	
009-GG-01			**P909001-01**				**Other wet**	
Arsenic	0990214	9/8/99	9/9/99	EPA 6020	0.00100	**0.0793**	mg/l	
[illegible]mium	"	"	"	EPA 6020	0.00100	ND	"	
[illegible]omium	"	"	"	EPA 6020	0.00100	**0.00170**	"	
Copper	"	"	"	EPA 6020	0.00200	**0.00302**	"	
Lead	"	"	"	EPA 6020	0.00100	**0.00139**	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.00469**	"	
Vanadium	"	"	"	EPA 6020	0.00500	ND	"	
Zinc	"	"	"	EPA 6020	0.00500	**0.00995**	"	
Mercury	0990203		"	EPA 7470A	0.000200	ND	"	
010-GG-01			**P909001-02**				**Water**	
Arsenic	0990214	9/8/99	9/9/99	EPA 6020	0.00100	**0.00181**	mg/l	
Cadmium	"	"	"	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	**0.00237**	"	
Copper	"	"	"	EPA 6020	0.00200	**0.00355**	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.0487**	"	
Vanadium	"	"	9/13/99	EPA 6020	0.500	ND	"	9
Zinc	"	"	9/9/99	EPA 6020	0.00500	**0.0736**	"	
Mercury	0990203	9/9/99	"	EPA 7470A	0.000200	ND	"	
011-GG-01			**P909032-01**				**Water**	
Arsenic	0990214	9/8/99	9/9/99	EPA 6020	0.00100	**0.00160**	mg/l	
Cadmium	"	"	"	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	**0.00133**	"	
Copper	"	"	"	EPA 6020	0.00200	**0.00344**	"	
Lead	"	"	"	EPA 6020	0.00100	**0.00111**	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Dissolved Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
011-GG-01 (continued)			P909032-01				Water	
Nickel	0990214	9/8/99	9/9/99	EPA 6020	0.00200	**0.0138**	mg/l	
Vanadium	"	"	"	EPA 6020	0.0349	ND	"	9
Zinc	"	"	"	EPA 6020	0.00500	**0.0291**	"	
Mercury	0990203	9/9/99	"	EPA 7470A	0.000200	ND	"	
012-GG-01			P909032-02				Water	
Arsenic	0990214	9/8/99	9/9/99	EPA 6020	0.00100	ND	mg/l	
Cadmium	"	"	"	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	ND	"	
Copper	"	"	"	EPA 6020	0.00200	**0.00397**	"	
Lead	"	"	"	EPA 6020	0.00100	**0.00334**	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.00250**	"	
Vanadium	"	"	"	EPA 6020	0.0334	ND	"	9
Zinc	"	"	"	EPA 6020	0.00500	**0.0110**	"	
Mercury	0990203	9/9/99	"	EPA 7470A	0.000200	ND	"	
013-GG-01			P909032-03				Water	
Arsenic	0990214	9/8/99	9/9/99	EPA 6020	0.00100	**0.00228**	mg/l	
Cadmium	"	"	"	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	**0.00133**	"	
Copper	"	"	"	EPA 6020	0.00200	ND	"	
Lead	"	"	"	EPA 6020	0.00100	**0.00126**	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.00657**	"	
Vanadium	"	"	9/13/99	EPA 6020	0.0500	ND	"	9
Zinc	"	"	9/9/99	EPA 6020	0.00500	**0.0132**	"	
Mercury	0990203	9/9/99	"	EPA 7470A	0.000200	ND	"	
014-GG-01			P909058-01				Water	
Arsenic	0990214	9/8/99	9/9/99	EPA 6020	0.00100	**0.00335**	mg/l	
Cadmium	"	"	"	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	ND	"	
Copper	"	"	"	EPA 6020	0.00200	ND	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	
Nickel	"	"	"	EPA 6020	0.00200	ND	"	
Vanadium	"	"	"	EPA 6020	0.00500	ND	"	
Zinc	"	"	"	EPA 6020	0.00500	**0.0126**	"	
Mercury	0990203	9/9/99	"	EPA 7470A	0.000200	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Alcohols by GC/FID Headspace Analysis
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
001-GG-01			**P908517-01**				**Water**	
Isobutyl alcohol	0890756	8/27/99	8/27/99	EPA 8015	10.0	ND	mg/l	
Ethanol	"	"	"	EPA 8015	10.0	ND	"	
Isopropanol	"	"	"	EPA 8015	10.0	ND	"	
Methanol	"	"	"	EPA 8015	10.0	ND	"	
005-GG-01			**P908536-01**				**Water**	
Isobutyl alcohol	0890812	8/30/99	8/30/99	EPA 8015	10.0	ND	mg/l	
006-GG-01			**P908536-02**				**Water**	
Isobutyl alcohol	0890812	8/30/99	8/30/99	EPA 8015	10.0	ND	mg/l	
007-GG-01			**P908536-03**				**Water**	
Isobutyl alcohol	0890812	8/30/99	8/30/99	EPA 8015	10.0	**46.8**	mg/l	
002-GG-01			**P908537-01**				**Water**	
Isobutyl alcohol	0890812	8/30/99	8/30/99	EPA 8015	10.0	ND	mg/l	
003-GG-01			**P908537-02**				**Water**	
Isobutyl alcohol	0890812	8/30/99	8/30/99	EPA 8015	10.0	ND	mg/l	
004-GG-02			**P908537-03**				**Water**	
Isobutyl alcohol	0890812	8/30/99	8/30/99	EPA 8015	10.0	ND	mg/l	
008-GG-01			**P908562-01**				**Water**	
Isobutyl alcohol	0990011	9/1/99	9/1/99	EPA 8015	10.0	ND	mg/l	
009-GG-01			**P909001-01**				**Other wet**	
Isobutyl alcohol	0990011	9/1/99	9/1/99	EPA 8015	10.0	ND	mg/l	
010-GG-01			**P909001-02**				**Water**	
Isobutyl alcohol	0990011	9/1/99	9/1/99	EPA 8015	10.0	ND	mg/l	
011-GG-01			**P909032-01**				**Water**	
Isobutyl alcohol	0990099	9/3/99	9/3/99	EPA 8015	10.0	ND	mg/l	
012-GG-01			**P909032-02**				**Water**	
Isobutyl alcohol	0990099	9/3/99	9/3/99	EPA 8015	10.0	ND	mg/l	

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111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Alcohols by GC/FID Headspace Analysis
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
013-GG-01			P909032-03				Water	
Isobutyl alcohol	0990099	9/3/99	9/3/99	EPA 8015	10.0	ND	mg/l	
014-GG-01			P909058-01				Water	
Isobutyl alcohol	0990099	9/3/99	9/3/99	EPA 8015	10.0	ND	mg/l	

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111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Phenols per EPA Method 8041
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
001-GG-01			**P908517-01**				**Water**	**10**
4-Chloro-3-methylphenol	0990037	9/2/99	9/11/99		500	ND	ug/l	
2-Chlorophenol	"	"	"		500	ND	"	
Cresols	"	"	"		500	ND	"	
2,4-Dichlorophenol	"	"	"		500	ND	"	
2,6-Dichlorophenol	"	"	"		500	ND	"	
2,4-Dimethylphenol	"	"	"		500	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		500	ND	"	
2,4-Dinitrophenol	"	"	"		1250	ND	"	
Dinoseb	"	"	"		500	ND	"	
2-Nitrophenol	"	"	"		500	ND	"	
4-Nitrophenol	"	"	"		500	ND	"	
Pentachlorophenol	"	"	"		500	ND	"	
[illegible]ol	"	"	"		500	ND	"	
[illegible]6-Tetrachlorophenol	"	"	"		500	ND	"	
2,4,5-Trichlorophenol	"	"	"		500	ND	"	
2,4,6-Trichlorophenol	"	"	"		500	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*NR*	*%*	*11*
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*NR*	"	*11*
005-GG-01			**P908536-01**				**Water**	**10**
4-Chloro-3-methylphenol	0990037	9/2/99	9/11/99		50.0	ND	ug/l	
2-Chlorophenol	"	"	"		50.0	ND	"	
Cresols	"	"	"		50.0	ND	"	
2,4-Dichlorophenol	"	"	"		50.0	ND	"	
2,6-Dichlorophenol	"	"	"		50.0	ND	"	
2,4-Dimethylphenol	"	"	"		50.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		50.0	ND	"	
2,4-Dinitrophenol	"	"	"		125	ND	"	
Dinoseb	"	"	"		50.0	ND	"	
2-Nitrophenol	"	"	"		50.0	ND	"	
4-Nitrophenol	"	"	"		50.0	ND	"	
Pentachlorophenol	"	"	"		50.0	ND	"	
Phenol	"	"	"		50.0	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		50.0	ND	"	
2,4,5-Trichlorophenol	"	"	"		50.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		50.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*31.2*	*%*	*12*
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*58.2*	"	

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Deborah Griffiths, Project Manager

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111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Phenols per EPA Method 8041
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
006-GG-01			**P908536-02**				**Water**	
4-Chloro-3-methylphenol	0990037	9/2/99	9/10/99		25.0	ND	ug/l	
2-Chlorophenol	"	"	"		25.0	ND	"	
Cresols	"	"	"		25.0	ND	"	
2,4-Dichlorophenol	"	"	"		25.0	ND	"	
2,6-Dichlorophenol	"	"	"		25.0	ND	"	
2,4-Dimethylphenol	"	"	"		25.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		25.0	ND	"	
2,4-Dinitrophenol	"	"	"		62.5	ND	"	
Dinoseb	"	"	"		25.0	ND	"	
2-Nitrophenol	"	"	"		25.0	ND	"	
4-Nitrophenol	"	"	"		25.0	ND	"	
Pentachlorophenol	"	"	"		25.0	ND	"	
Phenol	"	"	"		25.0	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		25.0	ND	"	
2,4,5-Trichlorophenol	"	"	"		25.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		25.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*30.2*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*67.8*	"	
007-GG-01			**P908536-03**				**Water**	**10**
4-Chloro-3-methylphenol	0990037	9/2/99	9/11/99		50.0	ND	ug/l	
2-Chlorophenol	"	"	9/10/99		2500	ND	"	
Cresols	"	"	9/11/99		50.0	ND	"	
2,4-Dichlorophenol	"	"	9/13/99		7500	**32300**	"	
2,6-Dichlorophenol	"	"	9/10/99		2500	**4540**	"	
2,4-Dimethylphenol	"	"	9/11/99		50.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		50.0	ND	"	
2,4-Dinitrophenol	"	"	"		125	ND	"	
Dinoseb	"	"	"		50.0	ND	"	
2-Nitrophenol	"	"	"		50.0	ND	"	
4-Nitrophenol	"	"	"		50.0	ND	"	
Pentachlorophenol	"	"	9/10/99		2500	ND	"	
Phenol	"	"	9/11/99		50.0	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		50.0	**348**	"	
2,4,5-Trichlorophenol	"	"	"		250	**389**	"	
2,4,6-Trichlorophenol	"	"	9/10/99		2500	**10100**	"	
Surrogate: 2-Fluorophenol	"	"	*9/11/99*	*22.0-83.0*		*NR*	*%*	*13,11*
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*73.5*	"	

North Creek Analytical - Portland

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Deborah Griffiths, Project Manager

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111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Phenols per EPA Method 8041
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
002-GG-01			**P908537-01**				**Water**	**10**
4-Chloro-3-methylphenol	0990037	9/2/99	9/11/99		125	ND	ug/l	
2-Chlorophenol	"	"	"		125	ND	"	
Cresols	"	"	"		125	ND	"	
2,4-Dichlorophenol	"	"	"		125	ND	"	
2,6-Dichlorophenol	"	"	"		125	ND	"	
2,4-Dimethylphenol	"	"	"		125	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		125	ND	"	
2,4-Dinitrophenol	"	"	"		313	ND	"	
Dinoseb	"	"	"		125	ND	"	
2-Nitrophenol	"	"	"		125	ND	"	
4-Nitrophenol	"	"	"		125	ND	"	
Pentachlorophenol	"	"	"		125	ND	"	
[illegible]nol	"	"	"		125	ND	"	
[illegible],6-Tetrachlorophenol	"	"	"		125	ND	"	
2,4,5-Trichlorophenol	"	"	"		125	ND	"	
2,4,6-Trichlorophenol	"	"	"		125	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*58.2*	*%*	*12*
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*95.1*	"	*12*
003-GG-01			**P908537-02**				**Water**	**10**
4-Chloro-3-methylphenol	0990037	9/2/99	9/11/99		125	ND	ug/l	
2-Chlorophenol	"	"	9/12/99		125	ND	"	
Cresols	"	"	9/11/99		125	ND	"	
2,4-Dichlorophenol	"	"	9/10/99		2500	**16100**	"	
2,6-Dichlorophenol	"	"	9/11/99		125	**458**	"	
2,4-Dimethylphenol	"	"	"		125	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		125	ND	"	
2,4-Dinitrophenol	"	"	"		313	ND	"	
Dinoseb	"	"	"		125	ND	"	
2-Nitrophenol	"	"	"		125	ND	"	
4-Nitrophenol	"	"	"		125	ND	"	
Pentachlorophenol	"	"	9/10/99		2500	ND	"	
Phenol	"	"	9/11/99		125	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		125	ND	"	
2,4,5-Trichlorophenol	"	"	"		125	**487**	"	
2,4,6-Trichlorophenol	"	"	"		125	**923**	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*NR*	*%*	*13,2*
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*98.2*	"	*12*

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Deborah Griffiths, Project Manager

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Phenols per EPA Method 8041
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
004-GG-02			**P908537-03**				**Water**	**10**
4-Chloro-3-methylphenol	0990037	9/2/99	9/10/99		250	ND	ug/l	
2-Chlorophenol	"	"	"		250	ND	"	
Cresols	"	"	"		250	ND	"	
2,4-Dichlorophenol	"	"	"		2500	**12600**	"	
2,6-Dichlorophenol	"	"	"		250	**510**	"	
2,4-Dimethylphenol	"	"	"		250	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		250	ND	"	
2,4-Dinitrophenol	"	"	"		625	ND	"	
Dinoseb	"	"	"		250	ND	"	
2-Nitrophenol	"	"	"		250	ND	"	
4-Nitrophenol	"	"	"		250	ND	"	
Pentachlorophenol	"	"	"		250	ND	"	
Phenol	"	"	"		250	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		250	ND	"	
2,4,5-Trichlorophenol	"	"	"		250	**408**	"	
2,4,6-Trichlorophenol	"	"	"		250	**1150**	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*145*	*%*	*12,13,2*
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*117*	"	*12*
008-GG-01			**P908562-01**				**Water**	**10**
4-Chloro-3-methylphenol	0990037	9/2/99	9/11/99		315	ND	ug/l	
2-Chlorophenol	"	"	"		315	ND	"	
Cresols	"	"	"		315	ND	"	
2,4-Dichlorophenol	"	"	"		315	ND	"	
2,6-Dichlorophenol	"	"	"		315	ND	"	
2,4-Dimethylphenol	"	"	"		315	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		315	ND	"	
2,4-Dinitrophenol	"	"	"		788	ND	"	
Dinoseb	"	"	"		315	ND	"	
2-Nitrophenol	"	"	"		315	ND	"	
4-Nitrophenol	"	"	"		315	ND	"	
Pentachlorophenol	"	"	"		315	ND	"	
Phenol	"	"	"		315	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		315	ND	"	
2,4,5-Trichlorophenol	"	"	"		315	ND	"	
2,4,6-Trichlorophenol	"	"	"		315	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*NR*	*%*	*11*
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*NR*	"	*11*

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Phenols per EPA Method 8041
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
009-GG-01			**P909001-01**				**Other wet**	**10**
4-Chloro-3-methylphenol	0990206	9/8/99	9/10/99		1000	ND	ug/l	
2-Chlorophenol	"	"	"		1000	ND	"	
Cresols	"	"	"		1000	ND	"	
2,4-Dichlorophenol	"	"	"		1000	ND	"	
2,6-Dichlorophenol	"	"	"		1000	ND	"	
2,4-Dimethylphenol	"	"	"		1000	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		1000	ND	"	
2,4-Dinitrophenol	"	"	"		2500	ND	"	
Dinoseb	"	"	"		1000	ND	"	
2-Nitrophenol	"	"	"		1000	ND	"	
4-Nitrophenol	"	"	"		1000	ND	"	
Pentachlorophenol	"	"	"		1000	ND	"	
Phenol	"	"	"		1000	ND	"	
[illegible]6-Tetrachlorophenol	"	"	"		1000	ND	"	
2,4,5-Trichlorophenol	"	"	"		1000	ND	"	
2,4,6-Trichlorophenol	"	"	"		1000	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*109*	*%*	*13*
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*103*	"	
013-GG-01			**P909032-03**				**Water**	**10**
4-Chloro-3-methylphenol	0990228	9/8/99	9/14/99		50.0	ND	ug/l	
2-Chlorophenol	"	"	"		50.0	ND	"	
Cresols	"	"	"		50.0	ND	"	
2,4-Dichlorophenol	"	"	"		50.0	ND	"	
2,6-Dichlorophenol	"	"	"		50.0	ND	"	
2,4-Dimethylphenol	"	"	"		50.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		50.0	ND	"	
2,4-Dinitrophenol	"	"	"		125	ND	"	
Dinoseb	"	"	"		50.0	ND	"	
2-Nitrophenol	"	"	"		50.0	ND	"	
4-Nitrophenol	"	"	"		50.0	ND	"	
Pentachlorophenol	"	"	"		50.0	ND	"	
Phenol	"	"	"		50.0	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		50.0	ND	"	
2,4,5-Trichlorophenol	"	"	"		50.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		50.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*19.0*	*%*	*13*
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*103*	"	

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**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	92C0804A/44	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Chlorinated Herbicides per EPA Method 8151A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
001-GG-01			**P908517-01**				**Water**	**10,21**
2,4-D	0990408	9/2/99	9/16/99		5.00	**32.5**	ug/l	
2,4-DB	"	"	"		8.00	ND	"	
2,4,5-T	"	"	"		2.00	ND	"	
2,4,5-TP (Silvex)	"	"	"		2.00	ND	"	
Bromoxynil	"	"	"		4.00	ND	"	
Dalapon	"	"	"		20.0	ND	"	
Dicamba	"	"	"		2.00	ND	"	
Dichlorprop	"	"	"		2.00	ND	"	
Dinoseb	"	"	"		4.00	ND	"	
MCPA	"	"	"		400	ND	"	
MCPP	"	"	"		400	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24.0-135*		*161*	*%*	*2*
005-GG-01			**P908536-01**				**Water**	**10,21**
2,4-D	0990408	9/2/99	9/16/99		2.00	**6.24**	ug/l	
2,4-DB	"	"	"		8.00	ND	"	
2,4,5-T	"	"	"		2.00	ND	"	
2,4,5-TP (Silvex)	"	"	"		2.00	ND	"	
Bromoxynil	"	"	"		4.00	ND	"	
Dalapon	"	"	"		20.0	ND	"	
Dicamba	"	"	"		2.00	ND	"	
Dichlorprop	"	"	"		2.00	ND	"	
Dinoseb	"	"	"		4.00	ND	"	
MCPA	"	"	"		400	ND	"	
MCPP	"	"	"		400	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24.0-135*		*80.2*	*%*	
006-GG-01			**P908536-02**				**Water**	**10,21**
2,4-D	0990408	9/2/99	9/16/99		2.00	**3.03**	ug/l	
2,4-DB	"	"	"		8.00	ND	"	
2,4,5-T	"	"	"		2.00	ND	"	
2,4,5-TP (Silvex)	"	"	"		2.00	ND	"	
Bromoxynil	"	"	"		4.00	ND	"	
Dalapon	"	"	"		20.0	ND	"	
Dicamba	"	"	"		2.00	ND	"	
Dichlorprop	"	"	"		2.00	ND	"	
Dinoseb	"	"	"		4.00	ND	"	
MCPA	"	"	"		400	ND	"	

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URS Greiner Woodward Clyde	Project: RPAC	Sampled:	8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number: 92C0804A/44	Received:	8/27/99 to 9/2/99
Portland, OR 97201	Project Manager: Karen Schadler	Reported:	10/4/99 09:25

Chlorinated Herbicides per EPA Method 8151A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
006-GG-01 (continued)			**P908536-02**				**Water**	
MCPP	0990408	9/2/99	9/16/99		400	ND	ug/l	
Surrogate: 2,4-DCAA	"	"	"	*24.0-135*		*NR*	*%*	*2*
007-GG-01			**P908536-03**				**Water**	**10,21**
2,4-D	0990408	9/2/99	9/16/99		500	**567**	ug/l	14
2,4-DB	"	"	"		4000	ND	"	
2,4,5-T	"	"	"		1000	ND	"	
2,4,5-TP (Silvex)	"	"	"		1000	ND	"	
Bromoxynil	"	"	"		2000	ND	"	
Dalapon	"	"	"		10000	ND	"	
Dicamba	"	"	"		1000	ND	"	
Dichlorprop	"	"	"		1000	ND	"	
[redacted]seb	"	"	"		2000	ND	"	
[redacted]A	"	"	"		200000	ND	"	
MCPP	"	"	"		200000	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24.0-135*		*NR*	*%*	*11*
002-GG-01			**P908537-01**				**Water**	**10,21**
2,4-D	0990408	9/2/99	9/16/99		4.00	**4.28**	ug/l	14
2,4-DB	"	"	"		40.0	ND	"	
2,4,5-T	"	"	"		10.0	ND	"	
2,4,5-TP (Silvex)	"	"	"		10.0	ND	"	
Bromoxynil	"	"	"		20.0	ND	"	
Dalapon	"	"	"		100	ND	"	
Dicamba	"	"	"		10.0	ND	"	
Dichlorprop	"	"	"		10.0	ND	"	
Dinoseb	"	"	"		20.0	ND	"	
MCPA	"	"	"		2000	ND	"	
MCPP	"	"	"		2000	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24.0-135*		*107*	*%*	
003-GG-01			**P908537-02**				**Water**	**10,21**
2,4-D	0990408	9/2/99	9/16/99		600	**633**	ug/l	14
2,4-DB	"	"	"		400	ND	"	
2,4,5-T	"	"	"		40.0	**46.0**	"	14
2,4,5-TP (Silvex)	"	"	"		100	ND	"	
Bromoxynil	"	"	"		200	ND	"	
Dalapon	"	"	"		1000	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	92C0804A/44	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Chlorinated Herbicides per EPA Method 8151A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
003-GG-01 (continued)			**P908537-02**				**Water**	**10,21**
Dicamba	0990408	9/2/99	9/16/99		100	ND	ug/l	
Dichlorprop	"	"	"		1000	ND	"	
Dinoseb	"	"	"		200	ND	"	
MCPA	"	"	"		20000	ND	"	
MCPP	"	"	"		20000	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24.0-135*		*NR*	*%*	*11*
004-GG-02			**P908537-03**				**Water**	**10,21**
2,4-D	0990408	9/2/99	9/16/99		900	**933**	ug/l	14
2,4-DB	"	"	"		4000	ND	"	
2,4,5-T	"	"	"		30.0	**30.7**	"	14
2,4,5-TP (Silvex)	"	"	"		1000	ND	"	
Bromoxynil	"	"	"		2000	ND	"	
Dalapon	"	"	"		10000	ND	"	
Dicamba	"	"	"		1000	ND	"	
Dichlorprop	"	"	"		1000	ND	"	
Dinoseb	"	"	"		2000	ND	"	
MCPA	"	"	"		200000	ND	"	
MCPP	"	"	"		200000	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24.0-135*		*NR*	*%*	*11*
008-GG-01			**P908562-01**				**Water**	**10,21**
2,4-D	0990408	9/2/99	9/16/99		2.00	ND	ug/l	
2,4-DB	"	"	"		8.00	ND	"	
2,4,5-T	"	"	"		2.00	ND	"	
2,4,5-TP (Silvex)	"	"	"		2.00	ND	"	
Bromoxynil	"	"	"		4.00	ND	"	
Dalapon	"	"	"		20.0	ND	"	
Dicamba	"	"	"		2.00	ND	"	
Dichlorprop	"	"	"		2.00	ND	"	
Dinoseb	"	"	"		4.00	ND	"	
MCPA	"	"	"		400	ND	"	
MCPP	"	"	"		400	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24.0-135*		*NR*	*%*	*2*
009-GG-01			**P909001-01**				**Other wet**	**10,21**
2,4-D	0990409	9/7/99	9/21/99		30.0	ND	ug/l	
2,4-DB	"	"	"		120	ND	"	

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**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	92C0804A/44	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Chlorinated Herbicides per EPA Method 8151A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
009-GG-01 (continued)			**P909001-01**				**Other wet**	**10.21**
2,4,5-T	0990409	9/7/99	9/21/99		30.0	ND	ug/l	
2,4,5-TP (Silvex)	"	"	"		30.0	ND	"	
Bromoxynil	"	"	"		60.0	ND	"	
Dalapon	"	"	"		300	ND	"	
Dicamba	"	"	"		30.0	ND	"	
Dichlorprop	"	"	"		30.0	ND	"	
Dinoseb	"	"	"		60.0	ND	"	
MCPA	"	"	"		6000	ND	"	
MCPP	"	"	"		6000	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24.0-135*		*NR*	*%*	*11*
010-GG-01			**P909001-02**				**Water**	**10.21**
2,4-D	0990409	9/7/99	9/20/99		2.00	ND	ug/l	
[illegible]DB	"	"	"		8.00	ND	"	
[illegible],5-T	"	"	"		2.00	ND	"	
2,4,5-TP (Silvex)	"	"	"		2.00	ND	"	
Bromoxynil	"	"	"		4.00	ND	"	
Dalapon	"	"	"		20.0	ND	"	
Dicamba	"	"	"		2.00	ND	"	
Dichlorprop	"	"	"		2.00	ND	"	
Dinoseb	"	"	"		4.00	ND	"	
MCPA	"	"	"		400	ND	"	
MCPP	"	"	"		400	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24.0-135*		*140*	*%*	*2*
011-GG-01			**P909032-01**				**Water**	**10.21**
2,4-D	0990409	9/7/99	9/20/99		2.00	ND	ug/l	
2,4-DB	"	"	"		8.00	ND	"	
2,4,5-T	"	"	"		2.00	ND	"	
2,4,5-TP (Silvex)	"	"	"		2.00	ND	"	
Bromoxynil	"	"	"		4.00	ND	"	
Dalapon	"	"	"		20.0	ND	"	
Dicamba	"	"	"		2.00	ND	"	
Dichlorprop	"	"	"		2.00	ND	"	
Dinoseb	"	"	"		4.00	ND	"	
MCPA	"	"	"		400	ND	"	
MCPP	"	"	"		400	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24.0-135*		*155*	*%*	*2*

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	92C0804A/44	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Chlorinated Herbicides per EPA Method 8151A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
012-GG-01			**P909032-02**				**Water**	**10.21**
2,4-D	0990409	9/7/99	9/20/99		2.00	ND	ug/l	
2,4-DB	"	"	"		8.00	ND	"	
2,4,5-T	"	"	"		2.00	ND	"	
2,4,5-TP (Silvex)	"	"	"		2.00	ND	"	
Bromoxynil	"	"	"		4.00	ND	"	
Dalapon	"	"	"		20.0	ND	"	
Dicamba	"	"	"		2.00	ND	"	
Dichlorprop	"	"	"		2.00	ND	"	
Dinoseb	"	"	"		4.00	ND	"	
MCPA	"	"	"		400	ND	"	
MCPP	"	"	"		400	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24.0-135*		*155*	*%*	*2*
013-GG-01			**P909032-03**				**Water**	**10.21**
2,4-D	0990409	9/7/99	9/21/99		10.0	ND	ug/l	
2,4-DB	"	"	"		40.0	ND	"	
2,4,5-T	"	"	"		10.0	ND	"	
2,4,5-TP (Silvex)	"	"	"		5.00	**7.00**	"	14
Bromoxynil	"	"	"		20.0	ND	"	
Dalapon	"	"	"		100	ND	"	
Dicamba	"	"	"		10.0	ND	"	
Dichlorprop	"	"	"		10.0	ND	"	
Dinoseb	"	"	"		20.0	ND	"	
MCPA	"	"	"		2000	ND	"	
MCPP	"	"	"		2000	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24.0-135*		*NR*	*%*	*2*
014-GG-01			**P909058-01**				**Water**	**10.21**
2,4-D	0990409	9/7/99	9/20/99		2.00	ND	ug/l	
2,4-DB	"	"	"		8.00	ND	"	
2,4,5-T	"	"	"		2.00	ND	"	
2,4,5-TP (Silvex)	"	"	"		2.00	ND	"	
Bromoxynil	"	"	"		4.00	ND	"	
Dalapon	"	"	"		20.0	ND	"	
Dicamba	"	"	"		2.00	ND	"	
Dichlorprop	"	"	"		2.00	ND	"	
Dinoseb	"	"	"		4.00	ND	"	
MCPA	"	"	"		400	ND	"	

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**Refer to end of report for text of notes and definitions*

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	92C0804A/44	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Chlorinated Herbicides per EPA Method 8151A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
014-GG-01 (continued)			**P909058-01**				**Water**	**10.21**
MCPP	0990409	9/7/99	9/20/99		400	ND	ug/l	
Surrogate: 2,4-DCAA	"	"	"	*24.0-135*		*NR*	*%*	*2*

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
001-GG-01			P908517-01				Water	
Acetone	0890753	8/27/99	8/27/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	**3.72**	"	
sec-Butylbenzene	"	"	"		1.00	**1.80**	"	
tert-Butylbenzene	"	"	"		1.00	**1.38**	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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**Refer to end of report for text of notes and definitions*

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project: RPAC	Sampled:	8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number: Multiple Project Numbers	Received:	8/27/99 to 9/2/99
Portland, OR 97201	Project Manager: Karen Schadler	Reported:	10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
001-GG-01 (continued)			**P908517-01**				**Water**	
Ethylbenzene	0890753	8/27/99	8/27/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	**1.38**	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	**1.27**	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
[illegible]ene	"	"	"		1.00	ND	"	
[illegible],3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	**2.69**	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	**2.28**	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*103*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*105*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*98.0*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*101*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
005-GG-01			**P908536-01**				Water	15
Acetone	0990341	8/30/99	9/13/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	**1.24**	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	**5.32**	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	**9.03**	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	**5.29**	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
005-GG-01 (continued)			**P908536-01**				**Water**	**15**
Ethylbenzene	0990341	8/30/99	9/13/99		1.00	**2.20**	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	**1.91**	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	**14.2**	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	**20.2**	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	**4.79**	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	**3.88**	"	
m,p-Xylene	"	"	"		2.00	**9.90**	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*108*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*103*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*99.5*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*100*	"	

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111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
006-GG-01			P908536-02				Water	15
Acetone	0990341	8/30/99	9/13/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	**1.18**	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
006-GG-01 (continued)			P908536-02				Water	15
Ethylbenzene	0990341	8/30/99	9/13/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
[illegible]ene	"	"	"		1.00	**1.56**	"	
[illegible]-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	**1.59**	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*109*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*106*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*101*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*97.5*	"	

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**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

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Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
007-GG-01			P908536-03				Water	15
Bromobenzene	0990341	8/30/99	9/14/99		1.00	ND	ug/l	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	**1.23**	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	**2.11**	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Isopropylbenzene	"	"	"		1.00	**9.53**	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
007-GG-01 (continued)			P908536-03				Water	15
Naphthalene	0990341	8/30/99	9/14/99		1.00	**1.34**	ug/l	
n-Propylbenzene	"	"	"		1.00	**23.7**	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	**1.64**	"	
Toluene	"	"	"		1.00	**23.5**	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	**1.31**	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	**8.13**	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	**17.1**	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
-Trichloropropane	"	"	"		1.00	ND	"	
yl chloride	"	"	"		1.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*45.7*	*%*	*16*
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*106*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*101*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*99.5*	"	
Acetone	0990396	9/14/99	9/15/99		250	**1380**	ug/l	
Benzene	"	"	"		10.0	**785**	"	
Chlorobenzene	"	"	"		10.0	**239**	"	
1,3-Dichlorobenzene	"	"	"		10.0	**284**	"	
Ethylbenzene	"	"	"		10.0	**1210**	"	
1,2,4-Trimethylbenzene	"	"	"		10.0	**1470**	"	
1,3,5-Trimethylbenzene	"	"	"		10.0	**326**	"	
o-Xylene	"	"	"		10.0	**1600**	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*101*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*99.5*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*98.0*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*99.0*	"	
1,2-Dichlorobenzene	"	"	9/16/99		100	**6860**	ug/l	
1,4-Dichlorobenzene	"	"	"		100	**2450**	"	
m,p-Xylene	"	"	"		200	**3640**	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*106*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*108*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*105*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*101*	"	

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**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK			P908536-04				Water	15
Acetone	0990341	8/30/99	9/13/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK (continued)			**P908536-04**				**Water**	**15**
Ethylbenzene	0990341	8/30/99	9/13/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
[illegible]ene	"	"	"		1.00	ND	"	
[illegible]-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*105*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*104*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*101*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*101*	"	

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Deborah Griffiths, Project Manager

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
002-GG-01			P908537-01				Water	15
Acetone	0990396	9/14/99	9/15/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	**12.9**	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	**189**	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	**59.6**	"	
1,3-Dichlorobenzene	"	"	"		1.00	**1.51**	"	
1,4-Dichlorobenzene	"	"	"		1.00	**24.4**	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
002-GG-01 (continued)			P908537-01				Water	15
Ethylbenzene	0990396	9/14/99	9/15/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
[illegible]ene	"	"	"		1.00	ND	"	
[illegible],3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	**2.11**	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*104*	%	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*99.0*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*94.0*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*101*	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
003-GG-01			P908537-02				Water	15
Acetone	0990396	9/14/99	9/15/99		250	ND	ug/l	
Benzene	"	"	"		10.0	**53.0**	"	
Bromobenzene	"	"	"		10.0	ND	"	
Bromochloromethane	"	"	"		10.0	ND	"	
Bromodichloromethane	"	"	"		10.0	ND	"	
Bromoform	"	"	"		10.0	ND	"	
Bromomethane	"	"	"		100	ND	"	
2-Butanone	"	"	"		250	ND	"	
n-Butylbenzene	"	"	"		10.0	ND	"	
sec-Butylbenzene	"	"	"		10.0	ND	"	
tert-Butylbenzene	"	"	"		10.0	ND	"	
Carbon disulfide	"	"	"		100	ND	"	
Carbon tetrachloride	"	"	"		20.0	ND	"	
Chlorobenzene	"	"	"		10.0	**761**	"	
Chloroethane	"	"	"		20.0	ND	"	
Chloroform	"	"	"		10.0	ND	"	
Chloromethane	"	"	"		50.0	ND	"	
2-Chlorotoluene	"	"	"		10.0	**16.6**	"	
4-Chlorotoluene	"	"	"		10.0	**17.7**	"	
1,2-Dibromo-3-chloropropane	"	"	"		10.0	ND	"	
Dibromochloromethane	"	"	"		10.0	ND	"	
1,2-Dibromoethane	"	"	"		10.0	ND	"	
Dibromomethane	"	"	"		10.0	ND	"	
1,3-Dichlorobenzene	"	"	"		10.0	**1120**	"	
Dichlorodifluoromethane	"	"	"		50.0	ND	"	
1,1-Dichloroethane	"	"	"		10.0	ND	"	
1,2-Dichloroethane	"	"	"		10.0	ND	"	
1,1-Dichloroethene	"	"	"		10.0	ND	"	
cis-1,2-Dichloroethene	"	"	"		10.0	ND	"	
trans-1,2-Dichloroethene	"	"	"		10.0	ND	"	
1,2-Dichloropropane	"	"	"		10.0	ND	"	
1,3-Dichloropropane	"	"	"		10.0	ND	"	
2,2-Dichloropropane	"	"	"		10.0	ND	"	
1,1-Dichloropropene	"	"	"		10.0	ND	"	
cis-1,3-Dichloropropene	"	"	"		10.0	ND	"	
trans-1,3-Dichloropropene	"	"	"		10.0	ND	"	
Ethylbenzene	"	"	"		10.0	**1520**	"	
Hexachlorobutadiene	"	"	"		20.0	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
003-GG-01 (continued)			**P908537-02**				**Water**	**15**
2-Hexanone	0990396	9/14/99	9/15/99		100	ND	ug/l	
Isopropylbenzene	"	"	"		10.0	**29.1**	"	
p-Isopropyltoluene	"	"	"		10.0	ND	"	
4-Methyl-2-pentanone	"	"	"		50.0	ND	"	
Methylene chloride	"	"	"		50.0	ND	"	
Naphthalene	"	"	"		10.0	ND	"	
n-Propylbenzene	"	"	"		10.0	**95.3**	"	
Styrene	"	"	"		10.0	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		10.0	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		10.0	ND	"	
Tetrachloroethene	"	"	"		10.0	ND	"	
Toluene	"	"	"		10.0	**19.6**	"	
1,2,3-Trichlorobenzene	"	"	"		10.0	ND	"	
1,2,4-Trichlorobenzene	"	"	"		10.0	**61.3**	"	
1,1,1-Trichloroethane	"	"	"		10.0	ND	"	
1,1,2-Trichloroethane	"	"	"		10.0	ND	"	
Trichloroethene	"	"	"		10.0	ND	"	
Trichlorofluoromethane	"	"	"		10.0	ND	"	
1,2,3-Trichloropropane	"	"	"		10.0	ND	"	
1,2,4-Trimethylbenzene	"	"	"		10.0	**1140**	"	
1,3,5-Trimethylbenzene	"	"	"		10.0	**289**	"	
Vinyl chloride	"	"	"		10.0	ND	"	
o-Xylene	"	"	"		10.0	**1680**	"	
m,p-Xylene	"	"	"		20.0	**943**	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*101*	%	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*101*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*99.0*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*99.0*	"	
1,2-Dichlorobenzene	"	"	9/16/99		1000	**26100**	ug/l	
1,4-Dichlorobenzene	"	"	"		1000	**8840**	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*109*	%	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*104*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*105*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*98.0*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
004-GG-02			P908537-03				Water	15
Acetone	0990396	9/14/99	9/15/99		250	ND	ug/l	
Benzene	"	"	"		10.0	**45.8**	"	
Bromobenzene	"	"	"		10.0	ND	"	
Bromochloromethane	"	"	"		10.0	ND	"	
Bromodichloromethane	"	"	"		10.0	ND	"	
Bromoform	"	"	"		10.0	ND	"	
Bromomethane	"	"	"		100	ND	"	
2-Butanone	"	"	"		250	ND	"	
n-Butylbenzene	"	"	"		10.0	ND	"	
sec-Butylbenzene	"	"	"		10.0	ND	"	
tert-Butylbenzene	"	"	"		10.0	ND	"	
Carbon disulfide	"	"	"		100	ND	"	
Carbon tetrachloride	"	"	"		20.0	ND	"	
Chlorobenzene	"	"	"		10.0	**656**	"	
Chloroethane	"	"	"		20.0	ND	"	
Chloroform	"	"	"		10.0	ND	"	
Chloromethane	"	"	"		50.0	ND	"	
2-Chlorotoluene	"	"	"		10.0	**15.0**	"	
4-Chlorotoluene	"	"	"		10.0	**15.2**	"	
1,2-Dibromo-3-chloropropane	"	"	"		10.0	ND	"	
Dibromochloromethane	"	"	"		10.0	ND	"	
1,2-Dibromoethane	"	"	"		10.0	ND	"	
Dibromomethane	"	"	"		10.0	ND	"	
1,3-Dichlorobenzene	"	"	"		10.0	**909**	"	
Dichlorodifluoromethane	"	"	"		50.0	ND	"	
1,1-Dichloroethane	"	"	"		10.0	ND	"	
1,2-Dichloroethane	"	"	"		10.0	ND	"	
1,1-Dichloroethene	"	"	"		10.0	ND	"	
cis-1,2-Dichloroethene	"	"	"		10.0	ND	"	
trans-1,2-Dichloroethene	"	"	"		10.0	ND	"	
1,2-Dichloropropane	"	"	"		10.0	ND	"	
1,3-Dichloropropane	"	"	"		10.0	ND	"	
2,2-Dichloropropane	"	"	"		10.0	ND	"	
1,1-Dichloropropene	"	"	"		10.0	ND	"	
cis-1,3-Dichloropropene	"	"	"		10.0	ND	"	
trans-1,3-Dichloropropene	"	"	"		10.0	ND	"	
Ethylbenzene	"	"	"		10.0	**1290**	"	
Hexachlorobutadiene	"	"	"		20.0	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
004-GG-02 (continued)			P908537-03				Water	15
2-Hexanone	0990396	9/14/99	9/15/99		100	ND	ug/l	
Isopropylbenzene	"	"	"		10.0	**23.7**	"	
p-Isopropyltoluene	"	"	"		10.0	ND	"	
4-Methyl-2-pentanone	"	"	"		50.0	ND	"	
Methylene chloride	"	"	"		50.0	ND	"	
Naphthalene	"	"	"		10.0	ND	"	
n-Propylbenzene	"	"	"		10.0	**73.2**	"	
Styrene	"	"	"		10.0	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		10.0	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		10.0	ND	"	
Tetrachloroethene	"	"	"		10.0	ND	"	
Toluene	"	"	"		10.0	**17.8**	"	
1,2,3-Trichlorobenzene	"	"	"		10.0	ND	"	
1,2,4-Trichlorobenzene	"	"	"		10.0	**39.4**	"	
1,1,1-Trichloroethane	"	"	"		10.0	ND	"	
1,1,2-Trichloroethane	"	"	"		10.0	ND	"	
Trichloroethene	"	"	"		10.0	ND	"	
Trichlorofluoromethane	"	"	"		10.0	ND	"	
1,2,3-Trichloropropane	"	"	"		10.0	ND	"	
1,2,4-Trimethylbenzene	"	"	"		10.0	**825**	"	
1,3,5-Trimethylbenzene	"	"	"		10.0	**226**	"	
Vinyl chloride	"	"	"		10.0	ND	"	
o-Xylene	"	"	"		10.0	**1420**	"	
m,p-Xylene	"	"	"		20.0	**778**	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*102*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*97.0*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*99.0*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*98.5*	"	
1,2-Dichlorobenzene	"	"	9/16/99		1000	**20300**	ug/l	
1,4-Dichlorobenzene	"	"	"		1000	**6750**	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*114*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*97.0*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*98.0*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*98.5*	"	

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111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK			P908537-04				Water	15
Acetone	0990341	8/30/99	9/13/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK (continued)			**P908537-04**				**Water**	**15**
Ethylbenzene	0990341	8/30/99	9/13/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
[illegible]ene	"	"	"		1.00	ND	"	
[illegible]-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*106*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*103*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*98.0*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*103*	"	

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**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
008-GG-01			**P908562-01**				**Water**	
Acetone	0990008	9/1/99	9/1/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
008-GG-01 (continued)			**P908562-01**				Water	
n-Butylbenzene	0990008	9/1/99	9/1/99		1.00	ND	ug/l	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
[illegible]ibromoethane	"	"	"		1.00	ND	"	
[illegible]omomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	**2.05**	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
008-GG-01 (continued)			P908562-01				Water	
Dichlorodifluoromethane	0990008	9/1/99	9/1/99		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	**4.00**	"	
trans-1,2-Dichloroethene	"	"	"		1.00	**2.06**	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	
Ethylbenzene	"	"	"		1.00	ND	"	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
008-GG-01 (continued)			**P908562-01**				**Water**	
n-Propylbenzene	0990008	9/1/99	9/1/99		1.00	ND	ug/l	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	**1.32**	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
[illegible]-Trimethylbenzene	"	"	"		1.00	**1.56**	"	
[illegible]-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*109*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*106*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*101*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*98.0*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK			**P908562-03**				**Water**	
Acetone	0990008	9/1/99	9/1/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

North Creek Analytical - Portland

**Refer to end of report for text of notes and definitions*

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK (continued)			**P908562-03**				**Water**	
Ethylbenzene	0990008	9/1/99	9/1/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
[illegible]ene	"	"	"		1.00	ND	"	
[illegible]-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*111*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*108*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*101*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*98.0*	"	

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111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
009-GG-01			P909001-01				Other wet	
Acetone	0990049	9/2/99	9/2/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	**2.03**	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	**2.50**	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	**19.9**	"	
1,3-Dichlorobenzene	"	"	"		1.00	**2.81**	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	**1.40**	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
009-GG-01 (continued)			**P909001-01**				Other wet	
Ethylbenzene	0990049	9/2/99	9/2/99		1.00	**1.00**	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
[illegible]ene	"	"	"		1.00	**2.03**	"	
[illegible]-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	**2.31**	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	**1.73**	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	**1.28**	"	
m,p-Xylene	"	"	"		2.00	**3.28**	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*103*	%	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*110*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*100*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*103*	"	

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Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
010-GG-01			P909001-02				Water	
Acetone	0990049	9/2/99	9/2/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
[illegible]obenzene	"	"	"		1.00	ND	"	
[illegible]oethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

[illegible] Creek Analytical - Portland

Refer to end of report for text of notes and definitions.

Deborah Griffiths, Project Manager

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Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
010-GG-01 (continued)			**P909001-02**				**Water**	
Ethylbenzene	0990049	9/2/99	9/2/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	**1.15**	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*106*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*109*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*99.5*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*103*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP			**P909001-03**				**Water**	
Acetone	0990049	9/2/99	9/2/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
[illegible]obenzene	"	"	"		1.00	ND	"	
[illegible]roethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP (continued)			**P909001-03**				**Water**	
Ethylbenzene	0990049	9/2/99	9/2/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*104*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*106*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*99.0*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*99.0*	"	

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111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received:	8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported:	10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
011-GG-01			P909032-01				Water	
Acetone	0990097	9/3/99	9/3/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
[illegible]robenzene	"	"	"		1.00	ND	"	
[illegible]roethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	**1.61**	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
011-GG-01 (continued)			**P909032-01**				**Water**	
Ethylbenzene	0990097	9/3/99	9/3/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*97.5*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*106*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*99.5*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*99.0*	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
012-GG-01			P909032-02				Water	
Acetone	0990097	9/3/99	9/3/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
[illegible]obenzene	"	"	"		1.00	ND	"	
[illegible]roethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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Refer to end of report for text of notes and definitions.

Deborah Griffiths, Project Manager

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
012-GG-01 (continued)			**P909032-02**				**Water**	
Ethylbenzene	0990097	9/3/99	9/3/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	**6.08**	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	**1.15**	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	**1.88**	"	
m,p-Xylene	"	"	"		2.00	**3.36**	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*103*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*108*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*101*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*101*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
013-GG-01			**P909032-03**				**Water**	
Acetone	0990097	9/3/99	9/3/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	**10.3**	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
[redacted]oethane	"	"	"		2.00	ND	"	
[redacted]roform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	**151**	"	
1,3-Dichlorobenzene	"	"	"		1.00	**7.32**	"	
1,4-Dichlorobenzene	"	"	"		1.00	**121**	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	**2.17**	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	**1.06**	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	
Ethylbenzene	"	"	"		1.00	**2.11**	"	

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Refer to end of report for text of notes and definitions.

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
013-GG-01 (continued)			**P909032-03**				**Water**	
Hexachlorobutadiene	0990097	9/3/99	9/3/99		2.00	ND	ug/l	
2-Hexanone	"	"	"		10.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	**6.71**	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	**1.79**	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	**1.23**	"	
m,p-Xylene	"	"	"		2.00	**2.72**	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*101*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*103*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*102*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*103*	"	
Chlorobenzene	0990149	9/7/99	9/7/99		2.00	**287**	ug/l	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*102*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*106*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*99.0*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*99.5*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
Trip Blank			**P909032-04**				**Water**	
Acetone	0990097	9/3/99	9/3/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
[illegible]obenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
Trip Blank (continued)			**P909032-04**				**Water**	
Ethylbenzene	0990097	9/3/99	9/3/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*101*	%	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*101*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*101*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*102*	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
014-GG-01			P909058-01				Water	
Acetone	0990149	9/7/99	9/7/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	**4.58**	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	**5.31**	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	**2.11**	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
014-GG-01 (continued)			**P909058-01**				**Water**	
Ethylbenzene	0990149	9/7/99	9/7/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*109*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*109*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*96.0*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*98.5*	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK			P909058-02				Water	
Acetone	0990149	9/7/99	9/7/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK (continued)			P909058-02				Water	
Ethylbenzene	0990149	9/7/99	9/7/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*101*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*102*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*98.0*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*97.5*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled:	8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received:	8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported:	10/4/99 09:25

Dry Weight Determination
North Creek Analytical - Portland

Sample Name	Lab ID	Matrix	Result	Units
006-GG-01	P908536-02	Water	0	%
007-GG-01	P908536-03	Water	0	%
002-GG-01	P908537-01	Water	0	%
003-GG-01	P908537-02	Water	0	%
004-GG-02	P908537-03	Water	0	%
008-GG-01	P908562-01	Water	0	%
009-GG-01	P909001-01	Other wet	100	%

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Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0990068	**Date Prepared: 9/2/99**					**Extraction Method: TPH-D Extraction**				
Blank	**0990068-BLK1**									
Diesel Range Organics	9/2/99			**ND**	mg/l	**0.250**				
Heavy Oil Range Hydrocarbons	"			**ND**	"	**0.500**				
Surrogate: 1-Chlorooctadecane	"	*0.100*		*0.0935*	"	*50.0-150*	*93.5*			
LCS	**0990068-BS1**									
Diesel Range Organics	9/2/99	2.51		2.33	mg/l	50.0-150	92.8			
Heavy Oil Range Hydrocarbons	"	1.03		1.02	"	50.0-150	99.0			
Surrogate: 1-Chlorooctadecane	"	*0.100*		*0.0975*	"	*50.0-150*	*97.5*			
LCS Dup	**0990068-BSD1**									
Diesel Range Organics	9/2/99	2.51		2.46	mg/l	50.0-150	98.0	50.0	5.45	
Heavy Oil Range Hydrocarbons	"	1.03		1.09	"	50.0-150	106	50.0	6.83	
Surrogate: 1-Chlorooctadecane	"	*0.100*		*0.0970*	"	*50.0-150*	*97.0*			
Matrix Spike	**0990068-MS1**		**P908562-01**							
Diesel Range Organics	9/2/99	6.79	ND	7.11	mg/l	50.0-150	**105**			
Heavy Oil Range Hydrocarbons	"	2.78	ND	3.08	"	50.0-150	**111**			
Surrogate: 1-Chlorooctadecane	*9/3/99*	*0.270*		*0.269*	"	*50.0-150*	*99.6*			
Matrix Spike Dup	**0990068-MSD1**		**P908562-01**							
Diesel Range Organics	9/2/99	6.79	ND	7.05	mg/l	50.0-150	**104**	50.0	**0.957**	
Heavy Oil Range Hydrocarbons	"	2.78	ND	3.08	"	50.0-150	**111**	50.0	**0**	
Surrogate: 1-Chlorooctadecane	*9/3/99*	*0.270*		*0.265*	"	*50.0-150*	*98.1*			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Dissolved Metals per EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0990203	**Date Prepared: 9/9/99**					**Extraction Method: Metals**				
Blank	**0990203-BLK1**									
Mercury	9/9/99			**ND**	mg/l	**0.000200**				
LCS	**0990203-BS1**									
Mercury	9/9/99	0.00500		0.00424	mg/l	80.0-120	84.8			
Duplicate	**0990203-DUP1**		**P909032-02**							
Mercury	9/9/99		ND	ND	mg/l			20.0		
Matrix Spike	**0990203-MS1**		**P909032-02**							
Mercury	9/9/99	0.00500	ND	0.00413	mg/l	75.0-125	**82.6**			
Matrix Spike Dup	**0990203-MSD1**		**P909032-02**							
[illegible]ury	9/9/99	0.00500	ND	0.00418	mg/l	75.0-125	**83.6**	20.0	**1.20**	
Batch: 0990214	**Date Prepared: 9/8/99**					**Extraction Method: EPA 200/3005**				
Blank	**0990214-BLK1**									
Arsenic	9/9/99			**ND**	mg/l	**0.00100**				
Cadmium	"			**ND**	"	**0.00100**				
Chromium	"			**ND**	"	**0.00100**				
Copper	"			**ND**	"	**0.00200**				
Lead	"			**ND**	"	**0.00100**				
Nickel	"			**ND**	"	**0.00200**				
Vanadium	"			**ND**	"	**0.00500**				
Zinc	"			**ND**	"	**0.00500**				
LCS	**0990214-BS1**									
Arsenic	9/9/99	0.100		0.0923	mg/l	80.0-120	92.3			
Cadmium	"	0.100		0.0922	"	80.0-120	92.2			
Chromium	"	0.100		0.0913	"	80.0-120	91.3			
Copper	"	0.100		0.0927	"	80.0-120	92.7			
Lead	"	0.100		0.0953	"	80.0-120	95.3			
Nickel	"	0.100		0.0943	"	80.0-120	94.3			
Vanadium	"	0.100		0.0958	"	80.0-120	95.8			
Zinc	"	0.100		0.0920	"	80.0-120	92.0			
Duplicate	**0990214-DUP1**		**P908517-01**							
Arsenic	9/9/99		0.0117	0.0117	mg/l			20.0	**0**	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Dissolved Metals per EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Duplicate (continued)	0990214-DUP1		P908517-01							
Cadmium	9/9/99		ND	ND	mg/l			20.0		
Chromium	"		ND	ND	"			20.0		
Copper	"		0.00271	0.00256	"			20.0	5.69	
Lead	"		ND	ND	"			20.0		
Nickel	"		0.00302	0.00294	"			20.0	2.68	
Vanadium	"		0.00597	0.00529	"			20.0	12.1	
Zinc	"		ND	ND	"			20.0		
Matrix Spike	0990214-MS1		P908517-01							
Arsenic	9/9/99	0.100	0.0117	0.109	mg/l	75.0-125	97.3			
Cadmium	"	0.100	ND	0.0937	"	75.0-125	93.7			
Chromium	"	0.100	ND	0.0994	"	75.0-125	99.4			
Copper	"	0.100	0.00271	0.0971	"	75.0-125	94.4			
Lead	"	0.100	ND	0.0910	"	75.0-125	91.0			
Nickel	"	0.100	0.00302	0.0985	"	75.0-125	95.5			
Vanadium	"	0.100	0.00597	0.113	"	75.0-125	107			
Zinc	"	0.100	ND	0.0909	"	75.0-125	90.9			
Matrix Spike Dup	0990214-MSD1		P908517-01							
Arsenic	9/9/99	0.100	0.0117	0.108	mg/l	75.0-125	96.3	20.0	1.03	
Cadmium	"	0.100	ND	0.0922	"	75.0-125	92.2	20.0	1.61	
Chromium	"	0.100	ND	0.0981	"	75.0-125	98.1	20.0	1.32	
Copper	"	0.100	0.00271	0.0964	"	75.0-125	93.7	20.0	0.744	
Lead	"	0.100	ND	0.0905	"	75.0-125	90.5	20.0	0.551	
Nickel	"	0.100	0.00302	0.0964	"	75.0-125	93.4	20.0	2.22	
Vanadium	"	0.100	0.00597	0.114	"	75.0-125	108	20.0	0.930	
Zinc	"	0.100	ND	0.0914	"	75.0-125	91.4	20.0	0.549	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Alcohols by GC/FID Headspace Analysis/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0890756	**Date Prepared: 8/27/99**					**Extraction Method: None**				
Blank	**0890756-BLK1**									
Isobutyl alcohol	8/27/99			**ND**	mg/l	**10.0**				
Ethanol	"			**ND**	"	**10.0**				
Isopropanol	"			**ND**	"	**10.0**				
Methanol	"			**ND**	"	**10.0**				
LCS	**0890756-BS1**									
Ethanol	8/27/99	50.0		52.9	mg/l	50.0-150	106			
Isopropanol	"	50.0		53.5	"	50.0-150	107			
Methanol	"	50.0		49.2	"	50.0-150	98.4			
LCS	**0890756-BS2**									
Isobutyl alcohol	8/27/99	50.0		57.8	mg/l	50.0-150	116			
Matrix Spike	**0890756-MS1**		**P908517-01**							
Ethanol	8/27/99	50.0	ND	61.3	mg/l	50.0-150	**123**			
Isopropanol	"	50.0	ND	53.7	"	50.0-150	**107**			
Methanol	"	50.0	ND	54.4	"	50.0-150	**109**			
Matrix Spike Dup	**0890756-MSD1**		**P908517-01**							
Ethanol	8/27/99	50.0	ND	55.5	mg/l	50.0-150	**111**	25.0	**10.3**	
Isopropanol	"	50.0	ND	54.9	"	50.0-150	**110**	25.0	**2.76**	
Methanol	"	50.0	ND	61.1	"	50.0-150	**122**	25.0	**11.3**	
Batch: 0890812	**Date Prepared: 8/30/99**					**Extraction Method: 3810 Headspace**				
Blank	**0890812-BLK1**									
Isobutyl alcohol	8/30/99			**ND**	mg/l	**10.0**				
LCS	**0890812-BS1**									
Isobutyl alcohol	8/30/99	50.0		67.8	mg/l	50.0-150	136			
Matrix Spike	**0890812-MS1**		**P908537-01**							
Isobutyl alcohol	8/30/99	50.0	ND	62.6	mg/l	50.0-150	**125**			
Matrix Spike Dup	**0890812-MSD1**		**P908537-01**							
Isobutyl alcohol	8/30/99	50.0	ND	67.8	mg/l	50.0-150	**136**	25.0	**8.43**	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Alcohols by GC/FID Headspace Analysis/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0990011	**Date Prepared: 9/1/99**					**Extraction Method: 3810 Headspace**				
Blank	**0990011-BLK1**									
Isobutyl alcohol	9/1/99			**ND**	mg/l	**10.0**				
LCS	**0990011-BS1**									
Isobutyl alcohol	9/1/99	50.0		53.6	mg/l	50.0-150	107			
Matrix Spike	**0990011-MS1**		**P908562-01**							
Isobutyl alcohol	9/2/99	50.0	ND	56.3	mg/l	50.0-150	**113**			
Matrix Spike Dup	**0990011-MSD1**		**P908562-01**							
Isobutyl alcohol	9/2/99	50.0	ND	55.4	mg/l	50.0-150	**111**	25.0	**1.79**	
Batch: 0990099	**Date Prepared: 9/3/99**					**Extraction Method: 3810 Headspace**				
Blank	**0990099-BLK1**									
Isobutyl alcohol	9/3/99			**ND**	mg/l	**10.0**				
LCS	**0990099-BS1**									
Isobutyl alcohol	9/3/99	50.0		53.3	mg/l	50.0-150	107			
Matrix Spike	**0990099-MS1**		**P909032-02**							
Isobutyl alcohol	9/3/99	50.0	ND	54.6	mg/l	50.0-150	**109**			
Matrix Spike Dup	**0990099-MSD1**		**P909032-02**							
Isobutyl alcohol	9/3/99	50.0	ND	51.2	mg/l	50.0-150	**102**	25.0	**6.64**	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Phenols per EPA Method 8041/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0990037	**Date Prepared: 9/2/99**					**Extraction Method: EPA 3510/600 Series**				
Blank	**0990037-BLK1**									
4-Chloro-3-methylphenol	9/10/99			**ND**	ug/l	**25.0**				
2-Chlorophenol	"			**ND**	"	**25.0**				
Cresols	"			**ND**	"	**25.0**				
2,4-Dichlorophenol	"			**ND**	"	**25.0**				
2,6-Dichlorophenol	"			**ND**	"	**25.0**				
2,4-Dimethylphenol	"			**ND**	"	**25.0**				
4,6-Dinitro-2-methylphenol	"			**ND**	"	**25.0**				
2,4-Dinitrophenol	"			**ND**	"	**62.5**				
Dinoseb	"			**ND**	"	**25.0**				
2-Nitrophenol	"			**ND**	"	**25.0**				
4-Nitrophenol	"			**ND**	"	**25.0**				
Pentachlorophenol	"			**ND**	"	**25.0**				
[illegible]nol	"			**ND**	"	**25.0**				
[illegible]4,6-Tetrachlorophenol	"			**ND**	"	**25.0**				
2,4,5-Trichlorophenol	"			**ND**	"	**25.0**				
2,4,6-Trichlorophenol	"			**ND**	"	**25.0**				
Surrogate: 2-Fluorophenol	"	*100*		*51.3*	"	*22.0-83.0*	*51.3*			
Surrogate: 2,4,6-Tribromophenol	"	*100*		*81.3*	"	*42.0-141*	*81.3*			
LCS	**0990037-BS1**									
4-Chloro-3-methylphenol	9/10/99	100		116	ug/l	23.0-97.0	116			17
2-Chlorophenol	"	100		106	"	27.0-123	106			
4-Nitrophenol	"	100		55.7	"	10.0-80.0	55.7			
Pentachlorophenol	"	100		121	"	50.0-150	121			
Phenol	"	100		50.0	"	12.0-110	50.0			
Surrogate: 2-Fluorophenol	"	*100*		*69.5*	"	*22.0-83.0*	*69.5*			
Surrogate: 2,4,6-Tribromophenol	"	*100*		*110*	"	*42.0-141*	*110*			
Matrix Spike	**0990037-MS1**		**P908562-01**							
4-Chloro-3-methylphenol	9/10/99	200	ND	146	ug/l	23.0-97.0	**73.0**			
2-Chlorophenol	"	200	ND	138	"	27.0-123	**69.0**			
4-Nitrophenol	"	200	ND	75.5	"	10.0-80.0	**37.8**			12
Pentachlorophenol	"	200	ND	161	"	50.0-150	**80.5**			
Phenol	"	200	ND	69.0	"	12.0-110	**34.5**			12
Surrogate: 2-Fluorophenol	*9/12/99*	*200*		*90.5*	"	*22.0-83.0*	*45.3*			*12*
Surrogate: 2,4,6-Tribromophenol	*9/10/99*	*200*		*143*	"	*42.0-141*	*71.5*			

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Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Phenols per EPA Method 8041/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike Dup	0990037-MSD1		P908562-01							
4-Chloro-3-methylphenol	9/11/99	200	ND	170	ug/l	23.0-97.0	**85.0**	50.0	**15.2**	
2-Chlorophenol	"	200	ND	158	"	27.0-123	**79.0**	50.0	**13.5**	
4-Nitrophenol	"	200	ND	96.8	"	10.0-80.0	**48.4**	50.0	**24.6**	
Pentachlorophenol	"	200	ND	222	"	50.0-150	**111**	50.0	**31.9**	
Phenol	"	200	ND	78.0	"	12.0-110	**39.0**	50.0	**12.2**	12
Surrogate: 2-Fluorophenol	"	*200*		*98.8*	"	*22.0-83.0*	*49.4*			
Surrogate: 2,4,6-Tribromophenol	"	*200*		*190*	"	*42.0-141*	*95.0*			
Batch: 0990206	**Date Prepared: 9/8/99**					**Extraction Method: EPA 3580**				
Blank	0990206-BLK1									
4-Chloro-3-methylphenol	9/9/99			**ND**	ug/l	1000				
2-Chlorophenol	"			**ND**	"	1000				
Cresols	"			**ND**	"	1000				
2,4-Dichlorophenol	"			**ND**	"	1000				
2,6-Dichlorophenol	"			**ND**	"	1000				
2,4-Dimethylphenol	"			**ND**	"	1000				
4,6-Dinitro-2-methylphenol	"			**ND**	"	1000				
2,4-Dinitrophenol	"			**ND**	"	2500				
Dinoseb	"			**ND**	"	1000				
2-Nitrophenol	"			**ND**	"	1000				
4-Nitrophenol	"			**ND**	"	1000				
Pentachlorophenol	"			**ND**	"	1000				
Phenol	"			**ND**	"	1000				
2,3,4,6-Tetrachlorophenol	"			**ND**	"	1000				
2,4,5-Trichlorophenol	"			**ND**	"	1000				
2,4,6-Trichlorophenol	"			**ND**	"	1000				
Surrogate: 2-Fluorophenol	"	*5000000*		*5280000*	"	*22.0-83.0*	*106*			*13*
Surrogate: 2,4,6-Tribromophenol	"	*5000000*		*4650000*	"	*42.0-141*	*93.0*			
LCS	0990206-BS1									
4-Chloro-3-methylphenol	9/9/99	5000000		5150000	ug/l	23.0-97.0	103			18
2-Chlorophenol	"	5000000		5100000	"	27.0-123	102			
4-Nitrophenol	"	5000000		4790000	"	10.0-80.0	95.8			18
Pentachlorophenol	"	5000000		3960000	"	50.0-150	79.2			
Phenol	"	5000000		5330000	"	12.0-110	107			
Surrogate: 2-Fluorophenol	"	*5000000*		*5270000*	"	*22.0-83.0*	*105*			*13*
Surrogate: 2,4,6-Tribromophenol	"	*5000000*		*5100000*	"	*42.0-141*	*102*			

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Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Phenols per EPA Method 8041/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike	0990206-MS1		P909001-01							
4-Chloro-3-methylphenol	9/9/99	5000000	ND	5070000	ug/l	23.0-97.0	**101**			18
2-Chlorophenol	"	5000000	ND	4970000	"	27.0-123	**99.4**			
4-Nitrophenol	"	5000000	ND	4650000	"	10.0-80.0	**93.0**			18
Pentachlorophenol	"	5000000	ND	3160000	"	50.0-150	**63.2**			
Phenol	"	5000000	ND	5030000	"	12.0-110	**101**			
Surrogate: 2-Fluorophenol	"	*5000000*		*5280000*	"	*22.0-83.0*	*106*			*13*
Surrogate: 2,4,6-Tribromophenol	"	*5000000*		*5180000*	"	*42.0-141*	*104*			
Matrix Spike Dup	0990206-MSD1		P909001-01							
4-Chloro-3-methylphenol	9/9/99	5000000	ND	5670000	ug/l	23.0-97.0	**113**	50.0	**11.2**	18
2-Chlorophenol	"	5000000	ND	5440000	"	27.0-123	**109**	50.0	**9.21**	
4-Nitrophenol	"	5000000	ND	5090000	"	10.0-80.0	**102**	50.0	**9.23**	18
Pentachlorophenol	"	5000000	ND	3350000	"	50.0-150	**67.0**	50.0	**5.84**	
[illegible]ol	"	5000000	ND	5560000	"	12.0-110	**111**	50.0	**9.43**	19
[illegible]rogate: 2-Fluorophenol	"	*5000000*		*5170000*	"	*22.0-83.0*	*103*			*13*
Surrogate: 2,4,6-Tribromophenol	"	*5000000*		*5030000*	"	*42.0-141*	*101*			

Batch: 0990228	**Date Prepared: 9/8/99**			**Extraction Method: EPA 3510/600 Series**	
Blank	0990228-BLK1				
4-Chloro-3-methylphenol	9/13/99	**ND**	ug/l	**25.0**	
2-Chlorophenol	"	**ND**	"	**25.0**	
Cresols	"	**ND**	"	**25.0**	
2,4-Dichlorophenol	"	**ND**	"	**25.0**	
2,6-Dichlorophenol	"	**ND**	"	**25.0**	
2,4-Dimethylphenol	"	**ND**	"	**25.0**	
4,6-Dinitro-2-methylphenol	"	**ND**	"	**25.0**	
2,4-Dinitrophenol	"	**ND**	"	**62.5**	
Dinoseb	"	**ND**	"	**25.0**	
2-Nitrophenol	"	**ND**	"	**25.0**	
4-Nitrophenol	"	**ND**	"	**25.0**	
Pentachlorophenol	"	**ND**	"	**25.0**	
Phenol	"	**ND**	"	**25.0**	
2,3,4,6-Tetrachlorophenol	"	**ND**	"	**25.0**	
2,4,5-Trichlorophenol	"	**ND**	"	**25.0**	
2,4,6-Trichlorophenol	"	**ND**	"	**25.0**	
Surrogate: 2-Fluorophenol	"	*200*	*106*	"	*22.0-83.0*	*53.0*		
Surrogate: 2,4,6-Tribromophenol	"	*200*	*170*	"	*42.0-141*	*85.0*		*20*

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Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Phenols per EPA Method 8041/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike	0990228-MS1		P909032-03							
4-Chloro-3-methylphenol	9/14/99	189	ND	136	ug/l	23.0-97.0	**72.0**			
2-Chlorophenol	"	189	ND	132	"	27.0-123	**69.8**			
4-Nitrophenol	"	189	ND	63.1	"	10.0-80.0	**33.4**			
Pentachlorophenol	"	189	ND	156	"	50.0-150	**82.5**			
Phenol	"	189	ND	57.0	"	12.0-110	**30.2**			
Surrogate: 2-Fluorophenol	"	*189*		*96.3*	"	*22.0-83.0*	*51.0*			
Surrogate: 2,4,6-Tribromophenol	"	*189*		*152*	"	*42.0-141*	*80.4*			
Matrix Spike Dup	0990228-MSD1		P909032-03							
4-Chloro-3-methylphenol	9/14/99	189	ND	196	ug/l	23.0-97.0	**104**	50.0	**36.4**	17
2-Chlorophenol	"	189	ND	124	"	27.0-123	**65.6**	50.0	**6.20**	
4-Nitrophenol	"	189	ND	97.9	"	10.0-80.0	**51.8**	50.0	**43.2**	
Pentachlorophenol	"	189	ND	255	"	50.0-150	**135**	50.0	**48.3**	
Phenol	"	189	ND	55.4	"	12.0-110	**29.3**	50.0	**3.03**	
Surrogate: 2-Fluorophenol	"	*189*		*63.0*	"	*22.0-83.0*	*33.3*			
Surrogate: 2,4,6-Tribromophenol	"	*189*		*240*	"	*42.0-141*	*127*			

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URS Greiner Woodward Clyde	Project: RPAC	Sampled:	8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number: Multiple Project Numbers	Received:	8/27/99 to 9/2/99
Portland, OR 97201	Project Manager: Karen Schadler	Reported:	10/4/99 09:25

Chlorinated Herbicides per EPA Method 8151A/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0990408	**Date Prepared: 9/2/99**					**Extraction Method: GC Semivolatiles**				
Blank	**0990408-BLK1**									
2,4-D	9/15/99			**ND**	ug/l	**1.00**				
2,4-DB	"			**ND**	"	**4.00**				
2,4,5-T	"			**ND**	"	**1.00**				
2,4,5-TP (Silvex)	"			**ND**	"	**1.00**				
Bromoxynil	"			**ND**	"	**2.00**				
Dalapon	"			**ND**	"	**10.0**				
Dicamba	"			**ND**	"	**1.00**				
Dichlorprop	"			**ND**	"	**1.00**				
Dinoseb	"			**ND**	"	**2.00**				
MCPA	"			**ND**	"	**200**				
MCPP	"			**ND**	"	**200**				
Surrogate: 2,4-DCAA	"	*0.556*		*0.114*	"	*24.0-135*	*20.5*			*21*
LCS	**0990408-BS1**									
2,4-D	9/17/99	1.11		1.11	ug/l	34.0-136	100			
2,4,5-TP (Silvex)	"	1.11		1.00	"	30.0-120	90.1			
Surrogate: 2,4-DCAA	"	*0.556*		*0.750*	"	*24.0-135*	*135*			
LCS	**0990408-BS2**									
Bromoxynil	9/15/99	1.11		1.37	ug/l	70.0-130	123			
Surrogate: 2,4-DCAA	"	*0.556*		*0.780*	"	*24.0-135*	*140*			*22*
LCS Dup	**0990408-BSD2**									
Bromoxynil	9/15/99	1.11		1.09	ug/l	50.0-150	98.2	50.0	22.4	
Surrogate: 2,4-DCAA	"	*0.556*		*0.546*	"	*24.0-135*	*98.2*			
Matrix Spike	**0990408-MS1**		**P908562-01**							
2,4-D	9/16/99	1.27	ND	3.03	ug/l	34.0-136	**239**			23
2,4,5-TP (Silvex)	"	1.27	ND	1.12	"	34.0-123	**88.2**			
Surrogate: 2,4-DCAA	"	*0.633*		*0.828*	"	*24.0-135*	*131*			
Matrix Spike Dup	**0990408-MSD1**		**P908562-01**							
2,4-D	9/16/99	1.54	ND	2.92	ug/l	34.0-136	**190**	50.0	**22.8**	23
2,4,5-TP (Silvex)	"	1.54	ND	1.63	"	34.0-123	**106**	50.0	**18.3**	23
Surrogate: 2,4-DCAA	"	*0.769*		*1.52*	"	*24.0-135*	*198*			*2*

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Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Chlorinated Herbicides per EPA Method 8151A/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0990409	**Date Prepared: 9/7/99**					**Extraction Method: GC Semivolatiles**				
Blank	**0990409-BLK1**									
2,4-D	9/17/99			**ND**	ug/l	**1.00**				
2,4-DB	"			**ND**	"	**4.00**				
2,4,5-T	"			**ND**	"	**1.00**				
2,4,5-TP (Silvex)	"			**ND**	"	**1.00**				
Bromoxynil	"			**ND**	"	**2.00**				
Dalapon	"			**ND**	"	**10.0**				
Dicamba	"			**ND**	"	**1.00**				
Dichlorprop	"			**ND**	"	**1.00**				
Dinoseb	"			**ND**	"	**2.00**				
MCPA	"			**ND**	"	**200**				
MCPP	"			**ND**	"	**200**				
Surrogate: 2,4-DCAA	"	*0.556*		*0.0700*	"	*24.0-135*	*12.6*			
LCS	**0990409-BS1**									
2,4-D	9/17/99	1.11		0.724	ug/l	34.0-136	65.2			
2,4,5-TP (Silvex)	"	1.11		0.942	"	30.0-120	84.9			
Surrogate: 2,4-DCAA	"	*0.556*		*0.786*	"	*24.0-135*	*141*			*22*
LCS	**0990409-BS2**									
Bromoxynil	9/17/99	1.11		1.28	ug/l	50.0-150	115			
Surrogate: 2,4-DCAA	"	*0.556*		*0.592*	"	*24.0-135*	*106*			
LCS Dup	**0990409-BSD2**									
Bromoxynil	9/17/99	1.11		1.41	ug/l	50.0-150	127	50.0	9.92	
Surrogate: 2,4-DCAA	"	*0.556*		*0.624*	"	*24.0-135*	*112*			
Matrix Spike	**0990409-MS1**		**P909032-02**							
2,4-D	9/18/99	1.11	ND	0.281	ug/l	34.0-136	**25.3**			23
2,4,5-TP (Silvex)	9/17/99	1.11	ND	0.573	"	34.0-123	**51.6**			
Surrogate: 2,4-DCAA	"	*0.556*		*0.703*	"	*24.0-135*	*126*			
Matrix Spike Dup	**0990409-MSD1**		**P909032-02**							
2,4-D	9/17/99	1.11	ND	0.657	ug/l	34.0-136	**59.2**	50.0	**80.2**	24
2,4,5-TP (Silvex)	"	1.11	ND	0.440	"	34.0-123	**39.6**	50.0	**26.3**	
Surrogate: 2,4-DCAA	"	*0.556*		*0.603*	"	*24.0-135*	*108*			

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Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0890753	**Date Prepared: 8/27/99**					**Extraction Method: EPA 5030**				
Blank	**0890753-BLK1**									
Acetone	8/27/99			ND	ug/l	25.0				
Benzene	"			ND	"	1.00				
Bromobenzene	"			ND	"	1.00				
Bromochloromethane	"			ND	"	1.00				
Bromodichloromethane	"			ND	"	1.00				
Bromoform	"			ND	"	1.00				
Bromomethane	"			ND	"	10.0				
2-Butanone	"			ND	"	25.0				
n-Butylbenzene	"			ND	"	1.00				
sec-Butylbenzene	"			ND	"	1.00				
tert-Butylbenzene	"			ND	"	1.00				
Carbon disulfide	"			ND	"	10.0				
[illegible]n tetrachloride	"			ND	"	2.00				
[illegible]robenzene	"			ND	"	1.00				
Chloroethane	"			ND	"	2.00				
Chloroform	"			ND	"	1.00				
Chloromethane	"			ND	"	5.00				
2-Chlorotoluene	"			ND	"	1.00				
4-Chlorotoluene	"			ND	"	1.00				
1,2-Dibromo-3-chloropropane	"			ND	"	1.00				
Dibromochloromethane	"			ND	"	1.00				
1,2-Dibromoethane	"			ND	"	1.00				
Dibromomethane	"			ND	"	1.00				
1,2-Dichlorobenzene	"			ND	"	1.00				
1,3-Dichlorobenzene	"			ND	"	1.00				
1,4-Dichlorobenzene	"			ND	"	1.00				
Dichlorodifluoromethane	"			ND	"	5.00				
1,1-Dichloroethane	"			ND	"	1.00				
1,2-Dichloroethane	"			ND	"	1.00				
1,1-Dichloroethene	"			ND	"	1.00				
cis-1,2-Dichloroethene	"			ND	"	1.00				
trans-1,2-Dichloroethene	"			ND	"	1.00				
1,2-Dichloropropane	"			ND	"	1.00				
1,3-Dichloropropane	"			ND	"	1.00				
2,2-Dichloropropane	"			ND	"	1.00				
1,1-Dichloropropene	"			ND	"	1.00				
cis-1,3-Dichloropropene	"			ND	"	1.00				

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	0890753-BLK1									
trans-1,3-Dichloropropene	8/27/99			ND	ug/l	1.00				
Ethylbenzene	"			ND	"	1.00				
Hexachlorobutadiene	"			ND	"	2.00				
2-Hexanone	"			ND	"	10.0				
Isopropylbenzene	"			ND	"	1.00				
p-Isopropyltoluene	"			ND	"	1.00				
4-Methyl-2-pentanone	"			ND	"	5.00				
Methylene chloride	"			ND	"	5.00				
Naphthalene	"			ND	"	1.00				
n-Propylbenzene	"			ND	"	1.00				
Styrene	"			ND	"	1.00				
1,1,1,2-Tetrachloroethane	"			ND	"	1.00				
1,1,2,2-Tetrachloroethane	"			ND	"	1.00				
Tetrachloroethene	"			ND	"	1.00				
Toluene	"			ND	"	1.00				
1,2,3-Trichlorobenzene	"			ND	"	1.00				
1,2,4-Trichlorobenzene	"			ND	"	1.00				
1,1,1-Trichloroethane	"			ND	"	1.00				
1,1,2-Trichloroethane	"			ND	"	1.00				
Trichloroethene	"			ND	"	1.00				
Trichlorofluoromethane	"			ND	"	1.00				
1,2,3-Trichloropropane	"			ND	"	1.00				
1,2,4-Trimethylbenzene	"			ND	"	1.00				
1,3,5-Trimethylbenzene	"			ND	"	1.00				
Vinyl chloride	"			ND	"	1.00				
o-Xylene	"			ND	"	1.00				
m,p-Xylene	"			ND	"	2.00				
Surrogate: 4-BFB	"	*20.0*		*20.0*	"	*75.0-135*	*100*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*20.9*	"	*70.0-135*	*104*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.8*	"	*80.0-125*	*99.0*			
Surrogate: Toluene-d8	"	*20.0*		*19.5*	"	*80.0-120*	*97.5*			
LCS	0890753-BS1									
Benzene	8/27/99	20.0		19.1	ug/l	80.0-125	95.5			
Chlorobenzene	"	20.0		20.8	"	80.0-125	104			
1,1-Dichloroethene	"	20.0		20.9	"	70.0-135	104			
Toluene	"	20.0		20.5	"	80.0-125	103			
Trichloroethene	"	20.0		18.6	"	70.0-130	93.0			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS (continued)	**0890753-BS1**									
Surrogate: 4-BFB	*8/27/99*	*20.0*		*19.8*	*ug/l*	*75.0-135*	*99.0*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*20.6*	"	*70.0-135*	*103*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.2*	"	*80.0-125*	*96.0*			
Surrogate: Toluene-d8	"	*20.0*		*20.9*	"	*80.0-120*	*104*			
LCS Dup	**0890753-BSD1**									
Benzene	8/27/99	20.0		19.0	ug/l	80.0-125	95.0	25.0	0.525	
Chlorobenzene	"	20.0		20.6	"	80.0-125	103	25.0	0.966	
1,1-Dichloroethene	"	20.0		20.2	"	70.0-135	101	25.0	2.93	
Toluene	"	20.0		19.8	"	80.0-125	99.0	25.0	3.96	
Trichloroethene	"	20.0		18.0	"	70.0-130	90.0	25.0	3.28	
Surrogate: 4-BFB	"	*20.0*		*20.1*	"	*75.0-135*	*101*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*20.0*	"	*70.0-135*	*100*			
Surrogate: Dibromofluoromethane	"	*20.0*		*18.7*	"	*80.0-125*	*93.5*			
Surrogate: Toluene-d8	"	*20.0*		*20.0*	"	*80.0-120*	*100*			
Matrix Spike	**0890753-MS1**		**P908517-01**							
Benzene	8/27/99	20.0	ND	20.5	ug/l	80.0-125	**103**			
Chlorobenzene	"	20.0	ND	20.6	"	80.0-125	**103**			
1,1-Dichloroethene	"	20.0	ND	20.8	"	70.0-135	**104**			
Toluene	"	20.0	ND	23.1	"	80.0-125	**116**			
Trichloroethene	"	20.0	ND	19.2	"	70.0-130	**96.0**			
Surrogate: 4-BFB	"	*20.0*		*19.7*	"	*75.0-135*	*98.5*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*20.1*	"	*70.0-135*	*101*			
Surrogate: Dibromofluoromethane	"	*20.0*		*20.9*	"	*80.0-125*	*104*			
Surrogate: Toluene-d8	"	*20.0*		*20.2*	"	*80.0-120*	*101*			
Matrix Spike Dup	**0890753-MSD1**		**P908517-01**							
Benzene	8/27/99	20.0	ND	20.4	ug/l	80.0-125	**102**	25.0	**0.976**	
Chlorobenzene	"	20.0	ND	20.5	"	80.0-125	**103**	25.0	**0**	
1,1-Dichloroethene	"	20.0	ND	20.1	"	70.0-135	**101**	25.0	**2.93**	
Toluene	"	20.0	ND	21.7	"	80.0-125	**109**	25.0	**6.22**	
Trichloroethene	"	20.0	ND	19.5	"	70.0-130	**97.5**	25.0	**1.55**	
Surrogate: 4-BFB	"	*20.0*		*19.9*	"	*75.0-135*	*99.5*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*20.2*	"	*70.0-135*	*101*			
Surrogate: Dibromofluoromethane	"	*20.0*		*20.1*	"	*80.0-125*	*101*			
Surrogate: Toluene-d8	"	*20.0*		*20.8*	"	*80.0-120*	*104*			

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**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0990008	**Date Prepared: 9/1/99**				**Extraction Method: EPA 5030**					
Blank	**0990008-BLK1**									
Acetone	9/1/99			ND	ug/l	25.0				
Benzene	"			ND	"	1.00				
Bromobenzene	"			ND	"	1.00				
Bromochloromethane	"			ND	"	1.00				
Bromodichloromethane	"			ND	"	1.00				
Bromoform	"			ND	"	1.00				
Bromomethane	"			ND	"	10.0				
2-Butanone	"			ND	"	25.0				
n-Butylbenzene	"			ND	"	1.00				
sec-Butylbenzene	"			ND	"	1.00				
tert-Butylbenzene	"			ND	"	1.00				
Carbon disulfide	"			ND	"	10.0				
Carbon tetrachloride	"			ND	"	2.00				
Chlorobenzene	"			ND	"	1.00				
Chloroethane	"			ND	"	2.00				
Chloroform	"			ND	"	1.00				
Chloromethane	"			ND	"	5.00				
2-Chlorotoluene	"			ND	"	1.00				
4-Chlorotoluene	"			ND	"	1.00				
1,2-Dibromo-3-chloropropane	"			ND	"	1.00				
Dibromochloromethane	"			ND	"	1.00				
1,2-Dibromoethane	"			ND	"	1.00				
Dibromomethane	"			ND	"	1.00				
1,2-Dichlorobenzene	"			ND	"	1.00				
1,3-Dichlorobenzene	"			ND	"	1.00				
1,4-Dichlorobenzene	"			ND	"	1.00				
Dichlorodifluoromethane	"			ND	"	5.00				
1,1-Dichloroethane	"			ND	"	1.00				
1,2-Dichloroethane	"			ND	"	1.00				
1,1-Dichloroethene	"			ND	"	1.00				
cis-1,2-Dichloroethene	"			ND	"	1.00				
trans-1,2-Dichloroethene	"			ND	"	1.00				
1,2-Dichloropropane	"			ND	"	1.00				
1,3-Dichloropropane	"			ND	"	1.00				
2,2-Dichloropropane	"			ND	"	1.00				
1,1-Dichloropropene	"			ND	"	1.00				
cis-1,3-Dichloropropene	"			ND	"	1.00				

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	**0990008-BLK1**									
trans-1,3-Dichloropropene	9/1/99			ND	ug/l	1.00				
Ethylbenzene	"			ND	"	1.00				
Hexachlorobutadiene	"			ND	"	2.00				
2-Hexanone	"			ND	"	10.0				
Isopropylbenzene	"			ND	"	1.00				
p-Isopropyltoluene	"			ND	"	1.00				
4-Methyl-2-pentanone	"			ND	"	5.00				
Methylene chloride	"			ND	"	5.00				
Naphthalene	"			ND	"	1.00				
n-Propylbenzene	"			ND	"	1.00				
Styrene	"			ND	"	1.00				
1,1,1,2-Tetrachloroethane	"			ND	"	1.00				
1,1,2,2-Tetrachloroethane	"			ND	"	1.00				
[illegible]chloroethene	"			ND	"	1.00				
[illegible]ene	"			ND	"	1.00				
1,2,3-Trichlorobenzene	"			ND	"	1.00				
1,2,4-Trichlorobenzene	"			ND	"	1.00				
1,1,1-Trichloroethane	"			ND	"	1.00				
1,1,2-Trichloroethane	"			ND	"	1.00				
Trichloroethene	"			ND	"	1.00				
Trichlorofluoromethane	"			ND	"	1.00				
1,2,3-Trichloropropane	"			ND	"	1.00				
1,2,4-Trimethylbenzene	"			ND	"	1.00				
1,3,5-Trimethylbenzene	"			ND	"	1.00				
Vinyl chloride	"			ND	"	1.00				
o-Xylene	"			ND	"	1.00				
m,p-Xylene	"			ND	"	2.00				
Surrogate: 4-BFB	"	*20.0*		*21.0*	"	*75.0-135*	*105*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*21.0*	"	*70.0-135*	*105*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.7*	"	*80.0-125*	*98.5*			
Surrogate: Toluene-d8	"	*20.0*		*20.4*	"	*80.0-120*	*102*			
LCS	**0990008-BS1**									
Benzene	9/1/99	20.0		20.2	ug/l	80.0-125	101			
Chlorobenzene	"	20.0		20.6	"	80.0-125	103			
1,1-Dichloroethene	"	20.0		21.2	"	70.0-135	106			
Toluene	"	20.0		19.9	"	80.0-125	99.5			
Trichloroethene	"	20.0		19.4	"	70.0-130	97.0			

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111 SW Columbia, Suite 900	Project Number: Multiple Project Numbers	Received:	8/27/99 to 9/2/99
Portland, OR 97201	Project Manager: Karen Schadler	Reported:	10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS (continued)	0990008-BS1									
Surrogate: 4-BFB	*9/1/99*	*20.0*		*20.3*	*ug/l*	*75.0-135*	*101*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*21.1*	"	*70.0-135*	*106*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.8*	"	*80.0-125*	*99.0*			
Surrogate: Toluene-d8	"	*20.0*		*20.9*	"	*80.0-120*	*104*			
LCS Dup	0990008-BSD1									
Benzene	9/1/99	20.0		19.9	ug/l	80.0-125	99.5	25.0	1.50	
Chlorobenzene	"	20.0		20.6	"	80.0-125	103	25.0	0	
1,1-Dichloroethene	"	20.0		22.0	"	70.0-135	110	25.0	3.70	
Toluene	"	20.0		20.6	"	80.0-125	103	25.0	3.46	
Trichloroethene	"	20.0		18.8	"	70.0-130	94.0	25.0	3.14	
Surrogate: 4-BFB	"	*20.0*		*21.1*	"	*75.0-135*	*106*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*21.1*	"	*70.0-135*	*106*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.9*	"	*80.0-125*	*99.5*			
Surrogate: Toluene-d8	"	*20.0*		*19.3*	"	*80.0-120*	*96.5*			
Matrix Spike	0990008-MS1		P908562-01							
Benzene	9/1/99	100	ND	100	ug/l	80.0-125	**100**			
Chlorobenzene	"	100	ND	104	"	80.0-125	**104**			
1,1-Dichloroethene	"	100	ND	97.5	"	70.0-135	**97.5**			
Toluene	"	100	ND	103	"	80.0-125	**103**			
Trichloroethene	"	100	ND	95.1	"	70.0-130	**95.1**			
Surrogate: 4-BFB	"	*20.0*		*21.8*	"	*75.0-135*	*109*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*21.1*	"	*70.0-135*	*106*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.9*	"	*80.0-125*	*99.5*			
Surrogate: Toluene-d8	"	*20.0*		*20.3*	"	*80.0-120*	*101*			
Matrix Spike	0990008-MS2		P908562-01							
Benzene	9/9/99	20.0	ND	20.4	ug/l	80.0-125	**102**			
Chlorobenzene	"	20.0	ND	21.4	"	80.0-125	**107**			
1,1-Dichloroethene	"	20.0	ND	21.5	"	70.0-135	**108**			
Toluene	"	20.0	ND	21.2	"	80.0-125	**106**			
Trichloroethene	"	20.0	ND	20.5	"	70.0-130	**103**			
Surrogate: 4-BFB	"	*20.0*		*21.3*	"	*75.0-135*	*106*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*20.1*	"	*70.0-135*	*101*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.2*	"	*80.0-125*	*96.0*			
Surrogate: Toluene-d8	"	*20.0*		*19.9*	"	*80.0-120*	*99.5*			

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike Dup	**0990008-MSD1**		**P908562-01**							
Benzene	9/1/99	100	ND	101	ug/l	80.0-125	101	25.0	0.995	
Chlorobenzene	"	100	ND	101	"	80.0-125	101	25.0	2.93	
1,1-Dichloroethene	"	100	ND	107	"	70.0-135	107	25.0	9.29	
Toluene	"	100	ND	101	"	80.0-125	101	25.0	1.96	
Trichloroethene	"	100	ND	95.3	"	70.0-130	95.3	25.0	0.210	
Surrogate: 4-BFB	"	*20.0*		*20.5*	"	*75.0-135*	*103*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*21.7*	"	*70.0-135*	*109*			
Surrogate: Dibromofluoromethane	"	*20.0*		*20.6*	"	*80.0-125*	*103*			
Surrogate: Toluene-d8	"	*20.0*		*19.6*	"	*80.0-120*	*98.0*			
Matrix Spike Dup	**0990008-MSD2**		**P908562-01**							
Benzene	9/9/99	20.0	ND	22.8	ug/l	80.0-125	114	25.0	11.1	
Chlorobenzene	"	20.0	ND	22.4	"	80.0-125	112	25.0	4.57	
[illegible]ichloroethene	"	20.0	ND	22.9	"	70.0-135	114	25.0	5.41	
[illegible]ene	"	20.0	ND	22.1	"	80.0-125	111	25.0	4.61	
Trichloroethene	"	20.0	ND	22.7	"	70.0-130	114	25.0	10.1	
Surrogate: 4-BFB	"	*20.0*		*21.9*	"	*75.0-135*	*109*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*21.5*	"	*70.0-135*	*108*			
Surrogate: Dibromofluoromethane	"	*20.0*		*21.6*	"	*80.0-125*	*108*			
Surrogate: Toluene-d8	"	*20.0*		*20.4*	"	*80.0-120*	*102*			

Batch: 0990049	**Date Prepared: 9/2/99**		**Extraction Method: EPA 5030**	
Blank	**0990049-BLK1**			
Acetone	9/2/99	**ND**	ug/l	**25.0**
Benzene	"	**ND**	"	**1.00**
Bromobenzene	"	**ND**	"	**1.00**
Bromochloromethane	"	**ND**	"	**1.00**
Bromodichloromethane	"	**ND**	"	**1.00**
Bromoform	"	**ND**	"	**1.00**
Bromomethane	"	**ND**	"	**10.0**
2-Butanone	"	**ND**	"	**25.0**
n-Butylbenzene	"	**ND**	"	**1.00**
sec-Butylbenzene	"	**ND**	"	**1.00**
tert-Butylbenzene	"	**ND**	"	**1.00**
Carbon disulfide	"	**ND**	"	**10.0**
Carbon tetrachloride	"	**ND**	"	**2.00**
Chlorobenzene	"	**ND**	"	**1.00**
Chloroethane	"	**ND**	"	**2.00**

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	**0990049-BLK1**									
Chloroform	9/2/99			**ND**	ug/l	**1.00**				
Chloromethane	"			**ND**	"	**5.00**				
2-Chlorotoluene	"			**ND**	"	**1.00**				
4-Chlorotoluene	"			**ND**	"	**1.00**				
1,2-Dibromo-3-chloropropane	"			**ND**	"	**1.00**				
Dibromochloromethane	"			**ND**	"	**1.00**				
1,2-Dibromoethane	"			**ND**	"	**1.00**				
Dibromomethane	"			**ND**	"	**1.00**				
1,2-Dichlorobenzene	"			**ND**	"	**1.00**				
1,3-Dichlorobenzene	"			**ND**	"	**1.00**				
1,4-Dichlorobenzene	"			**ND**	"	**1.00**				
Dichlorodifluoromethane	"			**ND**	"	**5.00**				
1,1-Dichloroethane	"			**ND**	"	**1.00**				
1,2-Dichloroethane	"			**ND**	"	**1.00**				
1,1-Dichloroethene	"			**ND**	"	**1.00**				
cis-1,2-Dichloroethene	"			**ND**	"	**1.00**				
trans-1,2-Dichloroethene	"			**ND**	"	**1.00**				
1,2-Dichloropropane	"			**ND**	"	**1.00**				
1,3-Dichloropropane	"			**ND**	"	**1.00**				
2,2-Dichloropropane	"			**ND**	"	**1.00**				
1,1-Dichloropropene	"			**ND**	"	**1.00**				
cis-1,3-Dichloropropene	"			**ND**	"	**1.00**				
trans-1,3-Dichloropropene	"			**ND**	"	**1.00**				
Ethylbenzene	"			**ND**	"	**1.00**				
Hexachlorobutadiene	"			**ND**	"	**2.00**				
2-Hexanone	"			**ND**	"	**10.0**				
Isopropylbenzene	"			**ND**	"	**1.00**				
p-Isopropyltoluene	"			**ND**	"	**1.00**				
4-Methyl-2-pentanone	"			**ND**	"	**5.00**				
Methylene chloride	"			**ND**	"	**5.00**				
Naphthalene	"			**ND**	"	**1.00**				
n-Propylbenzene	"			**ND**	"	**1.00**				
Styrene	"			**ND**	"	**1.00**				
1,1,1,2-Tetrachloroethane	"			**ND**	"	**1.00**				
1,1,2,2-Tetrachloroethane	"			**ND**	"	**1.00**				
Tetrachloroethene	"			**ND**	"	**1.00**				
Toluene	"			**ND**	"	**1.00**				
1,2,3-Trichlorobenzene	"			**ND**	"	**1.00**				

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URS Greiner Woodward Clyde	Project: RPAC	Sampled:	8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number: Multiple Project Numbers	Received:	8/27/99 to 9/2/99
Portland, OR 97201	Project Manager: Karen Schadler	Reported:	10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	**0990049-BLK1**									
1,2,4-Trichlorobenzene	9/2/99			ND	ug/l	1.00				
1,1,1-Trichloroethane	"			ND	"	1.00				
1,1,2-Trichloroethane	"			ND	"	1.00				
Trichloroethene	"			ND	"	1.00				
Trichlorofluoromethane	"			ND	"	1.00				
1,2,3-Trichloropropane	"			ND	"	1.00				
1,2,4-Trimethylbenzene	"			ND	"	1.00				
1,3,5-Trimethylbenzene	"			ND	"	1.00				
Vinyl chloride	"			ND	"	1.00				
o-Xylene	"			ND	"	1.00				
m,p-Xylene	"			ND	"	2.00				
Surrogate: 4-BFB	"	*20.0*		*21.6*	"	*75.0-135*	*108*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*21.4*	"	*70.0-135*	*107*			
Surrogate: Dibromofluoromethane	"	*20.0*		*20.6*	"	*80.0-125*	*103*			
Surrogate: Toluene-d8	"	*20.0*		*20.2*	"	*80.0-120*	*101*			
LCS	**0990049-BS1**									
Benzene	9/2/99	20.0		20.3	ug/l	80.0-125	101			
Chlorobenzene	"	20.0		19.7	"	80.0-125	98.5			
1,1-Dichloroethene	"	20.0		22.4	"	70.0-135	112			
Toluene	"	20.0		19.2	"	80.0-125	96.0			
Trichloroethene	"	20.0		19.1	"	70.0-130	95.5			
Surrogate: 4-BFB	"	*20.0*		*20.8*	"	*75.0-135*	*104*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*22.1*	"	*70.0-135*	*111*			
Surrogate: Dibromofluoromethane	"	*20.0*		*21.1*	"	*80.0-125*	*106*			
Surrogate: Toluene-d8	"	*20.0*		*20.0*	"	*80.0-120*	*100*			
LCS Dup	**0990049-BSD1**									
Benzene	9/2/99	20.0		20.3	ug/l	80.0-125	101	25.0	0	
Chlorobenzene	"	20.0		20.9	"	80.0-125	104	25.0	5.43	
1,1-Dichloroethene	"	20.0		20.3	"	70.0-135	101	25.0	10.3	
Toluene	"	20.0		20.3	"	80.0-125	101	25.0	5.08	
Trichloroethene	"	20.0		19.0	"	70.0-130	95.0	25.0	0.525	
Surrogate: 4-BFB	"	*20.0*		*21.9*	"	*75.0-135*	*109*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*20.6*	"	*70.0-135*	*103*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.7*	"	*80.0-125*	*98.5*			
Surrogate: Toluene-d8	"	*20.0*		*20.4*	"	*80.0-120*	*102*			

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**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike	**0990049-MS1**		**P909001-02**							
Benzene	9/2/99	20.0	ND	21.2	ug/l	80.0-125	**106**			
Chlorobenzene	"	20.0	ND	20.6	"	80.0-125	**103**			
1,1-Dichloroethene	"	20.0	ND	21.6	"	70.0-135	**108**			
Toluene	"	20.0	1.15	21.7	"	80.0-125	**103**			
Trichloroethene	"	20.0	ND	19.7	"	70.0-130	**98.5**			
Surrogate: 4-BFB	"	*20.0*		*21.5*	"	*75.0-135*	*108*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*21.2*	"	*70.0-135*	*106*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.6*	"	*80.0-125*	*98.0*			
Surrogate: Toluene-d8	"	*20.0*		*19.4*	"	*80.0-120*	*97.0*			
Matrix Spike Dup	**0990049-MSD1**		**P909001-02**							
Benzene	9/2/99	20.0	ND	20.4	ug/l	80.0-125	**102**	25.0	**3.85**	
Chlorobenzene	"	20.0	ND	20.3	"	80.0-125	**101**	25.0	**1.96**	
1,1-Dichloroethene	"	20.0	ND	20.1	"	70.0-135	**101**	25.0	**6.70**	
Toluene	"	20.0	1.15	21.2	"	80.0-125	**100**	25.0	**2.96**	
Trichloroethene	"	20.0	ND	18.6	"	70.0-130	**93.0**	25.0	**5.74**	
Surrogate: 4-BFB	"	*20.0*		*21.5*	"	*75.0-135*	*108*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*21.1*	"	*70.0-135*	*106*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.0*	"	*80.0-125*	*95.0*			
Surrogate: Toluene-d8	"	*20.0*		*20.0*	"	*80.0-120*	*100*			

Batch: 0990097	**Date Prepared: 9/3/99**		**Extraction Method: EPA 5030**	
Blank	**0990097-BLK1**			
Acetone	9/3/99	**ND**	ug/l	**25.0**
Benzene	"	**ND**	"	**1.00**
Bromobenzene	"	**ND**	"	**1.00**
Bromochloromethane	"	**ND**	"	**1.00**
Bromodichloromethane	"	**ND**	"	**1.00**
Bromoform	"	**ND**	"	**1.00**
Bromomethane	"	**ND**	"	**10.0**
2-Butanone	"	**ND**	"	**25.0**
n-Butylbenzene	"	**ND**	"	**1.00**
sec-Butylbenzene	"	**ND**	"	**1.00**
tert-Butylbenzene	"	**ND**	"	**1.00**
Carbon disulfide	"	**ND**	"	**10.0**
Carbon tetrachloride	"	**ND**	"	**2.00**
Chlorobenzene	"	**ND**	"	**1.00**
Chloroethane	"	**ND**	"	**2.00**

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	0990097-BLK1									
Chloroform	9/3/99			ND	ug/l	1.00				
Chloromethane	"			ND	"	5.00				
2-Chlorotoluene	"			ND	"	1.00				
4-Chlorotoluene	"			ND	"	1.00				
1,2-Dibromo-3-chloropropane	"			ND	"	1.00				
Dibromochloromethane	"			ND	"	1.00				
1,2-Dibromoethane	"			ND	"	1.00				
Dibromomethane	"			ND	"	1.00				
1,2-Dichlorobenzene	"			ND	"	1.00				
1,3-Dichlorobenzene	"			ND	"	1.00				
1,4-Dichlorobenzene	"			ND	"	1.00				
Dichlorodifluoromethane	"			ND	"	5.00				
1,1-Dichloroethane	"			ND	"	1.00				
[illegible]ichloroethane	"			ND	"	1.00				
1,1-Dichloroethene	"			ND	"	1.00				
cis-1,2-Dichloroethene	"			ND	"	1.00				
trans-1,2-Dichloroethene	"			ND	"	1.00				
1,2-Dichloropropane	"			ND	"	1.00				
1,3-Dichloropropane	"			ND	"	1.00				
2,2-Dichloropropane	"			ND	"	1.00				
1,1-Dichloropropene	"			ND	"	1.00				
cis-1,3-Dichloropropene	"			ND	"	1.00				
trans-1,3-Dichloropropene	"			ND	"	1.00				
Ethylbenzene	"			ND	"	1.00				
Hexachlorobutadiene	"			ND	"	2.00				
2-Hexanone	"			ND	"	10.0				
Isopropylbenzene	"			ND	"	1.00				
p-Isopropyltoluene	"			ND	"	1.00				
4-Methyl-2-pentanone	"			ND	"	5.00				
Methylene chloride	"			ND	"	5.00				
Naphthalene	"			ND	"	1.00				
n-Propylbenzene	"			ND	"	1.00				
Styrene	"			ND	"	1.00				
1,1,1,2-Tetrachloroethane	"			ND	"	1.00				
1,1,2,2-Tetrachloroethane	"			ND	"	1.00				
Tetrachloroethene	"			ND	"	1.00				
Toluene	"			ND	"	1.00				
1,2,3-Trichlorobenzene	"			ND	"	1.00				

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	0990097-BLK1									
1,2,4-Trichlorobenzene	9/3/99			**ND**	ug/l	**1.00**				
1,1,1-Trichloroethane	"			**ND**	"	**1.00**				
1,1,2-Trichloroethane	"			**ND**	"	**1.00**				
Trichloroethene	"			**ND**	"	**1.00**				
Trichlorofluoromethane	"			**ND**	"	**1.00**				
1,2,3-Trichloropropane	"			**ND**	"	**1.00**				
1,2,4-Trimethylbenzene	"			**ND**	"	**1.00**				
1,3,5-Trimethylbenzene	"			**ND**	"	**1.00**				
Vinyl chloride	"			**ND**	"	**1.00**				
o-Xylene	"			**ND**	"	**1.00**				
m,p-Xylene	"			**ND**	"	**2.00**				
Surrogate: 4-BFB	"	*20.0*		*19.4*	"	*75.0-135*	*97.0*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*20.5*	"	*70.0-135*	*103*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.4*	"	*80.0-125*	*97.0*			
Surrogate: Toluene-d8	"	*20.0*		*19.4*	"	*80.0-120*	*97.0*			
LCS	0990097-BS1									
Benzene	9/3/99	20.0		19.3	ug/l	80.0-125	96.5			
Chlorobenzene	"	20.0		20.2	"	80.0-125	101			
1,1-Dichloroethene	"	20.0		19.9	"	70.0-135	99.5			
Toluene	"	20.0		20.0	"	80.0-125	100			
Trichloroethene	"	20.0		18.7	"	70.0-130	93.5			
Surrogate: 4-BFB	"	*20.0*		*20.2*	"	*75.0-135*	*101*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*20.5*	"	*70.0-135*	*103*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.6*	"	*80.0-125*	*98.0*			
Surrogate: Toluene-d8	"	*20.0*		*20.1*	"	*80.0-120*	*101*			
LCS Dup	0990097-BSD1									
Benzene	9/3/99	20.0		19.1	ug/l	80.0-125	95.5	25.0	1.04	
Chlorobenzene	"	20.0		20.9	"	80.0-125	104	25.0	2.93	
1,1-Dichloroethene	"	20.0		20.6	"	70.0-135	103	25.0	3.46	
Toluene	"	20.0		20.1	"	80.0-125	101	25.0	0.995	
Trichloroethene	"	20.0		18.5	"	70.0-130	92.5	25.0	1.08	
Surrogate: 4-BFB	"	*20.0*		*19.8*	"	*75.0-135*	*99.0*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*20.1*	"	*70.0-135*	*101*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.3*	"	*80.0-125*	*96.5*			
Surrogate: Toluene-d8	"	*20.0*		*20.6*	"	*80.0-120*	*103*			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike	0990097-MS1		P909032-02							
Benzene	9/3/99	20.0	ND	19.3	ug/l	80.0-125	**96.5**			
Chlorobenzene	"	20.0	ND	20.8	"	80.0-125	**104**			
1,1-Dichloroethene	"	20.0	ND	20.4	"	70.0-135	**102**			
Toluene	"	20.0	6.08	26.1	"	80.0-125	**100**			
Trichloroethene	"	20.0	ND	18.1	"	70.0-130	**90.5**			
Surrogate: 4-BFB	"	*20.0*		*21.1*	"	*75.0-135*	*106*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*20.4*	"	*70.0-135*	*102*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.6*	"	*80.0-125*	*98.0*			
Surrogate: Toluene-d8	"	*20.0*		*19.8*	"	*80.0-120*	*99.0*			
Matrix Spike Dup	0990097-MSD1		P909032-02							
Benzene	9/3/99	20.0	ND	21.4	ug/l	80.0-125	**107**	25.0	**10.3**	
Chlorobenzene	"	20.0	ND	22.3	"	80.0-125	**111**	25.0	**6.51**	
1,1-Dichloroethene	"	20.0	ND	21.9	"	70.0-135	**109**	25.0	**6.64**	
Toluene	"	20.0	6.08	26.3	"	80.0-125	**101**	25.0	**0.995**	
Trichloroethene	"	20.0	ND	20.1	"	70.0-130	**101**	25.0	**11.0**	
Surrogate: 4-BFB	"	*20.0*		*20.3*	"	*75.0-135*	*101*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*20.9*	"	*70.0-135*	*104*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.1*	"	*80.0-125*	*95.5*			
Surrogate: Toluene-d8	"	*20.0*		*20.4*	"	*80.0-120*	*102*			
Batch: 0990149	Date Prepared: 9/7/99					Extraction Method: EPA 5030				
Blank	0990149-BLK1									
Acetone	9/7/99			**ND**	ug/l	**25.0**				
Benzene	"			**ND**	"	**1.00**				
Bromobenzene	"			**ND**	"	**1.00**				
Bromochloromethane	"			**ND**	"	**1.00**				
Bromodichloromethane	"			**ND**	"	**1.00**				
Bromoform	"			**ND**	"	**1.00**				
Bromomethane	"			**ND**	"	**10.0**				
2-Butanone	"			**ND**	"	**25.0**				
n-Butylbenzene	"			**ND**	"	**1.00**				
sec-Butylbenzene	"			**ND**	"	**1.00**				
tert-Butylbenzene	"			**ND**	"	**1.00**				
Carbon disulfide	"			**ND**	"	**10.0**				
Carbon tetrachloride	"			**ND**	"	**2.00**				
Chlorobenzene	"			**ND**	"	**1.00**				
Chloroethane	"			**ND**	"	**2.00**				

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	**0990149-BLK1**									
Chloroform	9/7/99			ND	ug/l	1.00				
Chloromethane	"			ND	"	5.00				
2-Chlorotoluene	"			ND	"	1.00				
4-Chlorotoluene	"			ND	"	1.00				
1,2-Dibromo-3-chloropropane	"			ND	"	1.00				
Dibromochloromethane	"			ND	"	1.00				
1,2-Dibromoethane	"			ND	"	1.00				
Dibromomethane	"			ND	"	1.00				
1,2-Dichlorobenzene	"			ND	"	1.00				
1,3-Dichlorobenzene	"			ND	"	1.00				
1,4-Dichlorobenzene	"			ND	"	1.00				
Dichlorodifluoromethane	"			ND	"	5.00				
1,1-Dichloroethane	"			ND	"	1.00				
1,2-Dichloroethane	"			ND	"	1.00				
1,1-Dichloroethene	"			ND	"	1.00				
cis-1,2-Dichloroethene	"			ND	"	1.00				
trans-1,2-Dichloroethene	"			ND	"	1.00				
1,2-Dichloropropane	"			ND	"	1.00				
1,3-Dichloropropane	"			ND	"	1.00				
2,2-Dichloropropane	"			ND	"	1.00				
1,1-Dichloropropene	"			ND	"	1.00				
cis-1,3-Dichloropropene	"			ND	"	1.00				
trans-1,3-Dichloropropene	"			ND	"	1.00				
Ethylbenzene	"			ND	"	1.00				
Hexachlorobutadiene	"			ND	"	2.00				
2-Hexanone	"			ND	"	10.0				
Isopropylbenzene	"			ND	"	1.00				
p-Isopropyltoluene	"			ND	"	1.00				
4-Methyl-2-pentanone	"			ND	"	5.00				
Methylene chloride	"			ND	"	5.00				
Naphthalene	"			ND	"	1.00				
n-Propylbenzene	"			ND	"	1.00				
Styrene	"			ND	"	1.00				
1,1,1,2-Tetrachloroethane	"			ND	"	1.00				
1,1,2,2-Tetrachloroethane	"			ND	"	1.00				
Tetrachloroethene	"			ND	"	1.00				
Toluene	"			ND	"	1.00				
1,2,3-Trichlorobenzene	"			ND	"	1.00				

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*Refer to end of report for text of notes and definitions.

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	**0990149-BLK1**									
1,2,4-Trichlorobenzene	9/7/99			**ND**	ug/l	**1.00**				
1,1,1-Trichloroethane	"			**ND**	"	**1.00**				
1,1,2-Trichloroethane	"			**ND**	"	**1.00**				
Trichloroethene	"			**ND**	"	**1.00**				
Trichlorofluoromethane	"			**ND**	"	**1.00**				
1,2,3-Trichloropropane	"			**ND**	"	**1.00**				
1,2,4-Trimethylbenzene	"			**ND**	"	**1.00**				
1,3,5-Trimethylbenzene	"			**ND**	"	**1.00**				
Vinyl chloride	"			**ND**	"	**1.00**				
o-Xylene	"			**ND**	"	**1.00**				
m,p-Xylene	"			**ND**	"	**2.00**				
Surrogate: 4-BFB	"	*20.0*		*20.3*	"	*75.0-135*	*101*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*20.3*	"	*70.0-135*	*101*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.3*	"	*80.0-125*	*96.5*			
Surrogate: Toluene-d8	"	*20.0*		*19.5*	"	*80.0-120*	*97.5*			
LCS	**0990149-BS1**									
Benzene	9/7/99	20.0		19.9	ug/l	80.0-125	99.5			
Chlorobenzene	"	20.0		19.5	"	80.0-125	97.5			
1,1-Dichloroethene	"	20.0		21.3	"	70.0-135	106			
Toluene	"	20.0		20.0	"	80.0-125	100			
Trichloroethene	"	20.0		19.5	"	70.0-130	97.5			
Surrogate: 4-BFB	"	*20.0*		*19.5*	"	*75.0-135*	*97.5*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*20.9*	"	*70.0-135*	*104*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.5*	"	*80.0-125*	*97.5*			
Surrogate: Toluene-d8	"	*20.0*		*19.2*	"	*80.0-120*	*96.0*			
LCS Dup	**0990149-BSD1**									
Benzene	9/7/99	20.0		19.7	ug/l	80.0-125	98.5	25.0	1.01	
Chlorobenzene	"	20.0		20.9	"	80.0-125	104	25.0	6.45	
1,1-Dichloroethene	"	20.0		20.1	"	70.0-135	101	25.0	4.83	
Toluene	"	20.0		20.0	"	80.0-125	100	25.0	0	
Trichloroethene	"	20.0		18.7	"	70.0-130	93.5	25.0	4.19	
Surrogate: 4-BFB	"	*20.0*		*20.7*	"	*75.0-135*	*104*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*20.5*	"	*70.0-135*	*103*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.0*	"	*80.0-125*	*95.0*			
Surrogate: Toluene-d8	"	*20.0*		*19.7*	"	*80.0-120*	*98.5*			

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URS Greiner Woodward Clyde	Project: RPAC	Sampled:	8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number: Multiple Project Numbers	Received:	8/27/99 to 9/2/99
Portland, OR 97201	Project Manager: Karen Schadler	Reported:	10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike	0990149-MS1		P909058-01							
Benzene	9/7/99	20.0	ND	20.7	ug/l	80.0-125	**104**			
Chlorobenzene	"	20.0	4.58	26.2	"	80.0-125	**108**			
1,1-Dichloroethene	"	20.0	ND	20.7	"	70.0-135	**104**			
Toluene	"	20.0	ND	21.1	"	80.0-125	**106**			
Trichloroethene	"	20.0	ND	19.5	"	70.0-130	**97.5**			
Surrogate: 4-BFB	"	*20.0*		*21.0*	"	*75.0-135*	*105*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*20.5*	"	*70.0-135*	*103*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.5*	"	*80.0-125*	*97.5*			
Surrogate: Toluene-d8	"	*20.0*		*20.0*	"	*80.0-120*	*100*			
Matrix Spike Dup	0990149-MSD1		P909058-01							
Benzene	9/7/99	20.0	ND	20.7	ug/l	80.0-125	**104**	25.0	**0**	
Chlorobenzene	"	20.0	4.58	22.9	"	80.0-125	**91.6**	25.0	**16.4**	
1,1-Dichloroethene	"	20.0	ND	22.6	"	70.0-135	**113**	25.0	**8.29**	
Toluene	"	20.0	ND	20.2	"	80.0-125	**101**	25.0	**4.83**	
Trichloroethene	"	20.0	ND	18.7	"	70.0-130	**93.5**	25.0	**4.19**	
Surrogate: 4-BFB	"	*20.0*		*21.8*	"	*75.0-135*	*109*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*20.9*	"	*70.0-135*	*104*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.1*	"	*80.0-125*	*95.5*			
Surrogate: Toluene-d8	"	*20.0*		*18.3*	"	*80.0-120*	*91.5*			
Batch: 0990341	Date Prepared: 9/13/99					Extraction Method: EPA 5030				
Blank	0990341-BLK1									
Acetone	9/13/99			**ND**	ug/l	**25.0**				
Benzene	"			**ND**	"	**1.00**				
Bromobenzene	"			**ND**	"	**1.00**				
Bromochloromethane	"			**ND**	"	**1.00**				
Bromodichloromethane	"			**ND**	"	**1.00**				
Bromoform	"			**ND**	"	**1.00**				
Bromomethane	"			**ND**	"	**10.0**				
2-Butanone	"			**ND**	"	**25.0**				
n-Butylbenzene	"			**ND**	"	**1.00**				
sec-Butylbenzene	"			**ND**	"	**1.00**				
tert-Butylbenzene	"			**ND**	"	**1.00**				
Carbon disulfide	"			**ND**	"	**10.0**				
Carbon tetrachloride	"			**ND**	"	**2.00**				
Chlorobenzene	"			**ND**	"	**1.00**				
Chloroethane	"			**ND**	"	**2.00**				

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**Refer to end of report for text of notes and definitions*

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	0990341-BLK1									
Chloroform	9/13/99			ND	ug/l	1.00				
Chloromethane	"			ND	"	5.00				
2-Chlorotoluene	"			ND	"	1.00				
4-Chlorotoluene	"			ND	"	1.00				
1,2-Dibromo-3-chloropropane	"			ND	"	1.00				
Dibromochloromethane	"			ND	"	1.00				
1,2-Dibromoethane	"			ND	"	1.00				
Dibromomethane	"			ND	"	1.00				
1,2-Dichlorobenzene	"			ND	"	1.00				
1,3-Dichlorobenzene	"			ND	"	1.00				
1,4-Dichlorobenzene	"			ND	"	1.00				
Dichlorodifluoromethane	"			ND	"	5.00				
1,1-Dichloroethane	"			ND	"	1.00				
1,2-Dichloroethane	"			ND	"	1.00				
1,1-Dichloroethene	"			ND	"	1.00				
cis-1,2-Dichloroethene	"			ND	"	1.00				
trans-1,2-Dichloroethene	"			ND	"	1.00				
1,2-Dichloropropane	"			ND	"	1.00				
1,3-Dichloropropane	"			ND	"	1.00				
2,2-Dichloropropane	"			ND	"	1.00				
1,1-Dichloropropene	"			ND	"	1.00				
cis-1,3-Dichloropropene	"			ND	"	1.00				
trans-1,3-Dichloropropene	"			ND	"	1.00				
Ethylbenzene	"			ND	"	1.00				
Hexachlorobutadiene	"			ND	"	2.00				
2-Hexanone	"			ND	"	10.0				
Isopropylbenzene	"			ND	"	1.00				
p-Isopropyltoluene	"			ND	"	1.00				
4-Methyl-2-pentanone	"			ND	"	5.00				
Methylene chloride	"			ND	"	5.00				
Naphthalene	"			ND	"	1.00				
n-Propylbenzene	"			ND	"	1.00				
Styrene	"			ND	"	1.00				
1,1,1,2-Tetrachloroethane	"			ND	"	1.00				
1,1,2,2-Tetrachloroethane	"			ND	"	1.00				
Tetrachloroethene	"			ND	"	1.00				
Toluene	"			ND	"	1.00				
1,2,3-Trichlorobenzene	"			ND	"	1.00				

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	0990341-BLK1									
1,2,4-Trichlorobenzene	9/13/99			**ND**	ug/l	**1.00**				
1,1,1-Trichloroethane	"			**ND**	"	**1.00**				
1,1,2-Trichloroethane	"			**ND**	"	**1.00**				
Trichloroethene	"			**ND**	"	**1.00**				
Trichlorofluoromethane	"			**ND**	"	**1.00**				
1,2,3-Trichloropropane	"			**ND**	"	**1.00**				
1,2,4-Trimethylbenzene	"			**ND**	"	**1.00**				
1,3,5-Trimethylbenzene	"			**ND**	"	**1.00**				
Vinyl chloride	"			**ND**	"	**1.00**				
o-Xylene	"			**ND**	"	**1.00**				
m,p-Xylene	"			**ND**	"	**2.00**				
Surrogate: 4-BFB	"	*20.0*		*21.6*	"	*75.0-135*	*108*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*20.9*	"	*70.0-135*	*104*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.9*	"	*80.0-125*	*99.5*			
Surrogate: Toluene-d8	"	*20.0*		*20.0*	"	*80.0-120*	*100*			
LCS	0990341-BS1									
Benzene	9/13/99	20.0		19.4	ug/l	80.0-125	97.0			
Chlorobenzene	"	20.0		20.8	"	80.0-125	104			
1,1-Dichloroethene	"	20.0		20.5	"	70.0-135	103			
Toluene	"	20.0		19.6	"	80.0-125	98.0			
Trichloroethene	"	20.0		18.8	"	70.0-130	94.0			
Surrogate: 4-BFB	"	*20.0*		*20.4*	"	*75.0-135*	*102*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*20.2*	"	*70.0-135*	*101*			
Surrogate: Dibromofluoromethane	"	*20.0*		*20.1*	"	*80.0-125*	*101*			
Surrogate: Toluene-d8	"	*20.0*		*20.4*	"	*80.0-120*	*102*			
LCS Dup	0990341-BSD1									
Benzene	9/13/99	20.0		20.3	ug/l	80.0-125	101	25.0	4.04	
Chlorobenzene	"	20.0		20.9	"	80.0-125	104	25.0	0	
1,1-Dichloroethene	"	20.0		20.6	"	70.0-135	103	25.0	0	
Toluene	"	20.0		20.4	"	80.0-125	102	25.0	4.00	
Trichloroethene	"	20.0		19.0	"	70.0-130	95.0	25.0	1.06	
Surrogate: 4-BFB	"	*20.0*		*20.7*	"	*75.0-135*	*104*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*20.9*	"	*70.0-135*	*104*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.7*	"	*80.0-125*	*98.5*			
Surrogate: Toluene-d8	"	*20.0*		*19.8*	"	*80.0-120*	*99.0*			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike	**0990341-MS1**		**P908536-02**							
Benzene	9/14/99	20.0	ND	21.1	ug/l	80.0-125	**106**			
Chlorobenzene	"	20.0	ND	21.9	"	80.0-125	**109**			
1,1-Dichloroethene	"	20.0	ND	21.4	"	70.0-135	**107**			
Toluene	"	20.0	1.56	22.2	"	80.0-125	**103**			
Trichloroethene	"	20.0	ND	19.3	"	70.0-130	**96.5**			
Surrogate: 4-BFB	"	*20.0*		*20.3*	"	*75.0-135*	*101*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*20.6*	"	*70.0-135*	*103*			
Surrogate: Dibromofluoromethane	"	*20.0*		*20.1*	"	*80.0-125*	*101*			
Surrogate: Toluene-d8	"	*20.0*		*20.4*	"	*80.0-120*	*102*			
Matrix Spike Dup	**0990341-MSD1**		**P908536-02**							
Benzene	9/14/99	20.0	ND	19.4	ug/l	80.0-125	**97.0**	25.0	**8.87**	
Chlorobenzene	"	20.0	ND	19.1	"	80.0-125	**95.5**	25.0	**13.2**	
1,1-Dichloroethene	"	20.0	ND	20.0	"	70.0-135	**100**	25.0	**6.76**	
Toluene	"	20.0	1.56	20.3	"	80.0-125	**93.7**	25.0	**9.46**	
Trichloroethene	"	20.0	ND	18.7	"	70.0-130	**93.5**	25.0	**3.16**	
Surrogate: 4-BFB	"	*20.0*		*20.3*	"	*75.0-135*	*101*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*19.6*	"	*70.0-135*	*98.0*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.7*	"	*80.0-125*	*98.5*			
Surrogate: Toluene-d8	"	*20.0*		*19.3*	"	*80.0-120*	*96.5*			

Batch: 0990396	**Date Prepared: 9/14/99**		**Extraction Method: EPA 5030**	
Blank	**0990396-BLK1**			
Acetone	9/15/99	**ND**	ug/l	**25.0**
Benzene	"	**ND**	"	**1.00**
Bromobenzene	"	**ND**	"	**1.00**
Bromochloromethane	"	**ND**	"	**1.00**
Bromodichloromethane	"	**ND**	"	**1.00**
Bromoform	"	**ND**	"	**1.00**
Bromomethane	"	**ND**	"	**10.0**
2-Butanone	"	**ND**	"	**25.0**
n-Butylbenzene	"	**ND**	"	**1.00**
sec-Butylbenzene	"	**ND**	"	**1.00**
tert-Butylbenzene	"	**ND**	"	**1.00**
Carbon disulfide	"	**ND**	"	**10.0**
Carbon tetrachloride	"	**ND**	"	**2.00**
Chlorobenzene	"	**ND**	"	**1.00**
Chloroethane	"	**ND**	"	**2.00**

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**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	**0990396-BLK1**									
Chloroform	9/15/99			ND	ug/l	1.00				
Chloromethane	"			ND	"	5.00				
2-Chlorotoluene	"			ND	"	1.00				
4-Chlorotoluene	"			ND	"	1.00				
1,2-Dibromo-3-chloropropane	"			ND	"	1.00				
Dibromochloromethane	"			ND	"	1.00				
1,2-Dibromoethane	"			ND	"	1.00				
Dibromomethane	"			ND	"	1.00				
1,2-Dichlorobenzene	"			ND	"	1.00				
1,3-Dichlorobenzene	"			ND	"	1.00				
1,4-Dichlorobenzene	"			ND	"	1.00				
Dichlorodifluoromethane	"			ND	"	5.00				
1,1-Dichloroethane	"			ND	"	1.00				
1,2-Dichloroethane	"			ND	"	1.00				
1,1-Dichloroethene	"			ND	"	1.00				
cis-1,2-Dichloroethene	"			ND	"	1.00				
trans-1,2-Dichloroethene	"			ND	"	1.00				
1,2-Dichloropropane	"			ND	"	1.00				
1,3-Dichloropropane	"			ND	"	1.00				
2,2-Dichloropropane	"			ND	"	1.00				
1,1-Dichloropropene	"			ND	"	1.00				
cis-1,3-Dichloropropene	"			ND	"	1.00				
trans-1,3-Dichloropropene	"			ND	"	1.00				
Ethylbenzene	"			ND	"	1.00				
Hexachlorobutadiene	"			ND	"	2.00				
2-Hexanone	"			ND	"	10.0				
Isopropylbenzene	"			ND	"	1.00				
p-Isopropyltoluene	"			ND	"	1.00				
4-Methyl-2-pentanone	"			ND	"	5.00				
Methylene chloride	"			ND	"	5.00				
Naphthalene	"			ND	"	1.00				
n-Propylbenzene	"			ND	"	1.00				
Styrene	"			ND	"	1.00				
1,1,1,2-Tetrachloroethane	"			ND	"	1.00				
1,1,2,2-Tetrachloroethane	"			ND	"	1.00				
Tetrachloroethene	"			ND	"	1.00				
Toluene	"			ND	"	1.00				
1,2,3-Trichlorobenzene	"			ND	"	1.00				

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111 SW Columbia, Suite 900	Project Number: Multiple Project Numbers	Received:	8/27/99 to 9/2/99
Portland, OR 97201	Project Manager: Karen Schadler	Reported:	10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	**0990396-BLK1**									
1,2,4-Trichlorobenzene	9/15/99			ND	ug/l	1.00				
1,1,1-Trichloroethane	"			ND	"	1.00				
1,1,2-Trichloroethane	"			ND	"	1.00				
Trichloroethene	"			ND	"	1.00				
Trichlorofluoromethane	"			ND	"	1.00				
1,2,3-Trichloropropane	"			ND	"	1.00				
1,2,4-Trimethylbenzene	"			ND	"	1.00				
1,3,5-Trimethylbenzene	"			ND	"	1.00				
Vinyl chloride	"			ND	"	1.00				
o-Xylene	"			ND	"	1.00				
m,p-Xylene	"			ND	"	2.00				
Surrogate: 4-BFB	"	*20.0*		*21.4*	"	*75.0-135*	*107*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*19.1*	"	*70.0-135*	*95.5*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.2*	"	*80.0-125*	*96.0*			
Surrogate: Toluene-d8	"	*20.0*		*20.1*	"	*80.0-120*	*101*			
LCS	**0990396-BS1**									
Benzene	9/15/99	20.0		18.6	ug/l	80.0-125	93.0			
Chlorobenzene	"	20.0		20.6	"	80.0-125	103			
1,1-Dichloroethene	"	20.0		20.5	"	70.0-135	103			
Toluene	"	20.0		19.3	"	80.0-125	96.5			
Trichloroethene	"	20.0		17.9	"	70.0-130	89.5			
Surrogate: 4-BFB	"	*20.0*		*21.3*	"	*75.0-135*	*106*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*19.8*	"	*70.0-135*	*99.0*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.7*	"	*80.0-125*	*98.5*			
Surrogate: Toluene-d8	"	*20.0*		*19.8*	"	*80.0-120*	*99.0*			
LCS Dup	**0990396-BSD1**									
Benzene	9/15/99	20.0		19.4	ug/l	80.0-125	97.0	25.0	4.21	
Chlorobenzene	"	20.0		20.4	"	80.0-125	102	25.0	0.976	
1,1-Dichloroethene	"	20.0		21.2	"	70.0-135	106	25.0	2.87	
Toluene	"	20.0		19.1	"	80.0-125	95.5	25.0	1.04	
Trichloroethene	"	20.0		18.4	"	70.0-130	92.0	25.0	2.75	
Surrogate: 4-BFB	"	*20.0*		*20.9*	"	*75.0-135*	*104*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*19.6*	"	*70.0-135*	*98.0*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.9*	"	*80.0-125*	*99.5*			
Surrogate: Toluene-d8	"	*20.0*		*20.4*	"	*80.0-120*	*102*			

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111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike	0990396-MS1		P908537-02							
Benzene	9/15/99	200	53.0	238	ug/l	80.0-125	**92.5**			
Chlorobenzene	"	200	761	913	"	80.0-125	**76.0**			21
1,1-Dichloroethene	"	200	ND	190	"	70.0-135	**95.0**			
Toluene	"	200	19.6	214	"	80.0-125	**97.2**			
Trichloroethene	"	200	ND	174	"	70.0-130	**87.0**			
Surrogate: 4-BFB	"	*20.0*		*19.7*	"	*75.0-135*	*98.5*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*20.2*	"	*70.0-135*	*101*			
Surrogate: Dibromofluoromethane	"	*20.0*		*20.5*	"	*80.0-125*	*103*			
Surrogate: Toluene-d8	"	*20.0*		*19.3*	"	*80.0-120*	*96.5*			
Matrix Spike	0990396-MS2		P908464-03							
Benzene	9/16/99	200	ND	198	ug/l	80.0-125	**99.0**			
Chlorobenzene	"	200	ND	197	"	80.0-125	**98.5**			
1,1-Dichloroethene	"	200	ND	198	"	70.0-135	**99.0**			
Toluene	"	200	ND	194	"	80.0-125	**97.0**			
Trichloroethene	"	200	ND	188	"	70.0-130	**94.0**			
Surrogate: 4-BFB	"	*20.0*		*22.3*	"	*75.0-135*	*111*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*20.3*	"	*70.0-135*	*101*			
Surrogate: Dibromofluoromethane	"	*20.0*		*20.3*	"	*80.0-125*	*101*			
Surrogate: Toluene-d8	"	*20.0*		*19.3*	"	*80.0-120*	*96.5*			
Matrix Spike Dup	0990396-MSD1		P908537-02							
Benzene	9/16/99	200	53.0	245	ug/l	80.0-125	**96.0**	25.0	**3.71**	
Chlorobenzene	"	200	761	874	"	80.0-125	**56.5**	25.0	**29.4**	21
1,1-Dichloroethene	"	200	ND	202	"	70.0-135	**101**	25.0	**6.12**	
Toluene	"	200	19.6	201	"	80.0-125	**90.7**	25.0	**6.92**	
Trichloroethene	"	200	ND	178	"	70.0-130	**89.0**	25.0	**2.27**	
Surrogate: 4-BFB	"	*20.0*		*20.6*	"	*75.0-135*	*103*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*19.9*	"	*70.0-135*	*99.5*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.9*	"	*80.0-125*	*99.5*			
Surrogate: Toluene-d8	"	*20.0*		*19.0*	"	*80.0-120*	*95.0*			
Matrix Spike Dup	0990396-MSD2		P908464-03							
Benzene	9/16/99	200	ND	193	ug/l	80.0-125	**96.5**	25.0	**2.56**	
Chlorobenzene	"	200	ND	210	"	80.0-125	**105**	25.0	**6.39**	
1,1-Dichloroethene	"	200	ND	200	"	70.0-135	**100**	25.0	**1.01**	
Toluene	"	200	ND	197	"	80.0-125	**98.5**	25.0	**1.53**	
Trichloroethene	"	200	ND	186	"	70.0-130	**93.0**	25.0	**1.07**	

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**Refer to end of report for text of notes and definitions*

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike Dup (continued)	**0990396-MSD2**		**P908464-03**							
Surrogate: 4-BFB	*9/16/99*	*20.0*		*22.3*	*ug/l*	*75.0-135*	*111*			
Surrogate: 1,2-DCA-d4	*"*	*20.0*		*19.9*	*"*	*70.0-135*	*99.5*			
Surrogate: Dibromofluoromethane	*"*	*20.0*		*19.8*	*"*	*80.0-125*	*99.0*			
Surrogate: Toluene-d8	*"*	*20.0*		*20.7*	*"*	*80.0-120*	*104*			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 8/26/99 to 9/2/99
111 SW Columbia, Suite 900	Project Number:	92C0804A/44	Received: 8/27/99 to 9/2/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Notes and Definitions

#	Note
1	Analyte appears to be weathered diesel at an elevated amount due to heavy oil overlap.
2	Surrogate recovery is outside control limits due to matrix interference.
3	Detected hydrocarbons do not have pattern and range consistent with typical petroleum products and may be due to biogenic interference.
4	The detected hydrocarbons appear to be due to the overlap of the heavy oil range as well as a trace of weathered diesel and possibly some biogenic interference.
5	The reporting limit for this analyte was raised to compensate for the limited sample quantity available for the analysis.
6	Hydrocarbon pattern and range are consistent with transformer oil or similiar product..
7	Analyte appears atypical and could be an overlap combination of a lighter oil and a heavier oil as well as some biogenic interference.
8	The hydrocarbon concentration result in this sample is partially due to an individual peak(s) eluting in the diesel/motor oil carbon range.
9	The reporting limit for this analyte was raised due to matrix interference.
10	Reporting limit raised due to dilution necessary for analysis due to high target analyte concentration and/or non-target matrix interference.
11	The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interferences.
12	The reported result is an estimated value. The analyte was detected at a level which is below the reporting limit for the analysis.
13	Surrogate recovery is out of control limits. QA criteria are met when one surrogate is within control limits.

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Notes and Definitions

#	Note
14	The reporting limit was lowered to allow reporting of a dilution. The new limit was within calibration of the instrument for this analyte.
15	This sample was analyzed outside the EPA recommended holding time.
16	Unable to calculate surrogate recovery due to matrix interference.
17	The spike recovery, and or RPD for this analyte is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch.
18	The spike recovery for this analyte is above the established control limits for all spiked QC samples within the batch. Sample data not affected by high bias.
19	The spike recovery and/or RPD for this QC sample is outside of established control limits. Recovery above the controls limits for this analyte does not negatively impact sample 'ND' results.
2[illegible]	Surrogate recovery calculated from above calibration curve.
21	Method blank surrogate recovery is outside of NCA established control limits. Integrity of batch data compromised. Results above MRL should be considered estimated.
22	The surrogate recovery for this sample is outside of method established control limits. Batch QC for this analyte validated by LCS duplicate recovery.
23	The spike recovery and/or %RPD for this QC sample is outside of established control limits due to sample matrix interference.
24	RPD out of control limits due to matrix effects.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 10/4/99 09:25

Notes and Definitions

#	Note

Recov. Recovery

RPD Relative Percent Difference

SCOEPA00009204

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Case Narrative

CLIENT: URS Greiner Woodward Clyde **November 23, 1999**
PROJECT:RPAC **NCA #s: P10341, P10342, P10374, P10376, P10377, P10399, P10400, P10431, P10432, & P10433**
PROJECT #: 92C0804A.00

1.0 DESCRIPTION OF CASE

North Creek Analytical, Beaverton received a total of twenty-five water samples from 10/19/99 through 10/22/99 from URS Greiner Woodward Clyde for analysis by one or more of the following EPA Methods: 6020 Dissolved Metals, 7470A Dissolved Mercury, Isobutyl Alcohol by GC/FID, 8041 Phenols, 8151A Chlorinated Herbicides, 8260B Volatile Organics, 8081A/8082 Pesticides/PCBs, 8141 Organophosphorous Pesticides, and Diesel and Heavy Range Hydrocarbons by NWTPH-Dx. The samples were logged in as the ten NCA project numbers referenced above. Results and raw data for all sample analyses are reported in a single combined *Analytical Report* and included as one data package, with the exception of 8151A Chlorinated Herbicides. 8151A Chlorinated Herbicides analyses were subcontracted to Bothell and are contained in a separate data package.

2.0 SAMPLE LIST

Refer to the *Chain of Custody* documents for a summary of sample information.

Each sub-group of samples received together for the entire sample delivery group is given an NCA #, proceeded by a "P" for Portland. This number consists of a one-digit code for the year, a two-digit code for the month and a sequential number for the group within the month. Each sample within the sub-group is numbered sequentially by placing a dash after the NCA#.

3.0 COMMENTS ON ANALYSIS

3.1 Sample Receipt

The samples were received intact from URS Greiner Woodward Clyde. The samples were clearly labeled and matched the chain of custody. Sample travel blank temperatures were measured directly upon receipt using a Digi-Thermo Probe. Sample temperatures are recorded with the sample log-in information.

3.2 Analysis

The samples were analyzed following the procedures outlined in the applicable methods. The samples were refrigerated at 4 °C and were extracted and analyzed within the EPA recommended holding times without incident; any exceptions are footnoted and described in the *Notes and Definitions* section of the *Analytical Report*. Exceptions requiring more detail are as follows:

Dissolved Metals
Some samples were reanalyzed for Vanadium, as indicated by the "*Date Analyzed*" date noted on the *Analytical Report*, due to sample matrix interference during analysis.

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Phenols by 8041
Sample 015-GG-02 was extracted and analyzed a second time with batch # 1090659 because it was the only sample with sufficient sample volume to be utilized as an MS/MSD. Results of the second analysis are not reported because the MS/MSD data was not useable due the high analyte concentration of the native sample.

4.0 QC RESULTS

Surrogate and quality control parameters that were outside control limits are noted on the appropriate pages of the *Analytical Report*. Additional Quality Control issues are as follows:

NWTPH-Dx
Matrix Spike data for batch # 1090716 was not available due to the high analyte concentration of the native sample, 015-GG-01. Surrogate recoveries were also not obtainable for this sample and 015-GG02 due to the dilution necessary to analyze the high analyte concentrations.

Phenols by 8041
High analyte concentration and/or matrix interference caused unacceptable surrogates recoveries in samples 016-GG-01, 017-GG-01, 015-GG-01, 015-GG-02 and 026-GG-01. In the case of the high dilution of sample 025-GG-01, 2-Fluorophenol surrogate recovery was calculated from a value below the MRL. The recovery was then flagged as an estimated value.

No MS/MSD data is available for batch #s 1090624 or 10906594 due the high analyte concentration of the native sample, 015-GG-02.

Pesticides/PCBs by 8081A/8082
Surrogate recovery for Decachlorobiphenyl was unacceptable for all but two samples. Recoveries for this surrogate were acceptable for all batch QC samples, indicating that low recoveries in samples were due to sample matrix rather than extraction efficiency.

Organophosphorus Pesticides by 8141
Both surrogate recoveries for the method blank sample of batch # 1090778 were below the control limits. Surrogate recoveries for all other samples and QC samples were acceptable, indicating the extraction efficiency incident was isolated to the MB sample. Method blank MRLs are approximate values due to low surrogate recoveries.

All quality control parameters other than those noted above or on the *Analytical Report* were within established control limits.

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Case Narrative

CLIENT: URS Greiner Woodward Clyde **November 23, 1999**
PROJECT:RPAC **NCA #s: P10341, P10342, P10374, P10376, P10377, P10399, P10400, P10431, P10432, & P10433**
PROJECT #: 92C0804A.00

5.0 SAMPLE RESULTS

Where applicable, qualifiers have been added to sample results as footnotes and are detailed in the *Notes and Definitions* section of the analytical report. Factors impacting reported sample results and requiring a more detailed explanation than available in the *Notes and Definitions* section of the *Analytical Report* are as follows:

NWTPH-Dx & Phenols by 8041
Sample data integrity is indeterminate when surrogate recoveries are unavailable due to dilution or matrix interference.

Organophosphorus Pesticides by 8141
"ND" results for sample 017-GG-04 are validated by acceptable surrogate recoveries despite unacceptable MB surrogate recoveries. Method QC criteria for the batch (# 1090778) is however not met. Sample results are noted as such.

The dilution factor for a sample, if applicable, is depicted on the *Analytical Report* as the MRL(s) for the quantitated analytes being raised by the dilution factor. The method blank sample may be referenced for the initial MRL.

" I certify that this data package is in compliance with the method, both technically and for completeness, for all conditions other than those listed above. Release of the data in this hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature."

Susan Schimelfining, QA Manager
North Creek Analytical, Beaverton

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
016-GG-01	P910341-01	Water	10/18/99
017-GG-01	P910341-02	Water	10/18/99
Trip Blank	P910341-03	Water	10/18/99
015-GG-01	P910342-01	Water	10/18/99
015-GG-02	P910342-02	Water	10/18/99
Trip Blank	P910342-03	Water	10/18/99
018-GG-01	P910374-01	Water	10/19/99
TRIP BLANK	P910374-02	Water	10/19/99
017-GG-04	P910376-01	Water	10/19/99
TRIP BLANK	P910376-02	Water	10/19/99
020-GG-01	P910377-01	Water	10/19/99
TRIP BLANK	P910377-02	Water	10/19/99
021-GG-01	P910399-01	Water	10/20/99
022-GG-01	P910399-02	Water	10/20/99
022-GG-02	P910399-03	Water	10/20/99
TRIP BLANK	P910399-04	Water	10/20/99
019-GG-01	P910400-01	Water	10/19/99
022-GG-01	P910400-02	Water	10/19/99
023-GG-01	P910431-01	Water	10/21/99
024-GG-01	P910431-02	Water	10/21/99

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Dissolved Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
016-GG-01			**P910341-01**				**Water**	
Arsenic	1090766	10/26/99	10/26/99	EPA 6020	0.00100	**0.0217**	mg/l	
Cadmium	"	"	"	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	**0.00286**	"	
Copper	"	"	"	EPA 6020	0.00200	**0.00939**	"	
Lead	"	"	"	EPA 6020	0.00100	**0.0137**	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.0237**	"	
Vanadium	"	"	"	EPA 6020	0.00500	**0.00669**	"	
Zinc	"	"	"	EPA 6020	0.00500	**0.0179**	"	
Mercury	1090715	10/27/99	10/27/99	EPA 7470A	0.000200	ND	"	
017-GG-01			**P910341-02**				**Water**	
Arsenic	1090766	10/26/99	10/26/99	EPA 6020	0.00100	**0.0104**	mg/l	
Cadmium	"	"	"	EPA 6020	0.00100	ND	"	
[illegible]romium	"	"	"	EPA 6020	0.00100	**0.00444**	"	
[illegible]opper	"	"	"	EPA 6020	0.00200	**0.0566**	"	
Lead	"	"	"	EPA 6020	0.00100	**0.00293**	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.0197**	"	
Vanadium	"	"	"	EPA 6020	0.00500	**0.0254**	"	
Zinc	"	"	"	EPA 6020	0.00500	**0.00732**	"	
Mercury	1090715	10/27/99	10/27/99	EPA 7470A	0.000200	ND	"	
015-GG-01			**P910342-01**				**Water**	
Arsenic	1090766	10/26/99	10/27/99	EPA 6020	0.0100	**1.07**	mg/l	
Cadmium	"	"	10/26/99	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	**0.00341**	"	
Copper	"	"	"	EPA 6020	0.00200	ND	"	
Lead	"	"	"	EPA 6020	0.00100	**0.00103**	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.0597**	"	
Vanadium	"	"	"	EPA 6020	0.00500	**0.0105**	"	
Zinc	"	"	"	EPA 6020	0.00500	**0.00709**	"	
Mercury	1090715	10/27/99	10/27/99	EPA 7470A	0.000200	ND	"	
015-GG-02			**P910342-02**				**Water**	
Arsenic	1090766	10/26/99	10/27/99	EPA 6020	0.0100	**0.993**	mg/l	
Cadmium	"	"	10/26/99	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	**0.00308**	"	
Copper	"	"	"	EPA 6020	0.00200	ND	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Dissolved Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
015-GG-02 (continued)			**P910342-02**				**Water**	
Nickel	1090766	10/26/99	10/26/99	EPA 6020	0.00200	**0.0602**	mg/l	
Vanadium	"	"	"	EPA 6020	0.00500	**0.0109**	"	
Zinc	"	"	"	EPA 6020	0.00500	ND	"	
Mercury	1090715	10/27/99	10/27/99	EPA 7470A	0.000200	ND	"	
018-GG-01			**P910374-01**				**Water**	
Arsenic	1090766	10/26/99	10/26/99	EPA 6020	0.00100	**0.00519**	mg/l	
Cadmium	"	"	"	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	**0.00114**	"	
Copper	"	"	"	EPA 6020	0.00200	ND	"	
Lead	"	"	"	EPA 6020	0.00100	**0.00369**	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.00483**	"	
Vanadium	"	"	"	EPA 6020	0.00500	**0.0111**	"	
Zinc	"	"	"	EPA 6020	0.00500	ND	"	
Mercury	1090715	10/27/99	10/27/99	EPA 7470A	0.000200	ND	"	
017-GG-04			**P910376-01**				**Water**	
Arsenic	1090766	10/26/99	10/26/99	EPA 6020	0.00100	ND	mg/l	
Cadmium	"	"	"	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	ND	"	
Copper	"	"	"	EPA 6020	0.00200	ND	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	
Nickel	"	"	"	EPA 6020	0.00200	ND	"	
Vanadium	"	"	"	EPA 6020	0.00500	ND	"	
Zinc	"	"	"	EPA 6020	0.00500	ND	"	
Mercury	1090715	10/27/99	10/27/99	EPA 7470A	0.000200	ND	"	
020-GG-01			**P910377-01**				**Water**	
Arsenic	1090766	10/26/99	10/26/99	EPA 6020	0.00100	**0.00147**	mg/l	
Cadmium	"	"	"	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	**0.00144**	"	
Copper	"	"	"	EPA 6020	0.00200	ND	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.0335**	"	
Vanadium	"	"	"	EPA 6020	0.00500	**0.0130**	"	
Zinc	"	"	"	EPA 6020	0.00500	**0.0287**	"	
Mercury	1090715	10/27/99	10/27/99	EPA 7470A	0.000200	ND	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Dissolved Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
021-GG-01			**P910399-01**				**Water**	
Arsenic	1090766	10/26/99	10/26/99	EPA 6020	0.00695	**0.272**	mg/l	
Cadmium	"	"	"	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	ND	"	
Copper	"	"	"	EPA 6020	0.00200	**0.00433**	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.00793**	"	
Vanadium	"	"	"	EPA 6020	0.0348	ND	"	5
Zinc	"	"	"	EPA 6020	0.00500	**0.0127**	"	
Mercury	1090715	10/27/99	10/27/99	EPA 7470A	0.000200	ND	"	
022-GG-01			**P910400-02**				**Water**	
Arsenic	1090766	10/26/99	10/27/99	EPA 6020	0.00100	**0.00118**	mg/l	
Cadmium	"	"	10/26/99	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	**0.00122**	"	
Copper	"	"	"	EPA 6020	0.00200	**0.00678**	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	
Nickel	"	"	"	EPA 6020	0.00200	ND	"	
Vanadium	"	"	"	EPA 6020	0.00500	**0.0182**	"	
Zinc	"	"	"	EPA 6020	0.00500	ND	"	
Mercury	1090715	10/27/99	10/27/99	EPA 7470A	0.000200	ND	"	
023-GG-01			**P910431-01**				**Water**	
Arsenic	1090766	10/26/99	10/27/99	EPA 6020	0.00100	**0.00371**	mg/l	
Cadmium	"	"	10/26/99	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	ND	"	
Copper	"	"	"	EPA 6020	0.00200	ND	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.00343**	"	
Vanadium	"	"	11/3/99	EPA 6020	0.0250	ND	"	5
Zinc	"	"	10/26/99	EPA 6020	0.00500	ND	"	
Mercury	1090715	10/27/99	10/27/99	EPA 7470A	0.000200	ND	"	
024-GG-01			**P910432-01**				**Water**	
Arsenic	1090766	10/26/99	10/27/99	EPA 6020	0.00100	ND	mg/l	
Cadmium	"	"	10/26/99	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	**0.00101**	"	
Copper	"	"	"	EPA 6020	0.00200	**0.0120**	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	

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Dissolved Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
024-GG-01 (continued)			**P910432-01**				**Water**	
Nickel	1090766	10/26/99	10/26/99	EPA 6020	0.00200	**0.00681**	mg/l	
Vanadium	"	"	"	EPA 6020	0.00500	**0.00650**	"	
Zinc	"	"	"	EPA 6020	0.00500	ND	"	
Mercury	1090715	10/27/99	10/27/99	EPA 7470A	0.000200	ND	"	
025-GG-01			**P910432-02**				**Water**	
Arsenic	1090766	10/26/99	10/27/99	EPA 6020	0.00100	ND	mg/l	
Cadmium	"	"	10/26/99	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	ND	"	
Copper	"	"	"	EPA 6020	0.00200	ND	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.00215**	"	
Vanadium	"	"	11/3/99	EPA 6020	0.0250	ND	"	5
Zinc	"	"	10/26/99	EPA 6020	0.00500	**0.00761**	"	
Mercury	1090715	10/27/99	10/27/99	EPA 7470A	0.000200	**0.000397**	"	
026-GG-01			**P910433-01**				**Water**	
Arsenic	1090766	10/26/99	10/27/99	EPA 6020	0.00100	**0.00610**	mg/l	
Cadmium	"	"	10/26/99	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	**0.00166**	"	
Copper	"	"	"	EPA 6020	0.00200	ND	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.00271**	"	
Vanadium	"	"	10/28/99	EPA 6020	0.125	ND	"	5
Zinc	"	"	10/26/99	EPA 6020	0.00500	ND	"	
Mercury	1090715	10/27/99	10/27/99	EPA 7470A	0.000200	ND	"	
027-GG-01			**P910433-02**				**Water**	
Arsenic	1090766	10/26/99	10/27/99	EPA 6020	0.00100	**0.00702**	mg/l	
Cadmium	"	"	10/26/99	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	ND	"	
Copper	"	"	"	EPA 6020	0.00200	ND	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.00734**	"	
Vanadium	"	"	10/27/99	EPA 6020	0.0500	ND	"	5
Zinc	"	"	10/26/99	EPA 6020	0.00500	**0.0164**	"	
Mercury	1090715	10/27/99	10/27/99	EPA 7470A	0.000200	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Alcohols by GC/FID Headspace Analysis
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
016-GG-01			**P910341-01**				**Water**	**6**
Isobutyl alcohol	1190298	11/9/99	11/9/99	EPA 8015	10.0	**27.2**	mg/l	
017-GG-01			**P910341-02**				**Water**	**6**
Isobutyl alcohol	1190298	11/9/99	11/9/99	EPA 8015	10.0	ND	mg/l	
015-GG-01			**P910342-01**				**Water**	**6**
Isobutyl alcohol	1190298	11/9/99	11/9/99	EPA 8015	10.0	ND	mg/l	
015-GG-02			**P910342-02**				**Water**	**6**
Isobutyl alcohol	1190298	11/9/99	11/9/99	EPA 8015	10.0	ND	mg/l	
018-GG-01			**P910374-01**				**Water**	**6**
Isobutyl alcohol	1190298	11/9/99	11/9/99	EPA 8015	10.0	ND	mg/l	
017-GG-04			**P910376-01**				**Water**	**6**
Isobutyl alcohol	1190298	11/9/99	11/9/99	EPA 8015	10.0	ND	mg/l	
020-GG-01			**P910377-01**				**Water**	**6**
Isobutyl alcohol	1190298	11/9/99	11/9/99	EPA 8015	10.0	ND	mg/l	
021-GG-01			**P910399-01**				**Water**	**6**
Isobutyl alcohol	1190298	11/9/99	11/9/99	EPA 8015	10.0	ND	mg/l	
022-GG-01			**P910399-02**				**Water**	**6**
Isobutyl alcohol	1190298	11/9/99	11/9/99	EPA 8015	10.0	ND	mg/l	
023-GG-01			**P910431-01**				**Water**	**6**
Isobutyl alcohol	1190298	11/9/99	11/9/99	EPA 8015	10.0	ND	mg/l	
024-GG-01			**P910431-02**				**Water**	**6**
Isobutyl alcohol	1190298	11/9/99	11/9/99	EPA 8015	10.0	ND	mg/l	
025-GG-01			**P910432-02**				**Water**	**6**
Isobutyl alcohol	1190298	11/9/99	11/9/99	EPA 8015	10.0	ND	mg/l	
026-GG-01			**P910433-01**				**Water**	**6**
Isobutyl alcohol	1190298	11/9/99	11/9/99	EPA 8015	10.0	**15.3**	mg/l	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Alcohols by GC/FID Headspace Analysis
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
027-GG-01			P910433-02				Water	6
Isobutyl alcohol	1190298	11/9/99	11/9/99	EPA 8015	10.0	**11.9**	mg/l	

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SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
land, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Phenols per EPA Method 8041
North Creek Analytical - Portland

lyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
OK-GG-01			**P910341-01**				**Water**	**2**
hloro-3-methylphenol	1090624	10/21/99	10/29/99		500	ND	ug/l	
hlorophenol	"	"	"		5000	**13800**	"	7
sols	"	"	"		2500	**2920**	"	7
Dichlorophenol	"	"	"		5000	**33000**	"	
Dichlorophenol	"	"	"		2500	**11100**	"	7
Dimethylphenol	"	"	"		500	ND	"	
Dinitro-2-methylphenol	"	"	"		500	ND	"	
Dinitrophenol	"	"	"		1250	ND	"	
oseb	"	"	"		500	ND	"	
itrophenol	"	"	"		500	ND	"	
itrophenol	"	"	"		500	ND	"	
tachlorophenol	"	"	"		500	ND	"	
nol	"	"	"		500	ND	"	
6-Tetrachlorophenol	"	"	"		500	ND	"	
-Trichlorophenol	"	"	"		2500	**3270**	"	
6-Trichlorophenol	"	"	"		2500	**13100**	"	
ogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*NR*	*%*	*3*
ogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*NR*	"	*3*
-GG-01			**P910341-02**				**Water**	**2**
hloro-3-methylphenol	1090624	10/21/99	10/29/99		500	ND	ug/l	
hlorophenol	"	"	"		4000	**4790**	"	7
sols	"	"	"		2500	**3080**	"	7,9
Dichlorophenol	"	"	"		2500	**14800**	"	
Dichlorophenol	"	"	"		5000	**19400**	"	7
Dimethylphenol	"	"	"		500	ND	"	
Dinitro-2-methylphenol	"	"	"		500	ND	"	
Dinitrophenol	"	"	"		1250	ND	"	
oseb	"	"	"		500	ND	"	
itrophenol	"	"	"		500	ND	"	
itrophenol	"	"	"		500	ND	"	
tachlorophenol	"	"	"		500	ND	"	
nol	"	"	"		5000	**10200**	"	7
4,6-Tetrachlorophenol	"	"	"		500	ND	"	
5-Trichlorophenol	"	"	"		400	**409**	"	9
6-Trichlorophenol	"	"	"		500	**1920**	"	
ogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*NR*	*%*	*3*
ogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*NR*	"	*3*

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**Refer to end of report for text of notes and definitions.*

orah Griffiths, Project Manager

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111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Phenols per EPA Method 8041
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
015-GG-01			**P910342-01**				**Water**	**2**
4-Chloro-3-methylphenol	1090624	10/21/99	10/29/99		500	ND	ug/l	
2-Chlorophenol	"	"	"		500	ND	"	
Cresols	"	"	"		500	ND	"	
2,4-Dichlorophenol	"	"	"		2500	**4100**	"	7
2,6-Dichlorophenol	"	"	"		2500	**9340**	"	7
2,4-Dimethylphenol	"	"	"		500	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		500	ND	"	
2,4-Dinitrophenol	"	"	"		1250	ND	"	
Dinoseb	"	"	"		500	ND	"	
2-Nitrophenol	"	"	"		500	ND	"	
4-Nitrophenol	"	"	"		500	ND	"	
Pentachlorophenol	"	"	"		500	ND	"	
Phenol	"	"	"		500	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		500	ND	"	
2,4,5-Trichlorophenol	"	"	"		500	ND	"	
2,4,6-Trichlorophenol	"	"	"		500	**2890**	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*NR*	*%*	*3*
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*NR*	"	*3*

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111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Phenols per EPA Method 8041
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
015-GG-02			**P910342-02**				**Water**	**2**
4-Chloro-3-methylphenol	1090624	10/21/99	10/29/99		500	ND	ug/l	
2-Chlorophenol	"	"	"		500	ND	"	
Cresols	"	"	"		500	ND	"	
2,4-Dichlorophenol	"	"	"		2500	**9910**	"	7
2,6-Dichlorophenol	"	"	"		500	ND	"	
2,4-Dimethylphenol	"	"	"		500	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		500	ND	"	
2,4-Dinitrophenol	"	"	"		1250	ND	"	
Dinoseb	"	"	"		500	ND	"	
2-Nitrophenol	"	"	"		500	ND	"	
4-Nitrophenol	"	"	"		500	ND	"	
Pentachlorophenol	"	"	"		500	ND	"	
Phenol	"	"	"		500	ND	"	
[illegible]4,6-Tetrachlorophenol	"	"	"		500	ND	"	
[illegible]4,5-Trichlorophenol	"	"	"		500	ND	"	
2,4,6-Trichlorophenol	"	"	"		500	**1690**	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*NR*	*%*	*3*
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*NR*	"	*3*

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Phenols per EPA Method 8041
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
017-GG-04			**P910376-01**				**Water**	
4-Chloro-3-methylphenol	1090624	10/21/99	10/28/99		25.0	ND	ug/l	
2-Chlorophenol	"	"	"		25.0	ND	"	
Cresols	"	"	"		25.0	ND	"	
2,4-Dichlorophenol	"	"	"		25.0	ND	"	
2,6-Dichlorophenol	"	"	"		25.0	ND	"	
2,4-Dimethylphenol	"	"	"		25.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		25.0	ND	"	
2,4-Dinitrophenol	"	"	"		62.5	ND	"	
Dinoseb	"	"	"		25.0	ND	"	
2-Nitrophenol	"	"	"		25.0	ND	"	
4-Nitrophenol	"	"	"		25.0	ND	"	
Pentachlorophenol	"	"	"		25.0	ND	"	
Phenol	"	"	"		25.0	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		25.0	ND	"	
2,4,5-Trichlorophenol	"	"	"		25.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		25.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*27.1*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*52.9*	"	
020-GG-01			**P910377-01**				**Water**	
4-Chloro-3-methylphenol	1090624	10/21/99	10/28/99		25.0	ND	ug/l	
2-Chlorophenol	"	"	"		25.0	ND	"	
Cresols	"	"	"		25.0	ND	"	
2,4-Dichlorophenol	"	"	"		25.0	ND	"	
2,6-Dichlorophenol	"	"	"		25.0	ND	"	
2,4-Dimethylphenol	"	"	"		25.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		25.0	ND	"	
2,4-Dinitrophenol	"	"	"		62.5	ND	"	
Dinoseb	"	"	"		25.0	ND	"	
2-Nitrophenol	"	"	"		25.0	ND	"	
4-Nitrophenol	"	"	"		25.0	ND	"	
Pentachlorophenol	"	"	"		25.0	ND	"	
Phenol	"	"	"		25.0	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		25.0	ND	"	
2,4,5-Trichlorophenol	"	"	"		25.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		25.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*48.8*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*82.0*	"	

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Deborah Griffiths, Project Manager

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111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Phenols per EPA Method 8041
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
021-GG-01			**P910399-01**				**Water**	
4-Chloro-3-methylphenol	1090624	10/21/99	10/28/99		25.0	ND	ug/l	
2-Chlorophenol	"	"	"		25.0	ND	"	
Cresols	"	"	"		25.0	ND	"	
2,4-Dichlorophenol	"	"	"		25.0	ND	"	
2,6-Dichlorophenol	"	"	"		25.0	ND	"	
2,4-Dimethylphenol	"	"	"		25.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		25.0	ND	"	
2,4-Dinitrophenol	"	"	"		62.5	ND	"	
Dinoseb	"	"	"		25.0	ND	"	
2-Nitrophenol	"	"	"		25.0	ND	"	
4-Nitrophenol	"	"	"		25.0	ND	"	
Pentachlorophenol	"	"	"		25.0	ND	"	
Phenol	"	"	"		25.0	ND	"	
[illegible]4,6-Tetrachlorophenol	"	"	"		25.0	ND	"	
[illegible],5-Trichlorophenol	"	"	"		25.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		25.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*50.9*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*83.6*	"	
019-GG-01			**P910400-01**				**Water**	
4-Chloro-3-methylphenol	1090624	10/21/99	10/28/99		25.0	ND	ug/l	
2-Chlorophenol	"	"	"		25.0	ND	"	
Cresols	"	"	"		25.0	ND	"	
2,4-Dichlorophenol	"	"	"		25.0	ND	"	
2,6-Dichlorophenol	"	"	"		25.0	ND	"	
2,4-Dimethylphenol	"	"	"		25.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		25.0	ND	"	
2,4-Dinitrophenol	"	"	"		62.5	ND	"	
Dinoseb	"	"	"		25.0	ND	"	
2-Nitrophenol	"	"	"		25.0	ND	"	
4-Nitrophenol	"	"	"		25.0	ND	"	
Pentachlorophenol	"	"	"		25.0	ND	"	
Phenol	"	"	"		25.0	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		25.0	ND	"	
2,4,5-Trichlorophenol	"	"	"		25.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		25.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*37.8*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*65.6*	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Phenols per EPA Method 8041
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
022-GG-01			**P910400-02**				**Water**	
4-Chloro-3-methylphenol	1090624	10/21/99	10/28/99		25.0	ND	ug/l	
2-Chlorophenol	"	"	"		25.0	ND	"	
Cresols	"	"	"		25.0	ND	"	
2,4-Dichlorophenol	"	"	"		25.0	ND	"	
2,6-Dichlorophenol	"	"	"		25.0	ND	"	
2,4-Dimethylphenol	"	"	"		25.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		25.0	ND	"	
2,4-Dinitrophenol	"	"	"		62.5	ND	"	
Dinoseb	"	"	"		25.0	ND	"	
2-Nitrophenol	"	"	"		25.0	ND	"	
4-Nitrophenol	"	"	"		25.0	ND	"	
Pentachlorophenol	"	"	"		25.0	ND	"	
Phenol	"	"	"		25.0	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		25.0	ND	"	
2,4,5-Trichlorophenol	"	"	"		25.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		25.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*26.8*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*45.6*	"	
023-GG-01			**P910431-01**				**Water**	
4-Chloro-3-methylphenol	1090659	10/26/99	10/29/99		25.0	ND	ug/l	
2-Chlorophenol	"	"	"		25.0	ND	"	
Cresols	"	"	"		25.0	ND	"	
2,4-Dichlorophenol	"	"	"		25.0	ND	"	
2,6-Dichlorophenol	"	"	"		25.0	ND	"	
2,4-Dimethylphenol	"	"	"		25.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		25.0	ND	"	
2,4-Dinitrophenol	"	"	"		62.5	ND	"	
Dinoseb	"	"	"		25.0	ND	"	
2-Nitrophenol	"	"	"		25.0	ND	"	
4-Nitrophenol	"	"	"		25.0	ND	"	
Pentachlorophenol	"	"	"		25.0	ND	"	
Phenol	"	"	"		25.0	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		25.0	ND	"	
2,4,5-Trichlorophenol	"	"	"		25.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		25.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*40.7*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*84.7*	"	

North Creek Analytical - Portland

**Refer to end of report for text of notes and definitions*

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Phenols per EPA Method 8041
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
024-GG-01			**P910432-01**				**Water**	**11**
4-Chloro-3-methylphenol	1090659	10/26/99	10/29/99		45.5	ND	ug/l	
2-Chlorophenol	"	"	"		45.5	ND	"	
Cresols	"	"	"		45.5	ND	"	
2,4-Dichlorophenol	"	"	"		45.5	ND	"	
2,6-Dichlorophenol	"	"	"		45.5	ND	"	
2,4-Dimethylphenol	"	"	"		45.5	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		45.5	ND	"	
2,4-Dinitrophenol	"	"	"		114	ND	"	
Dinoseb	"	"	"		45.5	ND	"	
2-Nitrophenol	"	"	"		45.5	ND	"	
4-Nitrophenol	"	"	"		45.5	ND	"	
Pentachlorophenol	"	"	"		45.5	ND	"	
Phenol	"	"	"		45.5	ND	"	
[illegible],6-Tetrachlorophenol	"	"	"		45.5	ND	"	
[illegible]-Trichlorophenol	"	"	"		45.5	ND	"	
2,4,6-Trichlorophenol	"	"	"		45.5	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*70.3*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*92.3*	"	
025-GG-01			**P910432-02**				**Water**	**2**
4-Chloro-3-methylphenol	1090659	10/26/99	10/30/99		250	ND	ug/l	
2-Chlorophenol	"	"	"		250	ND	"	
Cresols	"	"	"		250	ND	"	
2,4-Dichlorophenol	"	"	"		250	ND	"	
2,6-Dichlorophenol	"	"	10/29/99		500	ND	"	5
2,4-Dimethylphenol	"	"	10/30/99		250	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		250	ND	"	
2,4-Dinitrophenol	"	"	"		625	ND	"	
Dinoseb	"	"	"		250	ND	"	
2-Nitrophenol	"	"	"		250	ND	"	
4-Nitrophenol	"	"	"		250	ND	"	
Pentachlorophenol	"	"	"		250	ND	"	
Phenol	"	"	"		250	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		250	ND	"	
2,4,5-Trichlorophenol	"	"	"		250	ND	"	
2,4,6-Trichlorophenol	"	"	"		250	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*65.6*	%	*12*
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*137*	"	

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Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Phenols per EPA Method 8041
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
026-GG-01			**P910433-01**				**Water**	**2**
4-Chloro-3-methylphenol	1090659	10/26/99	10/30/99		250	ND	ug/l	
2-Chlorophenol	"	"	"		250	ND	"	
Cresols	"	"	"		250	ND	"	
2,4-Dichlorophenol	"	"	"		250	ND	"	
2,6-Dichlorophenol	"	"	"		250	ND	"	
2,4-Dimethylphenol	"	"	"		250	**598**	"	
4,6-Dinitro-2-methylphenol	"	"	"		250	ND	"	
2,4-Dinitrophenol	"	"	"		625	ND	"	
Dinoseb	"	"	"		250	ND	"	
2-Nitrophenol	"	"	"		250	ND	"	
4-Nitrophenol	"	"	"		250	ND	"	
Pentachlorophenol	"	"	"		250	ND	"	
Phenol	"	"	"		250	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		250	ND	"	
2,4,5-Trichlorophenol	"	"	"		250	ND	"	
2,4,6-Trichlorophenol	"	"	"		250	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*NR*	*%*	*3*
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*NR*	"	*3*
027-GG-01			**P910433-02**				**Water**	
4-Chloro-3-methylphenol	1090659	10/26/99	10/29/99		25.0	ND	ug/l	
2-Chlorophenol	"	"	"		25.0	ND	"	
Cresols	"	"	"		25.0	ND	"	
2,4-Dichlorophenol	"	"	"		25.0	ND	"	
2,6-Dichlorophenol	"	"	"		25.0	ND	"	
2,4-Dimethylphenol	"	"	"		25.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		25.0	ND	"	
2,4-Dinitrophenol	"	"	"		62.5	ND	"	
Dinoseb	"	"	"		25.0	ND	"	
2-Nitrophenol	"	"	"		25.0	ND	"	
4-Nitrophenol	"	"	"		25.0	ND	"	
Pentachlorophenol	"	"	"		25.0	ND	"	
Phenol	"	"	"		25.0	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		25.0	ND	"	
2,4,5-Trichlorophenol	"	"	"		25.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		25.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*54.5*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*93.7*	"	

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Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
017-GG-04			**P910376-01**				**Water**	
Aldrin	1090665	10/22/99	10/26/99		0.100	ND	ug/l	
alpha-BHC	"	"	"		0.100	ND	"	
beta-BHC	"	"	"		0.100	ND	"	
delta-BHC	"	"	"		0.100	ND	"	
gamma-BHC (Lindane)	"	"	"		0.100	ND	"	
alpha-Chlordane	"	"	"		0.100	ND	"	
gamma-Chlordane	"	"	"		0.100	ND	"	
Chlordane (tech)	"	"	"		1.00	ND	"	
4,4'-DDD	"	"	"		0.100	ND	"	
4,4'-DDE	"	"	"		0.100	ND	"	
4,4'-DDT	"	"	"		0.100	ND	"	
Dieldrin	"	"	"		0.100	ND	"	
Endosulfan I	"	"	"		0.100	ND	"	
dosulfan II	"	"	"		0.100	ND	"	
dosulfan sulfate	"	"	"		0.100	ND	"	
Endrin	"	"	"		0.100	ND	"	
Endrin aldehyde	"	"	"		0.100	ND	"	
Endrin ketone	"	"	"		0.100	ND	"	
Heptachlor	"	"	"		0.100	ND	"	
Heptachlor epoxide	"	"	"		0.100	ND	"	
Hexachlorobenzene	"	"	"		0.100	ND	"	
Methoxychlor	"	"	"		0.100	ND	"	
Toxaphene	"	"	"		2.50	ND	"	
Aroclor 1016	"	"	10/25/99		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*10/26/99*	*44.0-119*		*103*	*%*	
Surrogate: Decachlorobiphenyl	"	"	*10/25/99*	*54.0-128*		*60.0*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
020-GG-01			**P910377-01**				**Water**	
Aldrin	1090665	10/22/99	10/26/99		0.100	ND	ug/l	
alpha-BHC	"	"	"		0.100	ND	"	
beta-BHC	"	"	"		0.100	ND	"	
delta-BHC	"	"	"		0.100	ND	"	
gamma-BHC (Lindane)	"	"	"		0.100	ND	"	
alpha-Chlordane	"	"	"		0.100	ND	"	
gamma-Chlordane	"	"	"		0.100	ND	"	
Chlordane (tech)	"	"	"		1.00	ND	"	
4,4'-DDD	"	"	"		0.100	ND	"	
4,4'-DDE	"	"	"		0.100	ND	"	
4,4'-DDT	"	"	"		0.100	ND	"	
Dieldrin	"	"	"		0.100	ND	"	
Endosulfan I	"	"	"		0.100	ND	"	
Endosulfan II	"	"	"		0.100	ND	"	
Endosulfan sulfate	"	"	"		0.100	ND	"	
Endrin	"	"	"		0.100	ND	"	
Endrin aldehyde	"	"	"		0.100	ND	"	
Endrin ketone	"	"	"		0.100	ND	"	
Heptachlor	"	"	"		0.100	ND	"	
Heptachlor epoxide	"	"	"		0.100	ND	"	
Hexachlorobenzene	"	"	"		0.100	ND	"	
Methoxychlor	"	"	"		0.100	ND	"	
Toxaphene	"	"	"		2.50	ND	"	
Aroclor 1016	"	"	"		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	"	*44.0-119*		*93.0*	*%*	
Surrogate: Decachlorobiphenyl	"	"	"	*54.0-128*		*33.7*	"	*14*

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
021-GG-01			**P910399-01**				**Water**	
Aldrin	1090665	10/22/99	10/26/99		0.100	ND	ug/l	
alpha-BHC	"	"	"		0.100	ND	"	
beta-BHC	"	"	"		0.100	ND	"	
delta-BHC	"	"	"		0.100	ND	"	
gamma-BHC (Lindane)	"	"	"		0.100	ND	"	
alpha-Chlordane	"	"	"		0.100	ND	"	
gamma-Chlordane	"	"	"		0.100	ND	"	
Chlordane (tech)	"	"	"		1.00	ND	"	
4,4'-DDD	"	"	"		0.100	ND	"	
4,4'-DDE	"	"	"		0.100	ND	"	
4,4'-DDT	"	"	"		0.100	ND	"	
Dieldrin	"	"	"		0.100	ND	"	
Endosulfan I	"	"	"		0.100	ND	"	
Endosulfan II	"	"	"		0.100	ND	"	
Endosulfan sulfate	"	"	"		0.100	ND	"	
Endrin	"	"	"		0.100	ND	"	
Endrin aldehyde	"	"	"		0.100	ND	"	
Endrin ketone	"	"	"		0.100	ND	"	
Heptachlor	"	"	"		0.100	ND	"	
Heptachlor epoxide	"	"	"		0.100	ND	"	
Hexachlorobenzene	"	"	"		0.100	ND	"	
Methoxychlor	"	"	"		0.100	ND	"	
Toxaphene	"	"	"		2.50	ND	"	
Aroclor 1016	"	"	10/25/99		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*10/26/99*	*44.0-119*		*101*	*%*	
Surrogate: Decachlorobiphenyl	"	"	*10/25/99*	*54.0-128*		*43.9*	"	*14*

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
022-GG-02			**P910399-03**				**Water**	
Aldrin	1090665	10/22/99	10/26/99		0.100	ND	ug/l	
alpha-BHC	"	"	"		0.100	ND	"	
beta-BHC	"	"	"		0.100	ND	"	
delta-BHC	"	"	"		0.100	ND	"	
gamma-BHC (Lindane)	"	"	"		0.100	ND	"	
alpha-Chlordane	"	"	"		0.100	ND	"	
gamma-Chlordane	"	"	"		0.100	ND	"	
Chlordane (tech)	"	"	"		1.00	ND	"	
4,4'-DDD	"	"	"		0.100	ND	"	
4,4'-DDE	"	"	"		0.100	ND	"	
4,4'-DDT	"	"	"		0.100	ND	"	
Dieldrin	"	"	"		0.100	ND	"	
Endosulfan I	"	"	"		0.100	ND	"	
Endosulfan II	"	"	"		0.100	ND	"	
Endosulfan sulfate	"	"	"		0.100	ND	"	
Endrin	"	"	"		0.100	ND	"	
Endrin aldehyde	"	"	"		0.100	ND	"	
Endrin ketone	"	"	"		0.100	ND	"	
Heptachlor	"	"	"		0.100	ND	"	
Heptachlor epoxide	"	"	"		0.100	ND	"	
Hexachlorobenzene	"	"	"		0.100	ND	"	
Methoxychlor	"	"	"		0.100	ND	"	
Toxaphene	"	"	"		2.50	ND	"	
Aroclor 1016	"	"	10/25/99		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*10/26/99*	*44.0-119*		*101*	%	
Surrogate: Decachlorobiphenyl	"	"	*10/25/99*	*54.0-128*		*45.3*	"	*14*

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
019-GG-01			**P910400-01**				**Water**	
Aldrin	1090665	10/22/99	10/26/99		0.100	ND	ug/l	
alpha-BHC	"	"	"		0.100	ND	"	
beta-BHC	"	"	"		0.100	ND	"	
delta-BHC	"	"	"		0.100	ND	"	
gamma-BHC (Lindane)	"	"	"		0.100	ND	"	
alpha-Chlordane	"	"	"		0.100	ND	"	
gamma-Chlordane	"	"	"		0.100	ND	"	
Chlordane (tech)	"	"	"		1.00	ND	"	
4,4'-DDD	"	"	"		0.100	ND	"	
4,4'-DDE	"	"	"		0.100	ND	"	
4,4'-DDT	"	"	"		0.100	ND	"	
Dieldrin	"	"	"		0.100	ND	"	
Endosulfan I	"	"	"		0.100	ND	"	
Endosulfan II	"	"	"		0.100	ND	"	
Endosulfan sulfate	"	"	"		0.100	ND	"	
Endrin	"	"	"		0.100	ND	"	
Endrin aldehyde	"	"	"		0.100	ND	"	
Endrin ketone	"	"	"		0.100	ND	"	
Heptachlor	"	"	"		0.100	ND	"	
Heptachlor epoxide	"	"	"		0.100	ND	"	
Hexachlorobenzene	"	"	"		0.100	ND	"	
Methoxychlor	"	"	"		0.100	ND	"	
Toxaphene	"	"	"		2.50	ND	"	
Aroclor 1016	"	"	10/25/99		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*10/26/99*	*44.0-119*		*114*	*%*	
Surrogate: Decachlorobiphenyl	"	"	*10/25/99*	*54.0-128*		*66.7*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
022-GG-01			**P910400-02**				**Water**	
Aldrin	1090665	10/22/99	10/26/99		0.100	ND	ug/l	
alpha-BHC	"	"	"		0.100	ND	"	
beta-BHC	"	"	"		0.100	ND	"	
delta-BHC	"	"	"		0.100	ND	"	
gamma-BHC (Lindane)	"	"	"		0.100	ND	"	
alpha-Chlordane	"	"	"		0.100	ND	"	
gamma-Chlordane	"	"	"		0.100	ND	"	
Chlordane (tech)	"	"	"		1.00	ND	"	
4,4'-DDD	"	"	"		0.100	ND	"	
4,4'-DDE	"	"	"		0.100	ND	"	
4,4'-DDT	"	"	"		0.100	ND	"	
Dieldrin	"	"	"		0.100	ND	"	
Endosulfan I	"	"	"		0.100	ND	"	
Endosulfan II	"	"	"		0.100	ND	"	
Endosulfan sulfate	"	"	"		0.100	ND	"	
Endrin	"	"	"		0.100	ND	"	
Endrin aldehyde	"	"	"		0.100	ND	"	
Endrin ketone	"	"	"		0.100	ND	"	
Heptachlor	"	"	"		0.100	ND	"	
Heptachlor epoxide	"	"	"		0.100	ND	"	
Hexachlorobenzene	"	"	"		0.100	ND	"	
Methoxychlor	"	"	"		0.100	ND	"	
Toxaphene	"	"	"		2.50	ND	"	
Aroclor 1016	"	"	10/25/99		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*10/26/99*	*44.0-119*		*106*	*%*	
Surrogate: Decachlorobiphenyl	"	"	*10/25/99*	*54.0-128*		*33.1*	"	*14*

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
023-GG-01			**P910431-01**				**Water**	
Aldrin	1090665	10/22/99	10/27/99		0.100	ND	ug/l	
alpha-BHC	"	"	"		0.100	ND	"	
beta-BHC	"	"	"		0.100	ND	"	
delta-BHC	"	"	"		0.100	ND	"	
gamma-BHC (Lindane)	"	"	"		0.100	ND	"	
alpha-Chlordane	"	"	"		0.100	ND	"	
gamma-Chlordane	"	"	"		0.100	ND	"	
Chlordane (tech)	"	"	"		1.00	ND	"	
4,4'-DDD	"	"	"		0.100	ND	"	
4,4'-DDE	"	"	"		0.100	ND	"	
4,4'-DDT	"	"	"		0.100	ND	"	
Dieldrin	"	"	"		0.100	ND	"	
[illegible]dosulfan I	"	"	"		0.100	ND	"	
[illegible]osulfan II	"	"	"		0.100	ND	"	
Endosulfan sulfate	"	"	"		0.100	ND	"	
Endrin	"	"	"		0.100	ND	"	
Endrin aldehyde	"	"	"		0.100	ND	"	
Endrin ketone	"	"	"		0.100	ND	"	
Heptachlor	"	"	"		0.100	ND	"	
Heptachlor epoxide	"	"	"		0.100	ND	"	
Hexachlorobenzene	"	"	"		0.100	ND	"	
Methoxychlor	"	"	"		0.100	ND	"	
Toxaphene	"	"	"		2.50	ND	"	
Aroclor 1016	"	"	10/25/99		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*10/27/99*	*44.0-119*		*103*	*%*	
Surrogate: Decachlorobiphenyl	"	"	*10/25/99*	*54.0-128*		*45.1*	"	*14*

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
024-GG-01			**P910432-01**				**Water**	
Aldrin	1090665	10/22/99	10/27/99		0.100	ND	ug/l	
alpha-BHC	"	"	"		0.100	ND	"	
beta-BHC	"	"	"		0.100	ND	"	
delta-BHC	"	"	"		0.100	ND	"	
gamma-BHC (Lindane)	"	"	"		0.100	ND	"	
alpha-Chlordane	"	"	"		0.100	ND	"	
gamma-Chlordane	"	"	"		0.100	ND	"	
Chlordane (tech)	"	"	"		1.00	ND	"	
4,4'-DDD	"	"	"		0.100	ND	"	
4,4'-DDE	"	"	"		0.100	ND	"	
4,4'-DDT	"	"	"		0.100	ND	"	
Dieldrin	"	"	"		0.100	ND	"	
Endosulfan I	"	"	"		0.100	ND	"	
Endosulfan II	"	"	"		0.100	ND	"	
Endosulfan sulfate	"	"	"		0.100	ND	"	
Endrin	"	"	"		0.100	ND	"	
Endrin aldehyde	"	"	"		0.100	ND	"	
Endrin ketone	"	"	"		0.100	ND	"	
Heptachlor	"	"	"		0.100	ND	"	
Heptachlor epoxide	"	"	"		0.100	ND	"	
Hexachlorobenzene	"	"	"		0.100	ND	"	
Methoxychlor	"	"	"		0.100	ND	"	
Toxaphene	"	"	"		2.50	ND	"	
Aroclor 1016	"	"	10/26/99		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*10/27/99*	*44.0-119*		*103*	*%*	
Surrogate: Decachlorobiphenyl	"	"	*10/26/99*	*54.0-128*		*32.1*	"	*14*

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**Refer to end of report for text of notes and definitio*

Deborah Griffiths, Project Manager

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Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
025-GG-01			**P910432-02**				**Water**	
Aldrin	1090665	10/22/99	10/27/99		0.100	ND	ug/l	
alpha-BHC	"	"	"		0.100	ND	"	
beta-BHC	"	"	"		0.100	ND	"	
delta-BHC	"	"	"		0.100	ND	"	
gamma-BHC (Lindane)	"	"	"		0.100	ND	"	
alpha-Chlordane	"	"	"		0.100	ND	"	
gamma-Chlordane	"	"	"		0.100	ND	"	
Chlordane (tech)	"	"	"		1.00	ND	"	
4,4'-DDD	"	"	"		0.100	ND	"	
4,4'-DDE	"	"	"		0.100	ND	"	
4,4'-DDT	"	"	"		0.100	ND	"	
Dieldrin	"	"	"		0.100	ND	"	
Endosulfan I	"	"	"		0.100	ND	"	
Endosulfan II	"	"	"		0.100	ND	"	
Endosulfan sulfate	"	"	"		0.100	ND	"	
Endrin	"	"	"		0.100	ND	"	
Endrin aldehyde	"	"	"		0.100	ND	"	
Endrin ketone	"	"	"		0.100	ND	"	
Heptachlor	"	"	"		0.100	ND	"	
Heptachlor epoxide	"	"	"		0.100	ND	"	
Hexachlorobenzene	"	"	"		0.100	ND	"	
Methoxychlor	"	"	"		0.100	ND	"	
Toxaphene	"	"	"		2.50	ND	"	
Aroclor 1016	"	"	"		0.500	ND	"	
Aroclor 1221	"	"	10/26/99		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*10/27/99*	*44.0-119*		*117*	*%*	
Surrogate: Decachlorobiphenyl	"	"	*10/26/99*	*54.0-128*		*34.7*	"	*14*

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
026-GG-01			**P910433-01**				**Water**	
Aldrin	1090665	10/22/99	10/27/99		1.00	ND	ug/l	2
alpha-BHC	"	"	"		1.00	ND	"	2
beta-BHC	"	"	"		1.00	ND	"	2
delta-BHC	"	"	"		1.00	ND	"	2
gamma-BHC (Lindane)	"	"	"		1.00	ND	"	2
alpha-Chlordane	"	"	"		1.00	ND	"	2
gamma-Chlordane	"	"	"		1.00	ND	"	2
Chlordane (tech)	"	"	"		10.0	ND	"	2
4,4'-DDD	"	"	"		1.00	ND	"	2
4,4'-DDE	"	"	"		1.00	ND	"	2
4,4'-DDT	"	"	"		1.00	ND	"	2
Dieldrin	"	"	"		1.00	ND	"	2
Endosulfan I	"	"	"		1.00	ND	"	2
Endosulfan II	"	"	"		1.00	ND	"	2
Endosulfan sulfate	"	"	"		1.00	ND	"	2
Endrin	"	"	"		1.00	ND	"	2
Endrin aldehyde	"	"	"		1.00	ND	"	2
Endrin ketone	"	"	"		1.00	ND	"	2
Heptachlor	"	"	"		1.00	ND	"	2
Heptachlor epoxide	"	"	"		1.00	ND	"	2
Hexachlorobenzene	"	"	"		1.00	ND	"	2
Methoxychlor	"	"	"		1.00	ND	"	2
Toxaphene	"	"	"		25.0	ND	"	2
Aroclor 1016	"	"	10/26/99		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.750	ND	"	5
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*10/27/99*	*44.0-119*		*111*	*%*	
Surrogate: Decachlorobiphenyl	"	"	*10/26/99*	*54.0-128*		*29.0*	"	*14*

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Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
027-GG-01			**P910433-02**				**Water**	
Aldrin	1090665	10/22/99	10/27/99		0.100	ND	ug/l	
alpha-BHC	"	"	"		0.100	ND	"	
beta-BHC	"	"	"		0.100	ND	"	
delta-BHC	"	"	"		0.100	ND	"	
gamma-BHC (Lindane)	"	"	"		0.100	ND	"	
alpha-Chlordane	"	"	"		0.100	ND	"	
gamma-Chlordane	"	"	"		0.100	ND	"	
Chlordane (tech)	"	"	"		1.00	ND	"	
4,4'-DDD	"	"	"		0.100	ND	"	
4,4'-DDE	"	"	"		0.100	ND	"	
4,4'-DDT	"	"	"		0.100	ND	"	
Dieldrin	"	"	"		0.100	ND	"	
Endosulfan I	"	"	"		0.100	ND	"	
[illegible]dosulfan II	"	"	"		0.100	ND	"	
[illegible]ndosulfan sulfate	"	"	"		0.100	ND	"	
Endrin	"	"	"		0.100	ND	"	
Endrin aldehyde	"	"	"		0.100	ND	"	
Endrin ketone	"	"	"		0.100	ND	"	
Heptachlor	"	"	"		0.100	ND	"	
Heptachlor epoxide	"	"	"		0.100	ND	"	
Hexachlorobenzene	"	"	"		0.100	ND	"	
Methoxychlor	"	"	"		0.100	ND	"	
Toxaphene	"	"	"		2.50	ND	"	
Aroclor 1016	"	"	10/26/99		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*10/27/99*	*44.0-119*		*94.1*	*%*	
Surrogate: Decachlorobiphenyl	"	"	*10/26/99*	*54.0-128*		*28.0*	"	*14*

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Organophosphorus Pesticides per EPA Method 8141A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
017-GG-04			**P910376-01**				**Water**	**23**
Azinphos methyl	1090778	10/26/99	10/28/99		1.00	ND	ug/l	
Bolstar	"	"	"		1.00	ND	"	
Chlorpyrifos	"	"	"		1.00	ND	"	
Coumaphos	"	"	"		1.00	ND	"	
Demeton	"	"	"		1.00	ND	"	
Diazinon	"	"	"		1.00	ND	"	
Dichlorvos	"	"	"		1.00	ND	"	
Disulfoton	"	"	"		1.00	ND	"	
EPN	"	"	"		1.00	ND	"	
Ethoprop	"	"	"		1.00	ND	"	
Fensulfothion	"	"	"		2.00	ND	"	
Fenthion	"	"	"		1.00	ND	"	
Malathion	"	"	"		1.00	ND	"	
Mevinphos	"	"	"		1.00	ND	"	
Naled	"	"	"		1.00	ND	"	
Parathion-ethyl	"	"	"		1.00	ND	"	
Parathion-methyl	"	"	"		1.00	ND	"	
Phorate	"	"	"		1.00	ND	"	
Ronnel	"	"	"		1.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		1.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		1.00	ND	"	
Trichloronate	"	"	"		1.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*87.4*	*%*	
Surrogate: TPP	"	"	"	*65.0-138*		*85.7*	"	
020-GG-01			**P910377-01**				**Water**	
Azinphos methyl	1090655	10/22/99	10/28/99		1.00	ND	ug/l	
Bolstar	"	"	"		1.00	ND	"	
Chlorpyrifos	"	"	"		1.00	ND	"	
Coumaphos	"	"	"		1.00	ND	"	
Demeton	"	"	"		1.00	ND	"	
Diazinon	"	"	"		1.00	ND	"	
Dichlorvos	"	"	"		1.00	ND	"	
Disulfoton	"	"	"		1.00	ND	"	
EPN	"	"	"		1.00	ND	"	
Ethoprop	"	"	"		1.00	ND	"	
Fensulfothion	"	"	"		2.00	ND	"	
Fenthion	"	"	"		1.00	ND	"	

North Creek Analytical - Portland

**Refer to end of report for text of notes and definitions.*

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Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Organophosphorus Pesticides per EPA Method 8141A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
020-GG-01 (continued)			**P910377-01**				**Water**	
Malathion	1090655	10/22/99	10/28/99		1.00	ND	ug/l	
Mevinphos	"	"	"		1.00	ND	"	
Naled	"	"	"		1.00	ND	"	
Parathion-ethyl	"	"	"		1.00	ND	"	
Parathion-methyl	"	"	"		1.00	ND	"	
Phorate	"	"	"		1.00	ND	"	
Ronnel	"	"	"		1.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		1.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		1.00	ND	"	
Trichloronate	"	"	"		1.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*75.4*	*%*	
Surrogate: TPP	"	"	"	*65.0-138*		*87.3*	"	
[illegible]-GG-01			**P910399-01**				**Water**	
[illegible]zinphos methyl	1090655	10/22/99	10/26/99		1.00	ND	ug/l	
Bolstar	"	"	"		1.00	ND	"	
Chlorpyrifos	"	"	"		1.00	ND	"	
Coumaphos	"	"	"		1.00	ND	"	
Demeton	"	"	"		1.00	ND	"	
Diazinon	"	"	"		1.00	ND	"	
Dichlorvos	"	"	"		1.00	ND	"	
Disulfoton	"	"	"		1.00	ND	"	
EPN	"	"	"		1.00	ND	"	
Ethoprop	"	"	"		1.00	ND	"	
Fensulfothion	"	"	"		2.00	ND	"	
Fenthion	"	"	"		1.00	ND	"	
Malathion	"	"	"		1.00	ND	"	
Mevinphos	"	"	"		1.00	ND	"	
Naled	"	"	"		1.00	ND	"	
Parathion-ethyl	"	"	"		1.00	ND	"	
Parathion-methyl	"	"	"		1.00	ND	"	
Phorate	"	"	"		1.00	ND	"	
Ronnel	"	"	"		1.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		1.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		1.00	ND	"	
Trichloronate	"	"	"		1.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*77.1*	*%*	
Surrogate: TPP	"	"	"	*65.0-138*		*75.0*	"	

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111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Organophosphorus Pesticides per EPA Method 8141A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
022-GG-02			**P910399-03**				**Water**	
Azinphos methyl	1090655	10/22/99	10/26/99		1.00	ND	ug/l	
Bolstar	"	"	"		1.00	ND	"	
Chlorpyrifos	"	"	"		1.00	ND	"	
Coumaphos	"	"	"		1.00	ND	"	
Demeton	"	"	"		1.00	ND	"	
Diazinon	"	"	"		1.00	ND	"	
Dichlorvos	"	"	"		1.00	ND	"	
Disulfoton	"	"	"		1.00	ND	"	
EPN	"	"	"		1.00	ND	"	
Ethoprop	"	"	"		1.00	ND	"	
Fensulfothion	"	"	"		2.00	ND	"	
Fenthion	"	"	"		1.00	ND	"	
Malathion	"	"	"		1.00	ND	"	
Mevinphos	"	"	"		1.00	ND	"	
Naled	"	"	"		1.00	ND	"	
Parathion-ethyl	"	"	"		1.00	ND	"	
Parathion-methyl	"	"	"		1.00	ND	"	
Phorate	"	"	"		1.00	ND	"	
Ronnel	"	"	"		1.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		1.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		1.00	ND	"	
Trichloronate	"	"	"		1.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*82.2*	*%*	
Surrogate: TPP	"	"	"	*65.0-138*		*81.4*	"	
019-GG-01			**P910400-01**				**Water**	
Azinphos methyl	1090655	10/22/99	10/26/99		1.00	ND	ug/l	
Bolstar	"	"	"		1.00	ND	"	
Chlorpyrifos	"	"	"		1.00	ND	"	
Coumaphos	"	"	"		1.00	ND	"	
Demeton	"	"	"		1.00	ND	"	
Diazinon	"	"	"		1.00	ND	"	
Dichlorvos	"	"	"		1.00	ND	"	
Disulfoton	"	"	"		1.00	ND	"	
EPN	"	"	"		1.00	ND	"	
Ethoprop	"	"	"		1.00	ND	"	
Fensulfothion	"	"	"		2.00	ND	"	
Fenthion	"	"	"		1.00	ND	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Organophosphorus Pesticides per EPA Method 8141A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
019-GG-01 (continued)			**P910400-01**				**Water**	
Malathion	1090655	10/22/99	10/26/99		1.00	ND	ug/l	
Mevinphos	"	"	"		1.00	ND	"	
Naled	"	"	"		1.00	ND	"	
Parathion-ethyl	"	"	"		1.00	ND	"	
Parathion-methyl	"	"	"		1.00	ND	"	
Phorate	"	"	"		1.00	ND	"	
Ronnel	"	"	"		1.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		1.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		1.00	ND	"	
Trichloronate	"	"	"		1.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*60.6*	*%*	*14*
Surrogate: TPP	"	"	"	*65.0-138*		*66.9*	"	
[redacted]GG-01			**P910400-02**				**Water**	
Azinphos methyl	1090655	10/22/99	10/26/99		1.00	ND	ug/l	
Bolstar	"	"	"		1.00	ND	"	
Chlorpyrifos	"	"	"		1.00	ND	"	
Coumaphos	"	"	"		1.00	ND	"	
Demeton	"	"	"		1.00	ND	"	
Diazinon	"	"	"		1.00	ND	"	
Dichlorvos	"	"	"		1.00	ND	"	
Disulfoton	"	"	"		1.00	ND	"	
EPN	"	"	"		1.00	ND	"	
Ethoprop	"	"	"		1.00	ND	"	
Fensulfothion	"	"	"		2.00	ND	"	
Fenthion	"	"	"		1.00	ND	"	
Malathion	"	"	"		1.00	ND	"	
Mevinphos	"	"	"		1.00	ND	"	
Naled	"	"	"		1.00	ND	"	
Parathion-ethyl	"	"	"		1.00	ND	"	
Parathion-methyl	"	"	"		1.00	ND	"	
Phorate	"	"	"		1.00	ND	"	
Ronnel	"	"	"		1.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		1.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		1.00	ND	"	
Trichloronate	"	"	"		1.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*79.2*	*%*	
Surrogate: TPP	"	"	"	*65.0-138*		*78.4*	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Organophosphorus Pesticides per EPA Method 8141A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
023-GG-01			**P910431-01**				**Water**	
Azinphos methyl	1090655	10/22/99	10/28/99		1.00	ND	ug/l	
Bolstar	"	"	"		1.00	ND	"	
Chlorpyrifos	"	"	"		1.00	ND	"	
Coumaphos	"	"	"		1.00	ND	"	
Demeton	"	"	"		1.00	ND	"	
Diazinon	"	"	"		1.00	ND	"	
Dichlorvos	"	"	"		1.00	ND	"	
Disulfoton	"	"	"		1.00	ND	"	
EPN	"	"	"		1.00	ND	"	
Ethoprop	"	"	"		1.00	ND	"	
Fensulfothion	"	"	"		2.00	ND	"	
Fenthion	"	"	"		1.00	ND	"	
Malathion	"	"	"		1.00	ND	"	
Mevinphos	"	"	"		1.00	ND	"	
Naled	"	"	"		1.00	ND	"	
Parathion-ethyl	"	"	"		1.00	ND	"	
Parathion-methyl	"	"	"		1.00	ND	"	
Phorate	"	"	"		1.00	ND	"	
Ronnel	"	"	"		1.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		1.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		1.00	ND	"	
Trichloronate	"	"	"		1.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*90.3*	*%*	
Surrogate: TPP	"	"	"	*65.0-138*		*92.8*	"	
024-GG-01			**P910432-01**				**Water**	
Azinphos methyl	1090655	10/22/99	10/28/99		1.00	ND	ug/l	
Bolstar	"	"	"		1.00	ND	"	
Chlorpyrifos	"	"	"		1.00	ND	"	
Coumaphos	"	"	"		1.00	ND	"	
Demeton	"	"	"		1.00	ND	"	
Diazinon	"	"	"		1.00	ND	"	
Dichlorvos	"	"	"		1.00	ND	"	
Disulfoton	"	"	"		1.00	ND	"	
EPN	"	"	"		1.00	ND	"	
Ethoprop	"	"	"		1.00	ND	"	
Fensulfothion	"	"	"		2.00	ND	"	
Fenthion	"	"	"		1.00	ND	"	

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Organophosphorus Pesticides per EPA Method 8141A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
024-GG-01 (continued)			**P910432-01**				**Water**	
Malathion	1090655	10/22/99	10/28/99		1.00	ND	ug/l	
Mevinphos	"	"	"		1.00	ND	"	
Naled	"	"	"		1.00	ND	"	
Parathion-ethyl	"	"	"		1.00	ND	"	
Parathion-methyl	"	"	"		1.00	ND	"	
Phorate	"	"	"		1.00	ND	"	
Ronnel	"	"	"		1.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		1.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		1.00	ND	"	
Trichloronate	"	"	"		1.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*88.9*	*%*	
Surrogate: TPP	"	"	"	*65.0-138*		*82.6*	"	
[illegible]-GG-01			**P910432-02**				**Water**	
Azinphos methyl	1090655	10/22/99	10/28/99		1.00	ND	ug/l	
Bolstar	"	"	"		1.00	ND	"	
Chlorpyrifos	"	"	"		1.00	ND	"	
Coumaphos	"	"	"		1.00	ND	"	
Demeton	"	"	"		1.00	ND	"	
Diazinon	"	"	"		1.00	ND	"	
Dichlorvos	"	"	"		1.00	ND	"	
Disulfoton	"	"	"		1.00	ND	"	
EPN	"	"	"		1.00	ND	"	
Ethoprop	"	"	"		1.00	ND	"	
Fensulfothion	"	"	"		2.00	ND	"	
Fenthion	"	"	"		1.00	ND	"	
Malathion	"	"	"		1.00	ND	"	
Mevinphos	"	"	"		1.00	ND	"	
Naled	"	"	"		1.00	ND	"	
Parathion-ethyl	"	"	"		1.00	ND	"	
Parathion-methyl	"	"	"		1.00	ND	"	
Phorate	"	"	"		1.00	ND	"	
Ronnel	"	"	"		1.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		1.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		1.00	ND	"	
Trichloronate	"	"	"		1.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*85.6*	*%*	
Surrogate: TPP	"	"	"	*65.0-138*		*93.6*	"	

**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

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Organophosphorus Pesticides per EPA Method 8141A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
026-GG-01			**P910433-01**				**Water**	
Azinphos methyl	1090655	10/22/99	10/28/99		1.00	ND	ug/l	
Bolstar	"	"	"		1.00	ND	"	
Chlorpyrifos	"	"	"		1.00	ND	"	
Coumaphos	"	"	"		1.00	ND	"	
Demeton	"	"	"		1.00	ND	"	
Diazinon	"	"	"		1.00	ND	"	
Dichlorvos	"	"	"		1.00	ND	"	
Disulfoton	"	"	"		1.00	ND	"	
EPN	"	"	"		1.00	ND	"	
Ethoprop	"	"	"		1.00	ND	"	
Fensulfothion	"	"	"		2.00	ND	"	
Fenthion	"	"	"		1.00	ND	"	
Malathion	"	"	"		1.00	ND	"	
Mevinphos	"	"	"		1.00	ND	"	
Naled	"	"	"		1.00	ND	"	
Parathion-ethyl	"	"	"		1.00	ND	"	
Parathion-methyl	"	"	"		1.00	ND	"	
Phorate	"	"	"		1.00	ND	"	
Ronnel	"	"	"		1.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		1.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		1.00	ND	"	
Trichloronate	"	"	"		1.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*82.2*	*%*	
Surrogate: TPP	"	"	"	*65.0-138*		*26.9*	"	*14*
027-GG-01			**P910433-02**				**Water**	
Azinphos methyl	1090655	10/22/99	10/28/99		1.00	ND	ug/l	
Bolstar	"	"	"		1.00	ND	"	
Chlorpyrifos	"	"	"		1.00	ND	"	
Coumaphos	"	"	"		1.00	ND	"	
Demeton	"	"	"		1.00	ND	"	
Diazinon	"	"	"		1.00	ND	"	
Dichlorvos	"	"	"		1.00	ND	"	
Disulfoton	"	"	"		1.00	ND	"	
EPN	"	"	"		1.00	ND	"	
Ethoprop	"	"	"		1.00	ND	"	
Fensulfothion	"	"	"		2.00	ND	"	
Fenthion	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled:	10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received:	10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported:	11/19/99 11:04

Organophosphorus Pesticides per EPA Method 8141A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
027-GG-01 (continued)			**P910433-02**				**Water**	
Malathion	1090655	10/22/99	10/28/99		1.00	ND	ug/l	
Mevinphos	"	"	"		1.00	ND	"	
Naled	"	"	"		1.00	ND	"	
Parathion-ethyl	"	"	"		1.00	ND	"	
Parathion-methyl	"	"	"		1.00	ND	"	
Phorate	"	"	"		1.00	ND	"	
Ronnel	"	"	"		1.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		1.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		1.00	ND	"	
Trichloronate	"	"	"		1.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*78.4*	*%*	
Surrogate: TPP	"	"	"	*65.0-138*		*77.1*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
016-GG-01			**P910341-01**				**Water**	
Acetone	1090902	10/30/99	10/30/99		2500	ND	ug/l	
Benzene	"	"	"		100	**313**	"	
Bromobenzene	"	"	"		100	ND	"	
Bromochloromethane	"	"	"		100	ND	"	
Bromodichloromethane	"	"	"		100	ND	"	
Bromoform	"	"	"		100	ND	"	
Bromomethane	"	"	"		1000	ND	"	
2-Butanone	"	"	"		2500	ND	"	
n-Butylbenzene	"	"	"		100	ND	"	
sec-Butylbenzene	"	"	"		100	ND	"	
tert-Butylbenzene	"	"	"		100	ND	"	
Carbon disulfide	"	"	"		1000	ND	"	
Carbon tetrachloride	"	"	"		200	ND	"	
Chlorobenzene	"	"	"		100	**419**	"	
Chloroethane	"	"	"		200	ND	"	
Chloroform	"	"	"		100	ND	"	
Chloromethane	"	"	"		500	ND	"	
2-Chlorotoluene	"	"	"		100	ND	"	
4-Chlorotoluene	"	"	"		100	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		100	ND	"	
Dibromochloromethane	"	"	"		100	ND	"	
1,2-Dibromoethane	"	"	"		100	ND	"	
Dibromomethane	"	"	"		100	ND	"	
1,2-Dichlorobenzene	"	"	"		100	**8120**	"	
1,3-Dichlorobenzene	"	"	"		100	**262**	"	
1,4-Dichlorobenzene	"	"	"		100	**2250**	"	
Dichlorodifluoromethane	"	"	"		500	ND	"	
1,1-Dichloroethane	"	"	"		100	ND	"	
1,2-Dichloroethane	"	"	"		100	ND	"	
1,1-Dichloroethene	"	"	"		100	ND	"	
cis-1,2-Dichloroethene	"	"	"		100	ND	"	
trans-1,2-Dichloroethene	"	"	"		100	ND	"	
1,2-Dichloropropane	"	"	"		100	ND	"	
1,3-Dichloropropane	"	"	"		100	ND	"	
2,2-Dichloropropane	"	"	"		100	ND	"	
1,1-Dichloropropene	"	"	"		100	ND	"	
cis-1,3-Dichloropropene	"	"	"		100	ND	"	
trans-1,3-Dichloropropene	"	"	"		100	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
016-GG-01 (continued)			**P910341-01**				**Water**	
Ethylbenzene	1090902	10/30/99	10/30/99		100	**4300**	ug/l	
Hexachlorobutadiene	"	"	"		200	ND	"	
2-Hexanone	"	"	"		1000	ND	"	
Iodomethane	"	"	"		2000	ND	"	
Isopropylbenzene	"	"	"		100	ND	"	
p-Isopropyltoluene	"	"	"		100	ND	"	
4-Methyl-2-pentanone	"	"	"		500	ND	"	
Methylene chloride	"	"	"		500	**2610**	"	
Naphthalene	"	"	"		100	ND	"	
n-Propylbenzene	"	"	"		100	**113**	"	
Styrene	"	"	"		100	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		100	ND	"	
[illegible],2,2-Tetrachloroethane	"	"	"		100	ND	"	
[illegible]achloroethene	"	"	"		100	ND	"	
Toluene	"	"	"		100	**888**	"	
1,2,3-Trichlorobenzene	"	"	"		100	ND	"	
1,2,4-Trichlorobenzene	"	"	"		100	ND	"	
1,1,1-Trichloroethane	"	"	"		100	ND	"	
1,1,2-Trichloroethane	"	"	"		100	ND	"	
Trichloroethene	"	"	"		100	**2170**	"	
Trichlorofluoromethane	"	"	"		100	ND	"	
1,2,3-Trichloropropane	"	"	"		100	ND	"	
1,2,4-Trimethylbenzene	"	"	"		100	**790**	"	
1,3,5-Trimethylbenzene	"	"	"		100	**261**	"	
Vinyl chloride	"	"	"		100	ND	"	
o-Xylene	"	"	"		100	**3600**	"	
m,p-Xylene	"	"	"		200	**11500**	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*103*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*105*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*97.5*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*102*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
017-GG-01			P910341-02				Water	
Acetone	1090902	10/30/99	10/30/99		25.0	**75.4**	ug/l	
Benzene	"	"	"		1.00	**18.7**	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	**28.3**	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	**423**	"	E
1,3-Dichlorobenzene	"	"	"		1.00	**11.2**	"	
1,4-Dichlorobenzene	"	"	"		1.00	**83.5**	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	**2.51**	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
017-GG-01 (continued)			**P910341-02**				**Water**	
Ethylbenzene	1090902	10/30/99	10/30/99		1.00	**193**	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	**2.48**	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	**97.4**	"	
Naphthalene	"	"	"		1.00	**1.03**	"	
n-Propylbenzene	"	"	"		1.00	**4.95**	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
[illegible]trachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	**8.58**	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	**3.70**	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	**97.0**	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	**36.0**	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	**9.05**	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	**150**	"	
m,p-Xylene	"	"	"		2.00	**69.7**	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*101*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*104*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*96.5*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*100*	"	
1,2-Dichlorobenzene	1190063	11/2/99	11/2/99		5.00	**449**	ug/l	6
Surrogate: 4-BFB	"	"	"	*75.0-135*		*101*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*114*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*104*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*100*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
Trip Blank			**P910341-03**				**Water**	
Acetone	1090902	10/30/99	10/30/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
Trip Blank (continued)			**P910341-03**				**Water**	
Ethylbenzene	1090902	10/30/99	10/30/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
...achloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*101*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*106*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*98.0*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*103*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
015-GG-01			**P910342-01**				**Water**	**16.2**
Acetone	1090902	10/30/99	10/30/99		1250	ND	ug/l	
Benzene	"	"	"		50.0	ND	"	
Bromobenzene	"	"	"		50.0	ND	"	
Bromochloromethane	"	"	"		50.0	ND	"	
Bromodichloromethane	"	"	"		50.0	ND	"	
Bromoform	"	"	"		50.0	ND	"	
Bromomethane	"	"	"		500	ND	"	
2-Butanone	"	"	"		1250	ND	"	
n-Butylbenzene	"	"	"		50.0	ND	"	
sec-Butylbenzene	"	"	"		50.0	ND	"	
tert-Butylbenzene	"	"	"		50.0	ND	"	
Carbon disulfide	"	"	"		500	ND	"	
Carbon tetrachloride	"	"	"		100	ND	"	
Chlorobenzene	"	"	"		50.0	ND	"	
Chloroethane	"	"	"		100	ND	"	
Chloroform	"	"	"		50.0	ND	"	
Chloromethane	"	"	"		250	ND	"	
2-Chlorotoluene	"	"	"		50.0	ND	"	
4-Chlorotoluene	"	"	"		50.0	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		50.0	ND	"	
Dibromochloromethane	"	"	"		50.0	ND	"	
1,2-Dibromoethane	"	"	"		50.0	ND	"	
Dibromomethane	"	"	"		50.0	ND	"	
1,2-Dichlorobenzene	"	"	"		50.0	**406**	"	
1,3-Dichlorobenzene	"	"	"		50.0	ND	"	
1,4-Dichlorobenzene	"	"	"		50.0	**93.5**	"	
Dichlorodifluoromethane	"	"	"		250	ND	"	
1,1-Dichloroethane	"	"	"		50.0	ND	"	
1,2-Dichloroethane	"	"	"		50.0	ND	"	
1,1-Dichloroethene	"	"	"		50.0	ND	"	
cis-1,2-Dichloroethene	"	"	"		50.0	ND	"	
trans-1,2-Dichloroethene	"	"	"		50.0	ND	"	
1,2-Dichloropropane	"	"	"		50.0	ND	"	
1,3-Dichloropropane	"	"	"		50.0	ND	"	
2,2-Dichloropropane	"	"	"		50.0	ND	"	
1,1-Dichloropropene	"	"	"		50.0	ND	"	
cis-1,3-Dichloropropene	"	"	"		50.0	ND	"	
trans-1,3-Dichloropropene	"	"	"		50.0	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
015-GG-01 (continued)			**P910342-01**				**Water**	**16,2**
Ethylbenzene	1090902	10/30/99	10/30/99		50.0	**1180**	ug/l	
Hexachlorobutadiene	"	"	"		100	ND	"	
2-Hexanone	"	"	"		500	ND	"	
Iodomethane	"	"	"		1000	ND	"	
Isopropylbenzene	"	"	"		50.0	**109**	"	
p-Isopropyltoluene	"	"	"		50.0	ND	"	
4-Methyl-2-pentanone	"	"	"		250	ND	"	
Methylene chloride	"	"	"		250	**393**	"	17
Naphthalene	"	"	"		50.0	ND	"	
n-Propylbenzene	"	"	"		50.0	**217**	"	
Styrene	"	"	"		50.0	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		50.0	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		50.0	ND	"	
Tetrachloroethene	"	"	"		50.0	ND	"	
Toluene	"	"	"		50.0	ND	"	
1,2,3-Trichlorobenzene	"	"	"		50.0	ND	"	
1,2,4-Trichlorobenzene	"	"	"		50.0	ND	"	
1,1,1-Trichloroethane	"	"	"		50.0	ND	"	
1,1,2-Trichloroethane	"	"	"		50.0	ND	"	
Trichloroethene	"	"	"		50.0	ND	"	
Trichlorofluoromethane	"	"	"		50.0	ND	"	
1,2,3-Trichloropropane	"	"	"		50.0	ND	"	
1,2,4-Trimethylbenzene	"	"	"		50.0	**773**	"	
1,3,5-Trimethylbenzene	"	"	"		50.0	**390**	"	
Vinyl chloride	"	"	"		50.0	ND	"	
o-Xylene	"	"	"		50.0	**915**	"	
m,p-Xylene	"	"	"		100	**3450**	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*108*	%	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*109*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*98.0*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*103*	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
015-GG-02			**P910342-02**				**Water**	**16,2**
Acetone	1090902	10/30/99	10/30/99		2500	ND	ug/l	
Benzene	"	"	"		100	ND	"	
Bromobenzene	"	"	"		100	ND	"	
Bromochloromethane	"	"	"		100	ND	"	
Bromodichloromethane	"	"	"		100	ND	"	
Bromoform	"	"	"		100	ND	"	
Bromomethane	"	"	"		1000	ND	"	
2-Butanone	"	"	"		2500	ND	"	
n-Butylbenzene	"	"	"		100	ND	"	
sec-Butylbenzene	"	"	"		100	ND	"	
tert-Butylbenzene	"	"	"		100	ND	"	
Carbon disulfide	"	"	"		1000	ND	"	
Carbon tetrachloride	"	"	"		200	ND	"	
Chlorobenzene	"	"	"		100	ND	"	
Chloroethane	"	"	"		200	ND	"	
Chloroform	"	"	"		100	ND	"	
Chloromethane	"	"	"		500	ND	"	
2-Chlorotoluene	"	"	"		100	ND	"	
4-Chlorotoluene	"	"	"		100	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		100	ND	"	
Dibromochloromethane	"	"	"		100	ND	"	
1,2-Dibromoethane	"	"	"		100	ND	"	
Dibromomethane	"	"	"		100	ND	"	
1,2-Dichlorobenzene	"	"	"		100	**980**	"	
1,3-Dichlorobenzene	"	"	"		100	ND	"	
1,4-Dichlorobenzene	"	"	"		100	**237**	"	
Dichlorodifluoromethane	"	"	"		500	ND	"	
1,1-Dichloroethane	"	"	"		100	ND	"	
1,2-Dichloroethane	"	"	"		100	ND	"	
1,1-Dichloroethene	"	"	"		100	ND	"	
cis-1,2-Dichloroethene	"	"	"		100	ND	"	
trans-1,2-Dichloroethene	"	"	"		100	ND	"	
1,2-Dichloropropane	"	"	"		100	ND	"	
1,3-Dichloropropane	"	"	"		100	ND	"	
2,2-Dichloropropane	"	"	"		100	ND	"	
1,1-Dichloropropene	"	"	"		100	ND	"	
cis-1,3-Dichloropropene	"	"	"		100	ND	"	
trans-1,3-Dichloropropene	"	"	"		100	ND	"	

North Creek Analytical - Portland

**Refer to end of report for text of notes and definitions*

Deborah Griffiths, Project Manager

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Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
015-GG-02 (continued)			**P910342-02**				**Water**	**16,2**
Ethylbenzene	1090902	10/30/99	10/30/99		100	**3050**	ug/l	
Hexachlorobutadiene	"	"	"		200	ND	"	
2-Hexanone	"	"	"		1000	ND	"	
Iodomethane	"	"	"		2000	ND	"	
Isopropylbenzene	"	"	"		100	**272**	"	
p-Isopropyltoluene	"	"	"		100	ND	"	
4-Methyl-2-pentanone	"	"	"		500	ND	"	
Methylene chloride	"	"	"		500	**866**	"	17
Naphthalene	"	"	"		100	ND	"	
n-Propylbenzene	"	"	"		100	**591**	"	
Styrene	"	"	"		100	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		100	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		100	ND	"	
[illegible]rachloroethene	"	"	"		100	ND	"	
Toluene	"	"	"		100	**106**	"	
1,2,3-Trichlorobenzene	"	"	"		100	ND	"	
1,2,4-Trichlorobenzene	"	"	"		100	ND	"	
1,1,1-Trichloroethane	"	"	"		100	ND	"	
1,1,2-Trichloroethane	"	"	"		100	ND	"	
Trichloroethene	"	"	"		100	ND	"	
Trichlorofluoromethane	"	"	"		100	ND	"	
1,2,3-Trichloropropane	"	"	"		100	ND	"	
1,2,4-Trimethylbenzene	"	"	"		100	**2110**	"	
1,3,5-Trimethylbenzene	"	"	"		100	**1050**	"	
Vinyl chloride	"	"	"		100	ND	"	
o-Xylene	"	"	"		100	**2460**	"	
m,p-Xylene	"	"	"		200	**9120**	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*105*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*108*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*96.0*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*103*	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
Trip Blank			**P910342-03**				**Water**	
Acetone	1090902	10/30/99	10/30/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
Trip Blank (continued)			**P910342-03**				**Water**	
Ethylbenzene	1090902	10/30/99	10/30/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*100*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*106*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*96.5*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*97.0*	"	

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Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
018-GG-01			**P910374-01**				**Water**	
Acetone	1090902	10/30/99	10/30/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	**3.87**	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	**1.16**	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
018-GG-01 (continued)			**P910374-01**				**Water**	
Ethylbenzene	1090902	10/30/99	10/30/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	**1.13**	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	**1.19**	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	**4.22**	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	**1.67**	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	**2.26**	"	
m,p-Xylene	"	"	"		2.00	**3.97**	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*101*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*109*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*98.0*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*100*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK			**P910374-02**				**Water**	
Acetone	1090902	10/30/99	10/30/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK (continued)			**P910374-02**				**Water**	
Ethylbenzene	1090902	10/30/99	10/30/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*106*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*108*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*97.5*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*105*	"	

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111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
017-GG-04			**P910376-01**				**Water**	
Acetone	1190063	11/2/99	11/2/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
017-GG-04 (continued)			**P910376-01**				**Water**	
Ethylbenzene	1190063	11/2/99	11/2/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
achloroethene	"	"	"		1.00	ND	"	
luene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*106*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*116*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*104*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*101*	"	

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Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK			**P910376-02**				**Water**	
Acetone	1090902	10/30/99	10/30/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK (continued)			**P910376-02**				**Water**	
Ethylbenzene	1090902	10/30/99	10/30/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
...achloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*106*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*108*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*98.5*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*101*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
020-GG-01			**P910377-01**				**Water**	
Acetone	1090902	10/30/99	10/30/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	**18.4**	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	**179**	"	
1,3-Dichlorobenzene	"	"	"		1.00	**5.03**	"	
1,4-Dichlorobenzene	"	"	"		1.00	**45.6**	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	**4.13**	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
020-GG-01 (continued)			**P910377-01**				**Water**	
Ethylbenzene	1090902	10/30/99	10/30/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
achloroethene	"	"	"		1.00	ND	"	
oluene	"	"	"		1.00	**1.34**	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	**5.84**	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	**3.59**	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*104*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*110*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*97.5*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*103*	"	

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111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK			**P910377-02**				**Water**	
Acetone	1090902	10/30/99	10/30/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK (continued)			**P910377-02**				**Water**	
Ethylbenzene	1090902	10/30/99	10/30/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*104*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*108*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*99.5*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*106*	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
021-GG-01			**P910399-01**				**Water**	
Acetone	1090902	10/30/99	10/30/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
021-GG-01 (continued)			**P910399-01**				**Water**	
Ethylbenzene	1090902	10/30/99	10/30/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
[illegible]rachloroethene	"	"	"		1.00	ND	"	
[illegible]uene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	**1.33**	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*105*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*111*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*99.5*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*101*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
022-GG-01			P910399-02				Water	
Acetone	1090902	10/30/99	10/30/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
022-GG-01 (continued)			**P910399-02**				**Water**	
Ethylbenzene	1090902	10/30/99	10/30/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
[illegible]achloroethene	"	"	"		1.00	ND	"	
[illegible]uene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*107*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*111*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*101*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*101*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK			**P910399-04**				**Water**	
Acetone	1090902	10/30/99	10/30/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK (continued)			**P910399-04**				**Water**	
Ethylbenzene	1090902	10/30/99	10/30/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
[illegible]achloroethene	"	"	"		1.00	ND	"	
[illegible]uene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*108*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*114*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*103*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*103*	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
023-GG-01			**P910431-01**				**Water**	
Acetone	1090902	10/30/99	10/30/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
023-GG-01 (continued)			**P910431-01**				**Water**	
Ethylbenzene	1090902	10/30/99	10/30/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
[illegible]trachloroethene	"	"	"		1.00	ND	"	
[illegible]oluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*103*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*109*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*100*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*106*	"	

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Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
024-GG-01			**P910431-02**				**Water**	
Acetone	1090902	10/30/99	10/30/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
024-GG-01 (continued)			**P910431-02**				**Water**	
Ethylbenzene	1090902	10/30/99	10/30/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
[illegible]rachloroethene	"	"	"		1.00	ND	"	
[illegible]uene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*101*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*117*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*104*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*104*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK			**P910431-03**				**Water**	
Acetone	1090902	10/30/99	10/30/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK (continued)			**P910431-03**				**Water**	
Ethylbenzene	1090902	10/30/99	10/30/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
[illegible]achloroethene	"	"	"		1.00	ND	"	
[illegible]uene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*104*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*116*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*102*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*99.0*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1090716	**Date Prepared: 10/25/99**					**Extraction Method: TPH-D Extraction**				
Blank	**1090716-BLK1**									
Diesel Range Organics	10/26/99			**ND**	mg/l	**0.250**				
Heavy Oil Range Hydrocarbons	"			**ND**	"	**0.500**				
Surrogate: 1-Chlorooctadecane	"	*0.100*		*0.0960*	"	*50.0-150*	*96.0*			
LCS	**1090716-BS1**									
Diesel Range Organics	10/26/99	2.55		2.51	mg/l	50.0-150	98.4			
Heavy Oil Range Hydrocarbons	"	1.32		1.26	"	50.0-150	95.5			
Surrogate: 1-Chlorooctadecane	"	*0.100*		*0.0870*	"	*50.0-150*	*87.0*			
LCS Dup	**1090716-BSD1**									
Diesel Range Organics	10/26/99	2.55		2.52	mg/l	50.0-150	98.8	50.0	0.406	
Heavy Oil Range Hydrocarbons	"	1.32		1.29	"	50.0-150	97.7	50.0	2.28	
Surrogate: 1-Chlorooctadecane	"	*0.100*		*0.0885*	"	*50.0-150*	*88.5*			
Matrix Spike	**1090716-MS1**		**P910342-01**							**19**
Diesel Range Organics	10/26/99	2.42	180	175	mg/l	50.0-150	**NR**			
Heavy Oil Range Hydrocarbons	"	1.26	ND	ND	"	50.0-150	**NR**			
Surrogate: 1-Chlorooctadecane	"	*0.0952*		*ND*	"	*50.0-150*	*NR*			*3*
Matrix Spike Dup	**1090716-MSD1**		**P910342-01**							**19**
Diesel Range Organics	10/26/99	2.40	180	155	mg/l	50.0-150	**NR**	50.0	**-134**	
Heavy Oil Range Hydrocarbons	"	1.25	ND	ND	"	50.0-150	**NR**	50.0		
Surrogate: 1-Chlorooctadecane	"	*0.0943*		*ND*	"	*50.0-150*	*NR*			*3*

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Dissolved Metals per EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1090715	**Date Prepared: 10/27/99**					**Extraction Method: EPA 7470**				
Blank	**1090715-BLK1**									
Mercury	10/27/99			**ND**	mg/l	**0.000200**				
LCS	**1090715-BS1**									
Mercury	10/27/99	0.00500		0.00531	mg/l	80.0-120	106			
Duplicate	**1090715-DUP1**		**P910342-01**							
Mercury	10/27/99		ND	ND	mg/l			20.0		
Matrix Spike	**1090715-MS1**		**P910342-01**							
Mercury	10/27/99	0.00500	ND	0.00490	mg/l	75.0-125	**98.0**			
Matrix Spike Dup	**1090715-MSD1**		**P910342-01**							
[illegible]cury	10/27/99	0.00500	ND	0.00502	mg/l	75.0-125	**100**	20.0	**2.02**	
Batch: 1090766	**Date Prepared: 10/26/99**					**Extraction Method: EPA 200/3005**				
Blank	**1090766-BLK1**									
Arsenic	10/27/99			**ND**	mg/l	**0.00100**				
Cadmium	10/26/99			**ND**	"	**0.00100**				
Chromium	"			**ND**	"	**0.00100**				
Copper	"			**ND**	"	**0.00200**				
Lead	"			**ND**	"	**0.00100**				
Nickel	"			**ND**	"	**0.00200**				
Vanadium	"			**ND**	"	**0.00500**				
Zinc	"			**ND**	"	**0.00500**				
LCS	**1090766-BS1**									
Arsenic	10/27/99	0.100		0.101	mg/l	80.0-120	101			
Cadmium	10/26/99	0.100		0.101	"	80.0-120	101			
Chromium	"	0.100		0.0906	"	80.0-120	90.6			
Copper	"	0.100		0.0969	"	80.0-120	96.9			
Lead	"	0.100		0.0998	"	80.0-120	99.8			
Nickel	"	0.100		0.0941	"	80.0-120	94.1			
Vanadium	"	0.100		0.0904	"	80.0-120	90.4			
Zinc	"	0.100		0.102	"	80.0-120	102			
Duplicate	**1090766-DUP1**		**P910342-01**							
Arsenic	10/27/99		1.07	1.03	mg/l			20.0	**3.81**	

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**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

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111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Dissolved Metals per EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Duplicate (continued)	**1090766-DUP1**		**P910342-01**							
Cadmium	10/26/99		ND	ND	mg/l			20.0		
Chromium	"		0.00341	0.00334	"			20.0	**2.07**	
Copper	"		ND	ND	"			20.0		
Lead	"		0.00103	ND	"			20.0		20
Nickel	"		0.0597	0.0565	"			20.0	**5.51**	
Vanadium	"		0.0105	0.00999	"			20.0	**4.98**	
Zinc	"		0.00709	0.00588	"			20.0	**18.7**	
Matrix Spike	**1090766-MS1**		**P910342-01**							
Arsenic	10/27/99	0.100	1.07	1.10	mg/l	75.0-125	**30.0**			19
Cadmium	10/26/99	0.100	ND	0.0907	"	75.0-125	**90.7**			
Chromium	"	0.100	0.00341	0.0990	"	75.0-125	**95.6**			
Copper	"	0.100	ND	0.0959	"	75.0-125	**95.9**			
Lead	"	0.100	0.00103	0.0894	"	75.0-125	**88.4**			
Nickel	"	0.100	0.0597	0.145	"	75.0-125	**85.3**			
Vanadium	"	0.100	0.0105	0.106	"	75.0-125	**95.5**			
Zinc	"	0.100	0.00709	0.0917	"	75.0-125	**84.6**			
Matrix Spike Dup	**1090766-MSD1**		**P910342-01**							
Arsenic	10/27/99	0.100	1.07	1.09	mg/l	75.0-125	**20.0**	20.0	**40.0**	19
Cadmium	10/26/99	0.100	ND	0.0845	"	75.0-125	**84.5**	20.0	**7.08**	
Chromium	"	0.100	0.00341	0.0896	"	75.0-125	**86.2**	20.0	**10.3**	
Copper	"	0.100	ND	0.0874	"	75.0-125	**87.4**	20.0	**9.27**	
Lead	"	0.100	0.00103	0.0828	"	75.0-125	**81.8**	20.0	**7.76**	
Nickel	11/1/99	0.100	0.0597	0.154	"	75.0-125	**94.3**	20.0	**10.0**	
Vanadium	10/26/99	0.100	0.0105	0.0974	"	75.0-125	**86.9**	20.0	**9.43**	
Zinc	"	0.100	0.00709	0.0855	"	75.0-125	**78.4**	20.0	**7.61**	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Alcohols by GC/FID Headspace Analysis/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1190298	**Date Prepared: 11/9/99**					**Extraction Method: EPA 5030**				
Blank	**1190298-BLK1**									
Isobutyl alcohol	11/9/99			**ND**	mg/l	**10.0**				
LCS	**1190298-BS1**									
Isobutyl alcohol	11/9/99	50.0		48.2	mg/l	50.0-150	96.4			
LCS Dup	**1190298-BSD1**									
Isobutyl alcohol	11/9/99	50.0		48.4	mg/l	50.0-150	96.8	25.0	0.414	
Matrix Spike	**1190298-MS1**		**P910342-01**							
Isobutyl alcohol	11/9/99	50.0	ND	47.5	mg/l	50.0-150	**95.0**			
Matrix Spike Dup	**1190298-MSD1**		**P910342-01**							
[illegible]utyl alcohol	11/9/99	50.0	ND	47.6	mg/l	50.0-150	**95.2**	25.0	**0.210**	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Phenols per EPA Method 8041/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1090624	**Date Prepared: 10/21/99**				**Extraction Method: EPA 3510/600 Series**					
Blank	**1090624-BLK1**									
4-Chloro-3-methylphenol	10/28/99			**ND**	ug/l	**25.0**				
2-Chlorophenol	"			**ND**	"	**25.0**				
Cresols	"			**ND**	"	**25.0**				
2,4-Dichlorophenol	"			**ND**	"	**25.0**				
2,6-Dichlorophenol	"			**ND**	"	**25.0**				
2,4-Dimethylphenol	"			**ND**	"	**25.0**				
4,6-Dinitro-2-methylphenol	"			**ND**	"	**25.0**				
2,4-Dinitrophenol	"			**ND**	"	**62.5**				
Dinoseb	"			**ND**	"	**25.0**				
2-Nitrophenol	"			**ND**	"	**25.0**				
4-Nitrophenol	"			**ND**	"	**25.0**				
Pentachlorophenol	"			**ND**	"	**25.0**				
Phenol	"			**ND**	"	**25.0**				
2,3,4,6-Tetrachlorophenol	"			**ND**	"	**25.0**				
2,4,5-Trichlorophenol	"			**ND**	"	**25.0**				
2,4,6-Trichlorophenol	"			**ND**	"	**25.0**				
Surrogate: 2-Fluorophenol	"	*200*		*102*	"	*22.0-83.0*	*51.0*			
Surrogate: 2,4,6-Tribromophenol	"	*200*		*162*	"	*42.0-141*	*81.0*			
LCS	**1090624-BS1**									**21**
4-Chloro-3-methylphenol	10/28/99	200		160	ug/l	23.0-97.0	80.0			
2-Chlorophenol	"	200		148	"	27.0-123	74.0			
4-Nitrophenol	"	200		81.1	"	10.0-80.0	40.5			
Pentachlorophenol	"	200		149	"	50.0-150	74.5			
Phenol	"	200		74.4	"	12.0-110	37.2			
Surrogate: 2-Fluorophenol	"	*200*		*99.0*	"	*22.0-83.0*	*49.5*			
Surrogate: 2,4,6-Tribromophenol	"	*200*		*168*	"	*42.0-141*	*84.0*			
Batch: 1090659	**Date Prepared: 10/26/99**				**Extraction Method: EPA 3510/600 Series**					
Blank	**1090659-BLK1**									
4-Chloro-3-methylphenol	10/29/99			**ND**	ug/l	**25.0**				
2-Chlorophenol	"			**ND**	"	**25.0**				
Cresols	"			**ND**	"	**25.0**				
2,4-Dichlorophenol	"			**ND**	"	**25.0**				
2,6-Dichlorophenol	"			**ND**	"	**25.0**				
2,4-Dimethylphenol	"			**ND**	"	**25.0**				
4,6-Dinitro-2-methylphenol	"			**ND**	"	**25.0**				

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Phenols per EPA Method 8041/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	**1090659-BLK1**									
2,4-Dinitrophenol	10/29/99			**ND**	ug/l	**62.5**				
Dinoseb	"			**ND**	"	**25.0**				
2-Nitrophenol	"			**ND**	"	**25.0**				
4-Nitrophenol	"			**ND**	"	**25.0**				
Pentachlorophenol	"			**ND**	"	**25.0**				
Phenol	"			**ND**	"	**25.0**				
2,3,4,6-Tetrachlorophenol	"			**ND**	"	**25.0**				
2,4,5-Trichlorophenol	"			**ND**	"	**25.0**				
2,4,6-Trichlorophenol	"			**ND**	"	**25.0**				
Surrogate: 2-Fluorophenol	"	*200*		*111*	"	*22.0-83.0*	*55.5*			
Surrogate: 2,4,6-Tribromophenol	"	*200*		*161*	"	*42.0-141*	*80.5*			
LCS	**1090659-BS1**									**21**
[illegible]loro-3-methylphenol	10/29/99	200		171	ug/l	23.0-97.0	85.5			
[illegible]lorophenol	"	200		160	"	27.0-123	80.0			
4-Nitrophenol	"	200		98.4	"	10.0-80.0	49.2			
Pentachlorophenol	"	200		164	"	50.0-150	82.0			
Phenol	"	200		89.2	"	12.0-110	44.6			
Surrogate: 2-Fluorophenol	"	*200*		*120*	"	*22.0-83.0*	*60.0*			
Surrogate: 2,4,6-Tribromophenol	"	*200*		*178*	"	*42.0-141*	*89.0*			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1090665	**Date Prepared: 10/22/99**					**Extraction Method: EPA 3510/600 Series**				
Blank	**1090665-BLK1**									
Aldrin	10/26/99			**ND**	ug/l	**0.100**				
alpha-BHC	"			**ND**	"	**0.100**				
beta-BHC	"			**ND**	"	**0.100**				
delta-BHC	"			**ND**	"	**0.100**				
gamma-BHC (Lindane)	"			**ND**	"	**0.100**				
alpha-Chlordane	"			**ND**	"	**0.100**				
gamma-Chlordane	"			**ND**	"	**0.100**				
Chlordane (tech)	"			**ND**	"	**1.00**				
4,4'-DDD	"			**ND**	"	**0.100**				
4,4'-DDE	"			**ND**	"	**0.100**				
4,4'-DDT	"			**ND**	"	**0.100**				
Dieldrin	"			**ND**	"	**0.100**				
Endosulfan I	"			**ND**	"	**0.100**				
Endosulfan II	"			**ND**	"	**0.100**				
Endosulfan sulfate	"			**ND**	"	**0.100**				
Endrin	"			**ND**	"	**0.100**				
Endrin aldehyde	"			**ND**	"	**0.100**				
Endrin ketone	"			**ND**	"	**0.100**				
Heptachlor	"			**ND**	"	**0.100**				
Heptachlor epoxide	"			**ND**	"	**0.100**				
Hexachlorobenzene	"			**ND**	"	**0.100**				
Methoxychlor	"			**ND**	"	**0.100**				
Toxaphene	"			**ND**	"	**2.50**				
Aroclor 1016	"			**ND**	"	**0.500**				
Aroclor 1221	"			**ND**	"	**1.00**				
Aroclor 1232	"			**ND**	"	**0.500**				
Aroclor 1242	"			**ND**	"	**0.500**				
Aroclor 1248	"			**ND**	"	**0.500**				
Aroclor 1254	"			**ND**	"	**0.500**				
Aroclor 1260	"			**ND**	"	**0.500**				
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	*0.500*		*0.477*	"	*44.0-119*	*95.4*			
Surrogate: Decachlorobiphenyl	"	*0.500*		*0.471*	"	*54.0-128*	*94.2*			
LCS	**1090665-BS1**									
Aldrin	10/26/99	0.250		0.196	ug/l	48.0-123	78.4			
gamma-BHC (Lindane)	"	0.250		0.221	"	47.0-137	88.4			
4,4'-DDT	"	1.00		0.843	"	77.0-128	84.3			

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**Refer to end of report for text of notes and definitions*

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS (continued)	**1090665-BS1**									
Dieldrin	10/26/99	1.00		0.907	ug/l	84.0-135	90.7			
Endrin	"	1.00		0.857	"	81.0-133	85.7			
Heptachlor	"	0.250		0.201	"	48.0-124	80.4			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	*0.500*		*0.486*	"	*44.0-119*	*97.2*			
Surrogate: Decachlorobiphenyl	"	*0.500*		*0.483*	"	*54.0-128*	*96.6*			
LCS	**1090665-BS2**									
Aroclor 1016	10/25/99	5.00		4.61	ug/l	45.0-145	92.2			
Aroclor 1260	"	5.00		4.44	"	47.0-155	88.8			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	*0.500*		*0.525*	"	*44.0-119*	*105*			
Surrogate: Decachlorobiphenyl	"	*0.500*		*0.462*	"	*54.0-128*	*92.4*			
Matrix Spike	**1090665-MS1**		**P910400-02**							
[illegible]rin	10/26/99	0.236	ND	0.163	ug/l	50.0-150	**69.1**			
[illegible]mma-BHC (Lindane)	"	0.236	ND	0.217	"	50.0-150	**91.9**			
4,4'-DDT	"	0.943	ND	0.635	"	50.0-150	**67.3**			
Dieldrin	"	0.943	ND	0.838	"	50.0-150	**88.9**			
Endrin	"	0.943	ND	0.786	"	50.0-150	**83.4**			
Heptachlor	"	0.236	ND	0.186	"	50.0-150	**78.8**			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	*0.472*		*0.469*	"	*44.0-119*	*99.4*			
Surrogate: Decachlorobiphenyl	"	*0.472*		*0.185*	"	*54.0-128*	*39.2*			*14*
Matrix Spike Dup	**1090665-MSD1**		**P910400-02**							
Aldrin	10/26/99	0.236	ND	0.139	ug/l	50.0-150	**58.9**	50.0	**15.9**	
gamma-BHC (Lindane)	"	0.236	ND	0.202	"	50.0-150	**85.6**	50.0	**7.10**	
4,4'-DDT	"	0.943	ND	0.519	"	50.0-150	**55.0**	50.0	**20.1**	
Dieldrin	"	0.943	ND	0.764	"	50.0-150	**81.0**	50.0	**9.30**	
Endrin	"	0.943	ND	0.736	"	50.0-150	**78.0**	50.0	**6.69**	
Heptachlor	"	0.236	ND	0.148	"	50.0-150	**62.7**	50.0	**22.8**	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	*0.472*		*0.432*	"	*44.0-119*	*91.5*			
Surrogate: Decachlorobiphenyl	"	*0.472*		*0.136*	"	*54.0-128*	*28.8*			*14*

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Organophosphorus Pesticides per EPA Method 8141A/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1090655	**Date Prepared: 10/22/99**					**Extraction Method: EPA 3510/600 Series**				
Blank	**1090655-BLK1**									
Azinphos methyl	10/26/99			**ND**	ug/l	**1.00**				
Bolstar	"			**ND**	"	**1.00**				
Chlorpyrifos	"			**ND**	"	**1.00**				
Coumaphos	"			**ND**	"	**1.00**				
Demeton	"			**ND**	"	**1.00**				
Diazinon	"			**ND**	"	**1.00**				
Dichlorvos	"			**ND**	"	**1.00**				
Disulfoton	"			**ND**	"	**1.00**				
EPN	"			**ND**	"	**1.00**				
Ethoprop	"			**ND**	"	**1.00**				
Fensulfothion	"			**ND**	"	**2.00**				
Fenthion	"			**ND**	"	**1.00**				
Malathion	"			**ND**	"	**1.00**				
Mevinphos	"			**ND**	"	**1.00**				
Naled	"			**ND**	"	**1.00**				
Parathion-ethyl	"			**ND**	"	**1.00**				
Parathion-methyl	"			**ND**	"	**1.00**				
Phorate	"			**ND**	"	**1.00**				
Ronnel	"			**ND**	"	**1.00**				
Stirophos (Tetrachlorvinphos)	"			**ND**	"	**1.00**				
Tokuthion (Prothiofos)	"			**ND**	"	**1.00**				
Trichloronate	"			**ND**	"	**1.00**				
Surrogate: TBP	"	*2.50*		*1.90*	"	*64.0-132*	*76.0*			
Surrogate: TPP	"	*2.50*		*2.02*	"	*65.0-138*	*80.8*			
LCS	**1090655-BS1**									
Dichlorvos	10/26/99	2.50		2.28	ug/l	35.0-144	91.2			
Ethoprop	"	2.50		1.98	"	51.0-145	79.2			
Parathion-methyl	"	2.50		1.99	"	60.0-142	79.6			
Stirophos (Tetrachlorvinphos)	"	2.50		2.12	"	40.0-161	84.8			
Surrogate: TBP	"	*2.50*		*1.93*	"	*64.0-132*	*77.2*			
Surrogate: TPP	"	*2.50*		*2.12*	"	*65.0-138*	*84.8*			
Matrix Spike	**1090655-MS1**		**P910400-02**							
Dichlorvos	10/26/99	2.36	ND	1.92	ug/l	35.0-144	**81.4**			
Ethoprop	"	2.36	ND	1.96	"	51.0-145	**83.1**			
Parathion-methyl	"	2.36	ND	2.00	"	60.0-142	**84.7**			

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**Refer to end of report for text of notes and definitions*

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Organophosphorus Pesticides per EPA Method 8141A/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike (continued)	**1090655-MS1**		**P910400-02**							
Stirophos (Tetrachlorvinphos)	10/26/99	2.36	ND	2.11	ug/l	40.0-161	**89.4**			
Surrogate: TBP	"	*2.36*		*1.89*	"	*64.0-132*	*80.1*			
Surrogate: TPP	"	*2.36*		*1.94*	"	*65.0-138*	*82.2*			
Matrix Spike Dup	**1090655-MSD1**		**P910400-02**							
Dichlorvos	10/26/99	2.36	ND	1.85	ug/l	35.0-144	**78.4**	50.0	**3.75**	
Ethoprop	"	2.36	ND	1.88	"	51.0-145	**79.7**	50.0	**4.18**	
Parathion-methyl	"	2.36	ND	1.92	"	60.0-142	**81.4**	50.0	**3.97**	
Stirophos (Tetrachlorvinphos)	"	2.36	ND	2.00	"	40.0-161	**84.7**	50.0	**5.40**	
Surrogate: TBP	"	*2.36*		*1.76*	"	*64.0-132*	*74.6*			
Surrogate: TPP	"	*2.36*		*1.85*	"	*65.0-138*	*78.4*			
Batch: 1090778	**Date Prepared: 10/26/99**					**Extraction Method: EPA 3510/600 Series**				**23**
[illegible]nk	**1090778-BLK1**									
[illegible]inphos methyl	10/28/99			**ND**	ug/l	**1.00**				
Bolstar	"			**ND**	"	**1.00**				
Chlorpyrifos	"			**ND**	"	**1.00**				
Coumaphos	"			**ND**	"	**1.00**				
Demeton	"			**ND**	"	**1.00**				
Diazinon	"			**ND**	"	**1.00**				
Dichlorvos	"			**ND**	"	**1.00**				
Disulfoton	"			**ND**	"	**1.00**				
EPN	"			**ND**	"	**1.00**				
Ethoprop	"			**ND**	"	**1.00**				
Fensulfothion	"			**ND**	"	**2.00**				
Fenthion	"			**ND**	"	**1.00**				
Malathion	"			**ND**	"	**1.00**				
Mevinphos	"			**ND**	"	**1.00**				
Naled	"			**ND**	"	**1.00**				
Parathion-ethyl	"			**ND**	"	**1.00**				
Parathion-methyl	"			**ND**	"	**1.00**				
Phorate	"			**ND**	"	**1.00**				
Ronnel	"			**ND**	"	**1.00**				
Stirophos (Tetrachlorvinphos)	"			**ND**	"	**1.00**				
Tokuthion (Prothiofos)	"			**ND**	"	**1.00**				
Trichloronate	"			**ND**	"	**1.00**				
Surrogate: TBP	"	*2.50*		*1.27*	"	*64.0-132*	*50.8*			*24*
Surrogate: TPP	"	*2.50*		*1.12*	"	*65.0-138*	*44.8*			*24*

[illegible]rth Creek Analytical - Portland

**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

North Creek Analytical, Inc.
Environmental Laboratory Network

SCOEPA00009287

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Organophosphorus Pesticides per EPA Method 8141A/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS	**1090778-BS1**									
Dichlorvos	10/28/99	2.50		2.02	ug/l	35.0-144	80.8			
Ethoprop	"	2.50		2.16	"	51.0-145	86.4			
Parathion-methyl	"	2.50		2.18	"	60.0-142	87.2			
Stirophos (Tetrachlorvinphos)	"	2.50		2.22	"	40.0-161	88.8			
Surrogate: TBP	"	*2.50*		*2.08*	"	*64.0-132*	*83.2*			
Surrogate: TPP	"	*2.50*		*2.22*	"	*65.0-138*	*88.8*			
LCS Dup	**1090778-BSD1**									
Dichlorvos	10/28/99	2.50		2.02	ug/l	35.0-144	80.8	50.0	0	
Ethoprop	"	2.50		2.28	"	51.0-145	91.2	50.0	5.41	
Parathion-methyl	"	2.50		2.24	"	60.0-142	89.6	50.0	2.71	
Stirophos (Tetrachlorvinphos)	"	2.50		2.28	"	40.0-161	91.2	50.0	2.67	
Surrogate: TBP	"	*2.50*		*2.16*	"	*64.0-132*	*86.4*			
Surrogate: TPP	"	*2.50*		*2.24*	"	*65.0-138*	*89.6*			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1090902	**Date Prepared: 10/30/99**				**Extraction Method: EPA 5030**					
Blank	**1090902-BLK1**									
Acetone	10/30/99			ND	ug/l	25.0				
Benzene	"			ND	"	1.00				
Bromobenzene	"			ND	"	1.00				
Bromochloromethane	"			ND	"	1.00				
Bromodichloromethane	"			ND	"	1.00				
Bromoform	"			ND	"	1.00				
Bromomethane	"			ND	"	10.0				
2-Butanone	"			ND	"	25.0				
n-Butylbenzene	"			ND	"	1.00				
sec-Butylbenzene	"			ND	"	1.00				
tert-Butylbenzene	"			ND	"	1.00				
Carbon disulfide	"			ND	"	10.0				
[illegible]on tetrachloride	"			ND	"	2.00				
[illegible]orobenzene	"			ND	"	1.00				
Chloroethane	"			ND	"	2.00				
Chloroform	"			ND	"	1.00				
Chloromethane	"			ND	"	5.00				
2-Chlorotoluene	"			ND	"	1.00				
4-Chlorotoluene	"			ND	"	1.00				
1,2-Dibromo-3-chloropropane	"			ND	"	1.00				
Dibromochloromethane	"			ND	"	1.00				
1,2-Dibromoethane	"			ND	"	1.00				
Dibromomethane	"			ND	"	1.00				
1,2-Dichlorobenzene	"			ND	"	1.00				
1,3-Dichlorobenzene	"			ND	"	1.00				
1,4-Dichlorobenzene	"			ND	"	1.00				
Dichlorodifluoromethane	"			ND	"	5.00				
1,1-Dichloroethane	"			ND	"	1.00				
1,2-Dichloroethane	"			ND	"	1.00				
1,1-Dichloroethene	"			ND	"	1.00				
cis-1,2-Dichloroethene	"			ND	"	1.00				
trans-1,2-Dichloroethene	"			ND	"	1.00				
1,2-Dichloropropane	"			ND	"	1.00				
1,3-Dichloropropane	"			ND	"	1.00				
2,2-Dichloropropane	"			ND	"	1.00				
1,1-Dichloropropene	"			ND	"	1.00				
cis-1,3-Dichloropropene	"			ND	"	1.00				

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	**1090902-BLK1**									
trans-1,3-Dichloropropene	10/30/99			**ND**	ug/l	**1.00**				
Ethylbenzene	"			**ND**	"	**1.00**				
Hexachlorobutadiene	"			**ND**	"	**2.00**				
2-Hexanone	"			**ND**	"	**10.0**				
Iodomethane	"			**ND**	"	**20.0**				
Isopropylbenzene	"			**ND**	"	**1.00**				
p-Isopropyltoluene	"			**ND**	"	**1.00**				
4-Methyl-2-pentanone	"			**ND**	"	**5.00**				
Methylene chloride	"			**ND**	"	**5.00**				
Naphthalene	"			**ND**	"	**1.00**				
n-Propylbenzene	"			**ND**	"	**1.00**				
Styrene	"			**ND**	"	**1.00**				
1,1,1,2-Tetrachloroethane	"			**ND**	"	**1.00**				
1,1,2,2-Tetrachloroethane	"			**ND**	"	**1.00**				
Tetrachloroethene	"			**ND**	"	**1.00**				
Toluene	"			**ND**	"	**1.00**				
1,2,3-Trichlorobenzene	"			**ND**	"	**1.00**				
1,2,4-Trichlorobenzene	"			**ND**	"	**1.00**				
1,1,1-Trichloroethane	"			**ND**	"	**1.00**				
1,1,2-Trichloroethane	"			**ND**	"	**1.00**				
Trichloroethene	"			**ND**	"	**1.00**				
Trichlorofluoromethane	"			**ND**	"	**1.00**				
1,2,3-Trichloropropane	"			**ND**	"	**1.00**				
1,2,4-Trimethylbenzene	"			**ND**	"	**1.00**				
1,3,5-Trimethylbenzene	"			**ND**	"	**1.00**				
Vinyl chloride	"			**ND**	"	**1.00**				
o-Xylene	"			**ND**	"	**1.00**				
m,p-Xylene	"			**ND**	"	**2.00**				
Surrogate: 4-BFB	"	*20.0*		*21.3*	"	*75.0-135*	*106*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*22.2*	"	*70.0-135*	*111*			
Surrogate: Dibromofluoromethane	"	*20.0*		*20.4*	"	*80.0-125*	*102*			
Surrogate: Toluene-d8	"	*20.0*		*21.0*	"	*80.0-120*	*105*			
LCS	**1090902-BS1**									
Benzene	10/30/99	20.0		19.5	ug/l	80.0-125	97.5			
Chlorobenzene	"	20.0		20.1	"	80.0-125	101			
1,1-Dichloroethene	"	20.0		21.5	"	70.0-135	108			
Toluene	"	20.0		20.7	"	80.0-125	104			

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URS Greiner Woodward Clyde	Project: RPAC	Sampled:	10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number: Multiple Project Numbers	Received:	10/19/99 to 10/22/99
Portland, OR 97201	Project Manager: Karen Schadler	Reported:	11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS (continued)	**1090902-BS1**									
Trichloroethene	10/30/99	20.0		20.2	ug/l	70.0-130	101			
Surrogate: 4-BFB	"	*20.0*		*21.2*	"	*75.0-135*	*106*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*21.5*	"	*70.0-135*	*108*			
Surrogate: Dibromofluoromethane	"	*20.0*		*18.7*	"	*80.0-125*	*93.5*			
Surrogate: Toluene-d8	"	*20.0*		*21.0*	"	*80.0-120*	*105*			
Matrix Spike	**1090902-MS1**		**P910342-01**							
Benzene	10/30/99	1000	ND	975	ug/l	80.0-125	**97.5**			
Chlorobenzene	"	1000	ND	965	"	80.0-125	**96.5**			
1,1-Dichloroethene	"	1000	ND	1060	"	70.0-135	**106**			
Toluene	"	1000	ND	1070	"	80.0-125	**107**			
Trichloroethene	"	1000	ND	1020	"	70.0-130	**102**			
Surrogate: 4-BFB	"	*20.0*		*21.1*	"	*75.0-135*	*106*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*21.7*	"	*70.0-135*	*109*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.3*	"	*80.0-125*	*96.5*			
Surrogate: Toluene-d8	"	*20.0*		*20.5*	"	*80.0-120*	*103*			
Matrix Spike Dup	**1090902-MSD1**		**P910342-01**							
Benzene	10/30/99	1000	ND	1030	ug/l	80.0-125	**103**	25.0	**5.49**	
Chlorobenzene	"	1000	ND	987	"	80.0-125	**98.7**	25.0	**2.25**	
1,1-Dichloroethane	"		ND	ND	"					
1,1-Dichloroethene	"	1000	ND	1120	"	70.0-135	**112**	25.0	**5.50**	
Toluene	"	1000	ND	1090	"	80.0-125	**109**	25.0	**1.85**	
Trichloroethene	"	1000	ND	1070	"	70.0-130	**107**	25.0	**4.78**	
Surrogate: 4-BFB	"	*20.0*		*20.6*	"	*75.0-135*	*103*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*21.2*	"	*70.0-135*	*106*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.5*	"	*80.0-125*	*97.5*			
Surrogate: Toluene-d8	"	*20.0*		*21.3*	"	*80.0-120*	*106*			

Batch: 1190063	**Date Prepared: 11/2/99**		**Extraction Method: EPA 5030**	
Blank	**1190063-BLK1**			
Acetone	11/2/99	**ND**	ug/l	**25.0**
Benzene	"	**ND**	"	**1.00**
Bromobenzene	"	**ND**	"	**1.00**
Bromochloromethane	"	**ND**	"	**1.00**
Bromodichloromethane	"	**ND**	"	**1.00**
Bromoform	"	**ND**	"	**1.00**
Bromomethane	"	**ND**	"	**10.0**

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	**1190063-BLK1**									
2-Butanone	11/2/99			ND	ug/l	25.0				
n-Butylbenzene	"			ND	"	1.00				
sec-Butylbenzene	"			ND	"	1.00				
tert-Butylbenzene	"			ND	"	1.00				
Carbon disulfide	"			ND	"	10.0				
Carbon tetrachloride	"			ND	"	2.00				
Chlorobenzene	"			ND	"	1.00				
Chloroethane	"			ND	"	2.00				
Chloroform	"			ND	"	1.00				
Chloromethane	"			ND	"	5.00				
2-Chlorotoluene	"			ND	"	1.00				
4-Chlorotoluene	"			ND	"	1.00				
1,2-Dibromo-3-chloropropane	"			ND	"	1.00				
Dibromochloromethane	"			ND	"	1.00				
1,2-Dibromoethane	"			ND	"	1.00				
Dibromomethane	"			ND	"	1.00				
1,2-Dichlorobenzene	"			ND	"	1.00				
1,3-Dichlorobenzene	"			ND	"	1.00				
1,4-Dichlorobenzene	"			ND	"	1.00				
Dichlorodifluoromethane	"			ND	"	5.00				
1,1-Dichloroethane	"			ND	"	1.00				
1,2-Dichloroethane	"			ND	"	1.00				
1,1-Dichloroethene	"			ND	"	1.00				
cis-1,2-Dichloroethene	"			ND	"	1.00				
trans-1,2-Dichloroethene	"			ND	"	1.00				
1,2-Dichloropropane	"			ND	"	1.00				
1,3-Dichloropropane	"			ND	"	1.00				
2,2-Dichloropropane	"			ND	"	1.00				
1,1-Dichloropropene	"			ND	"	1.00				
cis-1,3-Dichloropropene	"			ND	"	1.00				
trans-1,3-Dichloropropene	"			ND	"	1.00				
Ethylbenzene	"			ND	"	1.00				
Hexachlorobutadiene	"			ND	"	2.00				
2-Hexanone	"			ND	"	10.0				
Iodomethane	"			ND	"	20.0				
Isopropylbenzene	"			ND	"	1.00				
p-Isopropyltoluene	"			ND	"	1.00				
4-Methyl-2-pentanone	"			ND	"	5.00				

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	**1190063-BLK1**									
Methylene chloride	11/2/99			**ND**	ug/l	**5.00**				
Naphthalene	"			**ND**	"	**1.00**				
n-Propylbenzene	"			**ND**	"	**1.00**				
Styrene	"			**ND**	"	**1.00**				
1,1,1,2-Tetrachloroethane	"			**ND**	"	**1.00**				
1,1,2,2-Tetrachloroethane	"			**ND**	"	**1.00**				
Tetrachloroethene	"			**ND**	"	**1.00**				
Toluene	"			**ND**	"	**1.00**				
1,2,3-Trichlorobenzene	"			**ND**	"	**1.00**				
1,2,4-Trichlorobenzene	"			**ND**	"	**1.00**				
1,1,1-Trichloroethane	"			**ND**	"	**1.00**				
1,1,2-Trichloroethane	"			**ND**	"	**1.00**				
Trichloroethene	"			**ND**	"	**1.00**				
[illegible]hlorofluoromethane	"			**ND**	"	**1.00**				
[illegible]3-Trichloropropane	"			**ND**	"	**1.00**				
1,2,4-Trimethylbenzene	"			**ND**	"	**1.00**				
1,3,5-Trimethylbenzene	"			**ND**	"	**1.00**				
Vinyl chloride	"			**ND**	"	**1.00**				
o-Xylene	"			**ND**	"	**1.00**				
m,p-Xylene	"			**ND**	"	**2.00**				
Surrogate: 4-BFB	"	*20.0*		*20.6*	"	*75.0-135*	*103*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*23.7*	"	*70.0-135*	*119*			
Surrogate: Dibromofluoromethane	"	*20.0*		*20.9*	"	*80.0-125*	*104*			
Surrogate: Toluene-d8	"	*20.0*		*19.6*	"	*80.0-120*	*98.0*			
LCS	**1190063-BS1**									
Benzene	11/2/99	20.0		20.2	ug/l	80.0-125	101			
Chlorobenzene	"	20.0		20.1	"	80.0-125	101			
1,1-Dichloroethene	"	20.0		22.7	"	70.0-135	114			
Toluene	"	20.0		20.5	"	80.0-125	103			
Trichloroethene	"	20.0		20.3	"	70.0-130	101			
Surrogate: 4-BFB	"	*20.0*		*20.7*	"	*75.0-135*	*104*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*22.3*	"	*70.0-135*	*111*			
Surrogate: Dibromofluoromethane	"	*20.0*		*20.2*	"	*80.0-125*	*101*			
Surrogate: Toluene-d8	"	*20.0*		*20.4*	"	*80.0-120*	*102*			
LCS Dup	**1190063-BSD1**									
Benzene	11/2/99	20.0		21.0	ug/l	80.0-125	105	25.0	3.88	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS Dup (continued)	**1190063-BSD1**									
Chlorobenzene	11/2/99	20.0		19.8	ug/l	80.0-125	99.0	25.0	2.00	
1,1-Dichloroethene	"	20.0		23.6	"	70.0-135	118	25.0	3.45	
Toluene	"	20.0		19.9	"	80.0-125	99.5	25.0	3.46	
Trichloroethene	"	20.0		21.0	"	70.0-130	105	25.0	3.88	
Surrogate: 4-BFB	"	*20.0*		*20.9*	"	*75.0-135*	*104*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*23.4*	"	*70.0-135*	*117*			
Surrogate: Dibromofluoromethane	"	*20.0*		*21.3*	"	*80.0-125*	*106*			
Surrogate: Toluene-d8	"	*20.0*		*20.1*	"	*80.0-120*	*101*			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Notes and Definitions

#	Note
E	Estimated value. The reported value exceeds the calibration range of the analysis.
1	Detected hydrocarbons do not have pattern and range consistent with typical petroleum products and may be due to biogenic interference.
2	Reporting limits raised due to dilution necessary for analysis.
3	The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interferences.
4	This footnote intentionally left blank.
5	The reporting limit for this analyte was raised due to matrix interference.
6	This sample was analyzed outside of the EPA recommended holding time.
	Estimated value due to co-eluting non-target analytes
8	The reporting limit for this analyte was raised due to the high analyte concentration present in the sample.
9	Reporting limit raised due to dilution necessary for analysis. Reporting limit adjusted to report quantitation below the MRL, but within the calibration range.
10	This sample was extracted outside the EPA recommended holding time.
11	The reporting limit for this analyte was raised to compensate for the limited sample quantity available for the analysis.
12	Surrogate value below calibration curve due to dilution, value is therefore only an estimate.
13	This footnote intentionally left blank.
14	Surrogate recovery is out of control limits. QA criteria are met when one surrogate is within control limits.
15	This footnote intentionally left blank.
16	Sample contains 2-Ethylisohexanol (TIC).
17	Result due to suspected lab contamination.

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/18/99 to 10/21/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/19/99 to 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/19/99 11:04

Notes and Definitions

#	Note
18	The recovery of this spike is outside control limits due to sample dilution required from high analyte concentration and/or matrix interferences.
19	The RPD and/or percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte already present in the sample.
20	Analyses are not controlled on RPD values from sample concentrations less than 5 times the reporting limit.
21	Unable to report MS/MSD due to dilution necessary for analysis of high analyte concentration of the native sample.
22	Batch QC data (BS/BSD) indicates possible laboratory contamination of 2,4-D at appproximately 20 ug/l. Sample results less than twice the contamination level should be considered estimates.
23	Analysis does not meet method QC criteria due to MB surrogate recoveries below control limits. Sample data validated by acceptable sample surrogate recoveries.
24	This surrogate recovery is outside of NCA established control limits.
25	2,4,5-TP spiked at 3.33ug/l was not recovered in MS/MSD samples, indicating that sample matrices comparable to that of the native sample 017-GG-01 interfere with the quantitation of the analyte.

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

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Case Narrative

CLIENT: URS Greiner Woodward Clyde
PROJECT: RPAC

November 30, 1999
NCA #s: P910434

PROJECT #: 92C0804A.00

1.0 DESCRIPTION OF CASE

North Creek Analytical, Beaverton received five water samples, including two trip blanks, on 10/22/99 from URS Greiner Woodward Clyde for analysis by 8260B Volatile Organics.

2.0 SAMPLE LIST

Refer to the *Chain of Custody* documents for a summary of sample information.

Samples received together for the entire sample delivery group is given an NCA #, proceeded by a "P" for Portland. This number consists of a one-digit code for the year, a two-digit code for the month and a sequential number for the group within the month. Each sample within the group is numbered sequentially by placing a dash after the NCA#.

3.0 COMMENTS ON ANALYSIS

3.1 Sample Receipt

The samples were received intact from URS Greiner Woodward Clyde. The samples were clearly labeled and matched the chain of custody. Sample travel blank temperatures were measured directly upon receipt using a Digi-Thermo Probe. Sample temperatures are recorded with the sample log-in information.

3.2 Analysis

The samples were analyzed following the procedures outlined in the applicable method. The samples were refrigerated at 4 °C and were extracted and analyzed within the EPA recommended holding times without incident; any exceptions are footnoted and described in the *Notes and Definitions* section of the *Analytical Report*. Exceptions requiring more detail are as follows:

4.0 QC RESULTS

Surrogate and quality control parameters that were outside control limits are noted on the appropriate pages of the *Analytical Report*. Additional Quality Control issues are as follows: None Needed

All quality control parameters other than those noted above or on the *Analytical Report* were within established control limits.

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Case Narrative

CLIENT: URS Greiner Woodward Clyde
PROJECT: RPAC
PROJECT #: 92C0804A.00

November 30, 1999
NCA #s: P910434

5.0 SAMPLE RESULTS

Where applicable, qualifiers have been added to sample results as footnotes and are detailed in the *Notes and Definitions* section of the analytical report.

8260B Volatile Organics

Sample P910434-01 had an over-range hit for Naphthalene on the original run from vial A at a 5x dilution. The sample was re-run from vial C at a 10x dilution and a different result was obtained for Naphthalene. Both vials (A and C) were then re-run at 10x. Both runs confirmed the original analyses for the vials indicating that the samples contained in vials A and C are not analogous. Results from both vials are reported.

Methylene Chloride was found in sample P910434-05. This is trip blank #2. This sample was used as the temperature blank which may account for the Methylene Chloride contamination.

The dilution factor for a sample, if applicable, is depicted on the *Analytical Report* as the MRL(s) for the quantitated analytes being raised by the dilution factor. The method blank sample may be referenced for the initial MRL.

" I certify that this data package is in compliance with the method, both technically and for completeness, for all conditions other than those listed above. Release of the data in this hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature."

Rochelle Carpenter, QA Manager
North Creek Analytical, Beaverton

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/21/99
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:50

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
025-GG-01	P910434-01	Water	10/21/99
TRIP BLANK	P910434-02	Water	10/21/99
026-GG-01	P910434-03	Water	10/21/99
027-GG-01	P910434-04	Water	10/21/99
TRIP BLANK #2	P910434-05	Water	10/21/99

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/21/99
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:50

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
025-GG-01			**P910434-01**				**Water**	**1**
Acetone	1090903	10/31/99	10/31/99		125	ND	ug/l	
Benzene	"	"	"		5.00	**89.1**	"	
Bromobenzene	"	"	"		5.00	ND	"	
Bromochloromethane	"	"	"		5.00	ND	"	
Bromodichloromethane	"	"	"		5.00	ND	"	
Bromoform	"	"	"		5.00	ND	"	
Bromomethane	"	"	"		50.0	ND	"	
2-Butanone	"	"	"		125	ND	"	
n-Butylbenzene	"	"	"		5.00	ND	"	
sec-Butylbenzene	"	"	"		5.00	ND	"	
tert-Butylbenzene	"	"	"		5.00	ND	"	
Carbon disulfide	"	"	"		50.0	ND	"	
Carbon tetrachloride	"	"	"		10.0	ND	"	
Chlorobenzene	"	"	"		5.00	ND	"	
Chloroethane	"	"	"		10.0	ND	"	
Chloroform	"	"	"		5.00	ND	"	
Chloromethane	"	"	"		25.0	ND	"	
2-Chlorotoluene	"	"	"		5.00	ND	"	
4-Chlorotoluene	"	"	"		5.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		5.00	ND	"	
Dibromochloromethane	"	"	"		5.00	ND	"	
1,2-Dibromoethane	"	"	"		5.00	ND	"	
Dibromomethane	"	"	"		5.00	ND	"	
1,2-Dichlorobenzene	"	"	"		5.00	ND	"	
1,3-Dichlorobenzene	"	"	"		5.00	ND	"	
1,4-Dichlorobenzene	"	"	"		5.00	ND	"	
Dichlorodifluoromethane	"	"	"		25.0	ND	"	
1,1-Dichloroethane	"	"	"		5.00	ND	"	
1,2-Dichloroethane	"	"	"		5.00	ND	"	
1,1-Dichloroethene	"	"	"		5.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		5.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		5.00	ND	"	
1,2-Dichloropropane	"	"	"		5.00	ND	"	
1,3-Dichloropropane	"	"	"		5.00	ND	"	
2,2-Dichloropropane	"	"	"		5.00	ND	"	
1,1-Dichloropropene	"	"	"		5.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		5.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		5.00	ND	"	

North Creek Analytical - Portland

**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

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RS Greiner Woodward Clyde	Project: RPAC	Sampled:	10/21/99
111 SW Columbia, Suite 900	Project Number: 92C0804A.00/44	Received:	10/22/99
Portland, OR 97201	Project Manager: Karen Schadler	Reported:	11/24/99 14:50

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
025-GG-01 (continued)			**P910434-01**				**Water**	**1**
Ethylbenzene	1090903	10/31/99	10/31/99		5.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		10.0	ND	"	
2-Hexanone	"	"	"		50.0	ND	"	
Iodomethane	"	"	"		100	ND	"	
Isopropylbenzene	"	"	"		5.00	**12.8**	"	
p-Isopropyltoluene	"	"	"		5.00	ND	"	
4-Methyl-2-pentanone	"	"	"		25.0	ND	"	
Methylene chloride	"	"	"		25.0	ND	"	
Naphthalene	"	"	"		5.00	**1600**	"	E
n-Propylbenzene	"	"	"		5.00	ND	"	
Styrene	"	"	"		5.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		5.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		5.00	ND	"	
Tetrachloroethene	"	"	"		5.00	ND	"	
[illegible]uene	"	"	"		5.00	ND	"	
[illegible]3-Trichlorobenzene	"	"	"		5.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		5.00	ND	"	
1,1,1-Trichloroethane	"	"	"		5.00	ND	"	
1,1,2-Trichloroethane	"	"	"		5.00	ND	"	
Trichloroethene	"	"	"		5.00	ND	"	
Trichlorofluoromethane	"	"	"		5.00	ND	"	
1,2,3-Trichloropropane	"	"	"		5.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		5.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		5.00	ND	"	
Vinyl chloride	"	"	"		5.00	ND	"	
o-Xylene	"	"	"		5.00	ND	"	
m,p-Xylene	"	"	"		10.0	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*101*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*112*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*100*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*108*	"	
Naphthalene	1190063	11/2/99	11/2/99		10.0	**377**	ug/l	2
Surrogate: 4-BFB	"	"	"	*75.0-135*		*102*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*116*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*109*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*97.5*	"	
Naphthalene	1190232	11/8/99	11/8/99		10.0	**1560**	ug/l	3
Surrogate: 4-BFB	"	"	"	*75.0-135*		*98.5*	*%*	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/21/99
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:50

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
025-GG-01 (continued)			**P910434-01**				**Water**	**1**
Surrogate: 1,2-DCA-d4	*1190232*	*11/8/99*	*11/8/99*	*70.0-135*		*110*	*%*	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*105*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*106*	"	
Acetone	"	"	"		250	ND	ug/l	4
Benzene	"	"	"		10.0	**30.7**	"	
Bromobenzene	"	"	"		10.0	ND	"	
Bromochloromethane	"	"	"		10.0	ND	"	
Bromodichloromethane	"	"	"		10.0	ND	"	
Bromoform	"	"	"		10.0	ND	"	
Bromomethane	"	"	"		100	ND	"	
2-Butanone	"	"	"		250	ND	"	
n-Butylbenzene	"	"	"		10.0	ND	"	
sec-Butylbenzene	"	"	"		10.0	ND	"	
tert-Butylbenzene	"	"	"		10.0	ND	"	
Carbon disulfide	"	"	"		100	ND	"	
Carbon tetrachloride	"	"	"		20.0	ND	"	
Chlorobenzene	"	"	"		10.0	ND	"	
Chloroethane	"	"	"		20.0	ND	"	
Chloroform	"	"	"		10.0	ND	"	
Chloromethane	"	"	"		50.0	ND	"	
2-Chlorotoluene	"	"	"		10.0	ND	"	
4-Chlorotoluene	"	"	"		10.0	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		10.0	ND	"	
Dibromochloromethane	"	"	"		10.0	ND	"	
1,2-Dibromoethane	"	"	"		10.0	ND	"	
Dibromomethane	"	"	"		10.0	ND	"	
1,2-Dichlorobenzene	"	"	"		10.0	ND	"	
1,3-Dichlorobenzene	"	"	"		10.0	ND	"	
1,4-Dichlorobenzene	"	"	"		10.0	ND	"	
Dichlorodifluoromethane	"	"	"		50.0	ND	"	
1,1-Dichloroethane	"	"	"		10.0	ND	"	
1,2-Dichloroethane	"	"	"		10.0	ND	"	
1,1-Dichloroethene	"	"	"		10.0	ND	"	
cis-1,2-Dichloroethene	"	"	"		10.0	ND	"	
trans-1,2-Dichloroethene	"	"	"		10.0	ND	"	
1,2-Dichloropropane	"	"	"		10.0	ND	"	
1,3-Dichloropropane	"	"	"		10.0	ND	"	
2,2-Dichloropropane	"	"	"		10.0	ND	"	

North Creek Analytical - Portland

**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

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GRS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/21/99
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:50

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
025-GG-01 (continued)			**P910434-01**				**Water**	**1**
1,1-Dichloropropene	1190232	11/8/99	11/8/99		10.0	ND	ug/l	
cis-1,3-Dichloropropene	"	"	"		10.0	ND	"	
trans-1,3-Dichloropropene	"	"	"		10.0	ND	"	
Ethylbenzene	"	"	"		10.0	ND	"	
Hexachlorobutadiene	"	"	"		20.0	ND	"	
2-Hexanone	"	"	"		100	ND	"	
Iodomethane	"	"	"		200	ND	"	
Isopropylbenzene	"	"	"		10.0	ND	"	
p-Isopropyltoluene	"	"	"		10.0	ND	"	
4-Methyl-2-pentanone	"	"	"		50.0	ND	"	
Methylene chloride	"	"	"		50.0	ND	"	
Naphthalene	"	"	"		10.0	**358**	"	
n-Propylbenzene	"	"	"		10.0	ND	"	
Styrene	"	"	"		10.0	ND	"	
1,1,2-Tetrachloroethane	"	"	"		10.0	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		10.0	ND	"	
Tetrachloroethene	"	"	"		10.0	ND	"	
Toluene	"	"	"		10.0	ND	"	
1,2,3-Trichlorobenzene	"	"	"		10.0	ND	"	
1,2,4-Trichlorobenzene	"	"	"		10.0	ND	"	
1,1,1-Trichloroethane	"	"	"		10.0	ND	"	
1,1,2-Trichloroethane	"	"	"		10.0	ND	"	
Trichloroethene	"	"	"		10.0	ND	"	
Trichlorofluoromethane	"	"	"		10.0	ND	"	
1,2,3-Trichloropropane	"	"	"		10.0	ND	"	
1,2,4-Trimethylbenzene	"	"	"		10.0	ND	"	
1,3,5-Trimethylbenzene	"	"	"		10.0	ND	"	
Vinyl chloride	"	"	"		10.0	ND	"	
o-Xylene	"	"	"		10.0	ND	"	
m,p-Xylene	"	"	"		20.0	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*104*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*113*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*103*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*104*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/21/99
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:50

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK			P910434-02				**Water**	
Acetone	1190063	11/2/99	11/3/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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[illegible]RS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/21/99
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:50

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK (continued)			**P910434-02**				**Water**	
Ethylbenzene	1190063	11/2/99	11/3/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
T[illegible]rachloroethene	"	"	"		1.00	ND	"	
[illegible]ene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*104*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*117*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*103*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*104*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/21/99
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:50

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
026-GG-01			**P910434-03**				**Water**	
Acetone	1090903	10/31/99	10/31/99		1250	ND	ug/l	
Benzene	"	"	"		50.0	**219**	"	
Bromobenzene	"	"	"		50.0	ND	"	
Bromochloromethane	"	"	"		50.0	ND	"	
Bromodichloromethane	"	"	"		50.0	ND	"	
Bromoform	"	"	"		50.0	ND	"	
Bromomethane	"	"	"		500	ND	"	
2-Butanone	"	"	"		1250	ND	"	
n-Butylbenzene	"	"	"		50.0	ND	"	
sec-Butylbenzene	"	"	"		50.0	ND	"	
tert-Butylbenzene	"	"	"		50.0	ND	"	
Carbon disulfide	"	"	"		500	ND	"	
Carbon tetrachloride	"	"	"		100	ND	"	
Chlorobenzene	"	"	"		50.0	ND	"	
Chloroethane	"	"	"		100	ND	"	
Chloroform	"	"	"		50.0	ND	"	
Chloromethane	"	"	"		250	ND	"	
2-Chlorotoluene	"	"	"		50.0	ND	"	
4-Chlorotoluene	"	"	"		50.0	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		50.0	ND	"	
Dibromochloromethane	"	"	"		50.0	ND	"	
1,2-Dibromoethane	"	"	"		50.0	ND	"	
Dibromomethane	"	"	"		50.0	ND	"	
1,2-Dichlorobenzene	"	"	"		50.0	ND	"	
1,3-Dichlorobenzene	"	"	"		50.0	ND	"	
1,4-Dichlorobenzene	"	"	"		50.0	ND	"	
Dichlorodifluoromethane	"	"	"		250	ND	"	
1,1-Dichloroethane	"	"	"		50.0	ND	"	
1,2-Dichloroethane	"	"	"		50.0	ND	"	
1,1-Dichloroethene	"	"	"		50.0	ND	"	
cis-1,2-Dichloroethene	"	"	"		50.0	ND	"	
trans-1,2-Dichloroethene	"	"	"		50.0	ND	"	
1,2-Dichloropropane	"	"	"		50.0	ND	"	
1,3-Dichloropropane	"	"	"		50.0	ND	"	
2,2-Dichloropropane	"	"	"		50.0	ND	"	
1,1-Dichloropropene	"	"	"		50.0	ND	"	
cis-1,3-Dichloropropene	"	"	"		50.0	ND	"	
trans-1,3-Dichloropropene	"	"	"		50.0	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/21/99
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:50

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
026-GG-01 (continued)			**P910434-03**				**Water**	
Ethylbenzene	1090903	10/31/99	10/31/99		50.0	**220**	ug/l	
Hexachlorobutadiene	"	"	"		100	ND	"	
2-Hexanone	"	"	"		500	ND	"	
Iodomethane	"	"	"		1000	ND	"	
Isopropylbenzene	"	"	"		50.0	ND	"	
p-Isopropyltoluene	"	"	"		50.0	ND	"	
4-Methyl-2-pentanone	"	"	"		250	ND	"	
Methylene chloride	"	"	"		250	ND	"	
Naphthalene	"	"	"		50.0	**9770**	"	
n-Propylbenzene	"	"	"		50.0	ND	"	
Styrene	"	"	"		50.0	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		50.0	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		50.0	ND	"	
achloroethene	"	"	"		50.0	ND	"	
ene	"	"	"		50.0	ND	"	
1,2,3-Trichlorobenzene	"	"	"		50.0	ND	"	
1,2,4-Trichlorobenzene	"	"	"		50.0	ND	"	
1,1,1-Trichloroethane	"	"	"		50.0	ND	"	
1,1,2-Trichloroethane	"	"	"		50.0	ND	"	
Trichloroethene	"	"	"		50.0	ND	"	
Trichlorofluoromethane	"	"	"		50.0	ND	"	
1,2,3-Trichloropropane	"	"	"		50.0	ND	"	
1,2,4-Trimethylbenzene	"	"	"		50.0	**60.5**	"	
1,3,5-Trimethylbenzene	"	"	"		50.0	ND	"	
Vinyl chloride	"	"	"		50.0	ND	"	
o-Xylene	"	"	"		50.0	**94.5**	"	
m,p-Xylene	"	"	"		100	**179**	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*100*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*114*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*102*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*105*	"	

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111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:50

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
027-GG-01			**P910434-04**				**Water**	
Acetone	1090903	10/31/99	10/31/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	**142**	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	**28.6**	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	**22.4**	"	
1,3-Dichlorobenzene	"	"	"		1.00	**1.56**	"	
1,4-Dichlorobenzene	"	"	"		1.00	**17.4**	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:50

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
027-GG-01 (continued)			**P910434-04**				**Water**	
Ethylbenzene	1090903	10/31/99	10/31/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	**19.6**	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	**1.45**	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*102*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*112*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*99.5*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*105*	"	

North Creek Analytical - Portland

**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

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Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK #2			**P910434-05**				**Water**	
Acetone	1090903	10/31/99	10/31/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/21/99
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:50

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK #2 (continued)			**P910434-05**				**Water**	
Ethylbenzene	1090903	10/31/99	10/31/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	**20.6**	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
[illegible]chloroethene	"	"	"		1.00	ND	"	
[illegible]uene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*107*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*114*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*104*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*98.0*	"	
Methylene chloride	1190063	11/2/99	11/3/99		5.00	**21.0**	ug/l	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*106*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*119*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*108*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*99.5*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/21/99
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:50

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1090903	**Date Prepared: 10/31/99**				**Extraction Method: EPA 5030**					
Blank	**1090903-BLK1**									
Acetone	10/31/99			ND	ug/l	25.0				
Benzene	"			ND	"	1.00				
Bromobenzene	"			ND	"	1.00				
Bromochloromethane	"			ND	"	1.00				
Bromodichloromethane	"			ND	"	1.00				
Bromoform	"			ND	"	1.00				
Bromomethane	"			ND	"	10.0				
2-Butanone	"			ND	"	25.0				
n-Butylbenzene	"			ND	"	1.00				
sec-Butylbenzene	"			ND	"	1.00				
tert-Butylbenzene	"			ND	"	1.00				
Carbon disulfide	"			ND	"	10.0				
Carbon tetrachloride	"			ND	"	2.00				
Chlorobenzene	"			ND	"	1.00				
Chloroethane	"			ND	"	2.00				
Chloroform	"			ND	"	1.00				
Chloromethane	"			ND	"	5.00				
2-Chlorotoluene	"			ND	"	1.00				
4-Chlorotoluene	"			ND	"	1.00				
1,2-Dibromo-3-chloropropane	"			ND	"	1.00				
Dibromochloromethane	"			ND	"	1.00				
1,2-Dibromoethane	"			ND	"	1.00				
Dibromomethane	"			ND	"	1.00				
1,2-Dichlorobenzene	"			ND	"	1.00				
1,3-Dichlorobenzene	"			ND	"	1.00				
1,4-Dichlorobenzene	"			ND	"	1.00				
Dichlorodifluoromethane	"			ND	"	5.00				
1,1-Dichloroethane	"			ND	"	1.00				
1,2-Dichloroethane	"			ND	"	1.00				
1,1-Dichloroethene	"			ND	"	1.00				
cis-1,2-Dichloroethene	"			ND	"	1.00				
trans-1,2-Dichloroethene	"			ND	"	1.00				
1,2-Dichloropropane	"			ND	"	1.00				
1,3-Dichloropropane	"			ND	"	1.00				
2,2-Dichloropropane	"			ND	"	1.00				
1,1-Dichloropropene	"			ND	"	1.00				
cis-1,3-Dichloropropene	"			ND	"	1.00				

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/21/99
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:50

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	**1090903-BLK1**									
trans-1,3-Dichloropropene	10/31/99			**ND**	ug/l	**1.00**				
Ethylbenzene	"			**ND**	"	**1.00**				
Hexachlorobutadiene	"			**ND**	"	**2.00**				
2-Hexanone	"			**ND**	"	**10.0**				
Iodomethane	"			**ND**	"	**20.0**				
Isopropylbenzene	"			**ND**	"	**1.00**				
p-Isopropyltoluene	"			**ND**	"	**1.00**				
4-Methyl-2-pentanone	"			**ND**	"	**5.00**				
Methylene chloride	"			**ND**	"	**5.00**				
Naphthalene	"			**ND**	"	**1.00**				
n-Propylbenzene	"			**ND**	"	**1.00**				
Styrene	"			**ND**	"	**1.00**				
1,1,1,2-Tetrachloroethane	"			**ND**	"	**1.00**				
1,1,2,2-Tetrachloroethane	"			**ND**	"	**1.00**				
Tetrachloroethene	"			**ND**	"	**1.00**				
Toluene	"			**ND**	"	**1.00**				
1,2,3-Trichlorobenzene	"			**ND**	"	**1.00**				
1,2,4-Trichlorobenzene	"			**ND**	"	**1.00**				
1,1,1-Trichloroethane	"			**ND**	"	**1.00**				
1,1,2-Trichloroethane	"			**ND**	"	**1.00**				
Trichloroethene	"			**ND**	"	**1.00**				
Trichlorofluoromethane	"			**ND**	"	**1.00**				
1,2,3-Trichloropropane	"			**ND**	"	**1.00**				
1,2,4-Trimethylbenzene	"			**ND**	"	**1.00**				
1,3,5-Trimethylbenzene	"			**ND**	"	**1.00**				
Vinyl chloride	"			**ND**	"	**1.00**				
o-Xylene	"			**ND**	"	**1.00**				
m,p-Xylene	"			**ND**	"	**2.00**				
Surrogate: 4-BFB	"	*20.0*		*20.7*	"	*75.0-135*	*104*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*22.4*	"	*70.0-135*	*112*			
Surrogate: Dibromofluoromethane	"	*20.0*		*20.6*	"	*80.0-125*	*103*			
Surrogate: Toluene-d8	"	*20.0*		*20.0*	"	*80.0-120*	*100*			
LCS	**1090903-BS1**									
Benzene	10/31/99	20.0		20.0	ug/l	80.0-125	100			
Chlorobenzene	"	20.0		19.2	"	80.0-125	96.0			
1,1-Dichloroethene	"	20.0		22.0	"	70.0-135	110			
Toluene	"	20.0		19.4	"	80.0-125	97.0			

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Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/21/99
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:50

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS (continued)	**1090903-BS1**									
Trichloroethene	10/31/99	20.0		21.3	ug/l	70.0-130	106			
Surrogate: 4-BFB	"	*20.0*		*20.3*	"	*75.0-135*	*101*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*22.0*	"	*70.0-135*	*110*			
Surrogate: Dibromofluoromethane	"	*20.0*		*20.6*	"	*80.0-125*	*103*			
Surrogate: Toluene-d8	"	*20.0*		*19.9*	"	*80.0-120*	*99.5*			
Matrix Spike	**1090903-MS1**		**P910434-04**							
Benzene	10/31/99	20.0	142	166	ug/l	80.0-125	**120**			
Chlorobenzene	"	20.0	28.6	48.9	"	80.0-125	**102**			
1,1-Dichloroethane	"		ND	ND	"					
1,1-Dichloroethene	"	20.0	ND	23.4	"	70.0-135	**117**			
Toluene	"	20.0	1.45	22.4	"	80.0-125	**105**			
Trichloroethene	"	20.0	ND	21.5	"	70.0-130	**108**			
Surrogate: 4-BFB	"	*20.0*		*20.0*	"	*75.0-135*	*100*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*21.8*	"	*70.0-135*	*109*			
Surrogate: Dibromofluoromethane	"	*20.0*		*20.2*	"	*80.0-125*	*101*			
Surrogate: Toluene-d8	"	*20.0*		*21.0*	"	*80.0-120*	*105*			
Matrix Spike Dup	**1090903-MSD1**		**P910434-04**							
Benzene	10/31/99	20.0	142	167	ug/l	80.0-125	**125**	25.0	**4.08**	
Chlorobenzene	"	20.0	28.6	48.3	"	80.0-125	**98.5**	25.0	**3.49**	
1,1-Dichloroethane	"		ND	ND	"					
1,1-Dichloroethene	"	20.0	ND	23.3	"	70.0-135	**116**	25.0	**0.858**	
Toluene	"	20.0	1.45	22.3	"	80.0-125	**104**	25.0	**0.957**	
Trichloroethene	"	20.0	ND	21.2	"	70.0-130	**106**	25.0	**1.87**	
Surrogate: 4-BFB	"	*20.0*		*20.3*	"	*75.0-135*	*101*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*22.5*	"	*70.0-135*	*113*			
Surrogate: Dibromofluoromethane	"	*20.0*		*20.2*	"	*80.0-125*	*101*			
Surrogate: Toluene-d8	"	*20.0*		*21.1*	"	*80.0-120*	*106*			

Batch: 1190063 **Date Prepared: 11/2/99** **Extraction Method: EPA 5030**

Blank	1190063-BLK1				
Acetone	11/2/99	**ND**	ug/l	**25.0**	
Benzene	"	**ND**	"	**1.00**	
Bromobenzene	"	**ND**	"	**1.00**	
Bromochloromethane	"	**ND**	"	**1.00**	
Bromodichloromethane	"	**ND**	"	**1.00**	
Bromoform	"	**ND**	"	**1.00**	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/21/99
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:50

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	**1190063-BLK1**									
Bromomethane	11/2/99			ND	ug/l	10.0				
2-Butanone	"			ND	"	25.0				
n-Butylbenzene	"			ND	"	1.00				
sec-Butylbenzene	"			ND	"	1.00				
tert-Butylbenzene	"			ND	"	1.00				
Carbon disulfide	"			ND	"	10.0				
Carbon tetrachloride	"			ND	"	2.00				
Chlorobenzene	"			ND	"	1.00				
Chloroethane	"			ND	"	2.00				
Chloroform	"			ND	"	1.00				
Chloromethane	"			ND	"	5.00				
2-Chlorotoluene	"			ND	"	1.00				
4-Chlorotoluene	"			ND	"	1.00				
1,2-Dibromo-3-chloropropane	"			ND	"	1.00				
Dibromochloromethane	"			ND	"	1.00				
1,2-Dibromoethane	"			ND	"	1.00				
Dibromomethane	"			ND	"	1.00				
1,2-Dichlorobenzene	"			ND	"	1.00				
1,3-Dichlorobenzene	"			ND	"	1.00				
1,4-Dichlorobenzene	"			ND	"	1.00				
Dichlorodifluoromethane	"			ND	"	5.00				
1,1-Dichloroethane	"			ND	"	1.00				
1,2-Dichloroethane	"			ND	"	1.00				
1,1-Dichloroethene	"			ND	"	1.00				
cis-1,2-Dichloroethene	"			ND	"	1.00				
trans-1,2-Dichloroethene	"			ND	"	1.00				
1,2-Dichloropropane	"			ND	"	1.00				
1,3-Dichloropropane	"			ND	"	1.00				
2,2-Dichloropropane	"			ND	"	1.00				
1,1-Dichloropropene	"			ND	"	1.00				
cis-1,3-Dichloropropene	"			ND	"	1.00				
trans-1,3-Dichloropropene	"			ND	"	1.00				
Ethylbenzene	"			ND	"	1.00				
Hexachlorobutadiene	"			ND	"	2.00				
2-Hexanone	"			ND	"	10.0				
Iodomethane	"			ND	"	20.0				
Isopropylbenzene	"			ND	"	1.00				
p-Isopropyltoluene	"			ND	"	1.00				

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Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	1190063-BLK1									
4-Methyl-2-pentanone	11/2/99			ND	ug/l	5.00				
Methylene chloride	"			ND	"	5.00				
Naphthalene	"			ND	"	1.00				
n-Propylbenzene	"			ND	"	1.00				
Styrene	"			ND	"	1.00				
1,1,1,2-Tetrachloroethane	"			ND	"	1.00				
1,1,2,2-Tetrachloroethane	"			ND	"	1.00				
Tetrachloroethene	"			ND	"	1.00				
Toluene	"			ND	"	1.00				
1,2,3-Trichlorobenzene	"			ND	"	1.00				
1,2,4-Trichlorobenzene	"			ND	"	1.00				
1,1,1-Trichloroethane	"			ND	"	1.00				
1,1,2-Trichloroethane	"			ND	"	1.00				
Trichloroethene	"			ND	"	1.00				
Trichlorofluoromethane	"			ND	"	1.00				
1,2,3-Trichloropropane	"			ND	"	1.00				
1,2,4-Trimethylbenzene	"			ND	"	1.00				
1,3,5-Trimethylbenzene	"			ND	"	1.00				
Vinyl chloride	"			ND	"	1.00				
o-Xylene	"			ND	"	1.00				
m,p-Xylene	"			ND	"	2.00				
Surrogate: 4-BFB	"	*20.0*		*20.6*	"	*75.0-135*	*103*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*23.7*	"	*70.0-135*	*119*			
Surrogate: Dibromofluoromethane	"	*20.0*		*20.9*	"	*80.0-125*	*104*			
Surrogate: Toluene-d8	"	*20.0*		*19.6*	"	*80.0-120*	*98.0*			
LCS	1190063-BS1									
Benzene	11/2/99	20.0		20.2	ug/l	80.0-125	101			
Chlorobenzene	"	20.0		20.1	"	80.0-125	101			
1,1-Dichloroethene	"	20.0		22.7	"	70.0-135	114			
Toluene	"	20.0		20.5	"	80.0-125	103			
Trichloroethene	"	20.0		20.3	"	70.0-130	101			
Surrogate: 4-BFB	"	*20.0*		*20.7*	"	*75.0-135*	*104*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*22.3*	"	*70.0-135*	*111*			
Surrogate: Dibromofluoromethane	"	*20.0*		*20.2*	"	*80.0-125*	*101*			
Surrogate: Toluene-d8	"	*20.0*		*20.4*	"	*80.0-120*	*102*			

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URS Greiner Woodward Clyde	Project: RPAC	Sampled:	10/21/99
111 SW Columbia, Suite 900	Project Number: 92C0804A.00/44	Received:	10/22/99
Portland, OR 97201	Project Manager: Karen Schadler	Reported:	11/24/99 14:50

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS Dup	**1190063-BSD1**									
Benzene	11/2/99	20.0		21.0	ug/l	80.0-125	105	25.0	3.88	
Chlorobenzene	"	20.0		19.8	"	80.0-125	99.0	25.0	2.00	
1,1-Dichloroethene	"	20.0		23.6	"	70.0-135	118	25.0	3.45	
Toluene	"	20.0		19.9	"	80.0-125	99.5	25.0	3.46	
Trichloroethene	"	20.0		21.0	"	70.0-130	105	25.0	3.88	
Surrogate: 4-BFB	"	*20.0*		*20.9*	"	*75.0-135*	*104*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*23.4*	"	*70.0-135*	*117*			
Surrogate: Dibromofluoromethane	"	*20.0*		*21.3*	"	*80.0-125*	*106*			
Surrogate: Toluene-d8	"	*20.0*		*20.1*	"	*80.0-120*	*101*			
Batch: 1190232	**Date Prepared: 11/8/99**					**Extraction Method: EPA 5030**				
Blank	**1190232-BLK1**									
Acetone	11/8/99			ND	ug/l	25.0				
[illegible]ene	"			ND	"	1.00				
[illegible]obenzene	"			ND	"	1.00				
Bromochloromethane	"			ND	"	1.00				
Bromodichloromethane	"			ND	"	1.00				
Bromoform	"			ND	"	1.00				
Bromomethane	"			ND	"	10.0				
2-Butanone	"			ND	"	25.0				
n-Butylbenzene	"			ND	"	1.00				
sec-Butylbenzene	"			ND	"	1.00				
tert-Butylbenzene	"			ND	"	1.00				
Carbon disulfide	"			ND	"	10.0				
Carbon tetrachloride	"			ND	"	2.00				
Chlorobenzene	"			ND	"	1.00				
Chloroethane	"			ND	"	2.00				
Chloroform	"			ND	"	1.00				
Chloromethane	"			ND	"	5.00				
2-Chlorotoluene	"			ND	"	1.00				
4-Chlorotoluene	"			ND	"	1.00				
1,2-Dibromo-3-chloropropane	"			ND	"	1.00				
Dibromochloromethane	"			ND	"	1.00				
1,2-Dibromoethane	"			ND	"	1.00				
Dibromomethane	"			ND	"	1.00				
1,2-Dichlorobenzene	"			ND	"	1.00				
1,3-Dichlorobenzene	"			ND	"	1.00				
1,4-Dichlorobenzene	"			ND	"	1.00				

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**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/21/99
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:50

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	**1190232-BLK1**									
Dichlorodifluoromethane	11/8/99			ND	ug/l	5.00				
1,1-Dichloroethane	"			ND	"	1.00				
1,2-Dichloroethane	"			ND	"	1.00				
1,1-Dichloroethene	"			ND	"	1.00				
cis-1,2-Dichloroethene	"			ND	"	1.00				
trans-1,2-Dichloroethene	"			ND	"	1.00				
1,2-Dichloropropane	"			ND	"	1.00				
1,3-Dichloropropane	"			ND	"	1.00				
2,2-Dichloropropane	"			ND	"	1.00				
1,1-Dichloropropene	"			ND	"	1.00				
cis-1,3-Dichloropropene	"			ND	"	1.00				
trans-1,3-Dichloropropene	"			ND	"	1.00				
Ethylbenzene	"			ND	"	1.00				
Hexachlorobutadiene	"			ND	"	2.00				
2-Hexanone	"			ND	"	10.0				
Iodomethane	"			ND	"	20.0				
Isopropylbenzene	"			ND	"	1.00				
p-Isopropyltoluene	"			ND	"	1.00				
4-Methyl-2-pentanone	"			ND	"	5.00				
Methylene chloride	"			ND	"	5.00				
Naphthalene	"			ND	"	1.00				
n-Propylbenzene	"			ND	"	1.00				
Styrene	"			ND	"	1.00				
1,1,1,2-Tetrachloroethane	"			ND	"	1.00				
1,1,2,2-Tetrachloroethane	"			ND	"	1.00				
Tetrachloroethene	"			ND	"	1.00				
Toluene	"			ND	"	1.00				
1,2,3-Trichlorobenzene	"			ND	"	1.00				
1,2,4-Trichlorobenzene	"			ND	"	1.00				
1,1,1-Trichloroethane	"			ND	"	1.00				
1,1,2-Trichloroethane	"			ND	"	1.00				
Trichloroethene	"			ND	"	1.00				
Trichlorofluoromethane	"			ND	"	1.00				
1,2,3-Trichloropropane	"			ND	"	1.00				
1,2,4-Trimethylbenzene	"			ND	"	1.00				
1,3,5-Trimethylbenzene	"			ND	"	1.00				
Vinyl chloride	"			ND	"	1.00				
o-Xylene	"			ND	"	1.00				

North Creek Analytical - Portland

*Refer to end of report for text of notes and definitions.

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/21/99
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:50

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	**1190232-BLK1**									
m,p-Xylene	11/8/99			**ND**	ug/l	**2.00**				
Surrogate: 4-BFB	"	*20.0*		*22.0*	"	*75.0-135*	*110*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*22.9*	"	*70.0-135*	*114*			
Surrogate: Dibromofluoromethane	"	*20.0*		*20.9*	"	*80.0-125*	*104*			
Surrogate: Toluene-d8	"	*20.0*		*19.9*	"	*80.0-120*	*99.5*			
LCS	**1190232-BS1**									
Benzene	11/8/99	20.0		19.9	ug/l	80.0-125	99.5			
Chlorobenzene	"	20.0		17.6	"	80.0-125	88.0			
1,1-Dichloroethene	"	20.0		20.9	"	70.0-135	104			
Toluene	"	20.0		18.4	"	80.0-125	92.0			
Trichloroethene	"	20.0		19.5	"	70.0-130	97.5			
Surrogate: 4-BFB	"	*20.0*		*20.6*	"	*75.0-135*	*103*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*22.9*	"	*70.0-135*	*114*			
Surrogate: Dibromofluoromethane	"	*20.0*		*20.2*	"	*80.0-125*	*101*			
Surrogate: Toluene-d8	"	*20.0*		*19.5*	"	*80.0-120*	*97.5*			
LCS Dup	**1190232-BSD1**									
Benzene	11/8/99	20.0		19.8	ug/l	80.0-125	99.0	25.0	0.504	
Chlorobenzene	"	20.0		20.0	"	80.0-125	100	25.0	12.8	
1,1-Dichloroethene	"	20.0		20.6	"	70.0-135	103	25.0	0.966	
Toluene	"	20.0		19.5	"	80.0-125	97.5	25.0	5.80	
Trichloroethene	"	20.0		19.8	"	70.0-130	99.0	25.0	1.53	
Surrogate: 4-BFB	"	*20.0*		*21.9*	"	*75.0-135*	*109*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*22.8*	"	*70.0-135*	*114*			
Surrogate: Dibromofluoromethane	"	*20.0*		*20.4*	"	*80.0-125*	*102*			
Surrogate: Toluene-d8	"	*20.0*		*20.0*	"	*80.0-120*	*100*			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/21/99
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 10/22/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:50

Notes and Definitions

#	Note
E	Estimated value. The reported value exceeds the calibration range of the analysis.
1	This vial A (Vial A & C are not the same sample)
2	This is vial C
3	This is a rerun from vial A
4	This is a rerun from vial C
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

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Case Narrative

CLIENT: URS Greiner Woodward Clyde
PROJECT: RPAC
PROJECT #: 92C0804A.00

November 29, 1999
NCA #s: P910480, P910486, P910491
P910537, P910538, P910540, P910542

1.0 DESCRIPTION OF CASE

North Creek Analytical, Beaverton received a total of seventeen water samples, including five trip blanks, from 10/22/99 through 10/27/99 from URS Greiner Woodward Clyde for analysis by one or more of the following EPA Methods: 6020 Dissolved Metals, 7470A Dissolved Mercury, Isobutyl Alcohol by GC/FID, 8041 Phenols, 8151A Chlorinated Herbicides, 8260B Volatile Organics, 8081A/8082 Pesticides/PCBs, and 8141 Organophosphorous Pesticides. The samples were logged in as the seven NCA project numbers referenced above. Results and raw data for all sample analyses are reported in a single combined *Analytical Report* and included as one data package, with the exception of 8151A Chlorinated Herbicides. 8151A Chlorinated Herbicides analyses were subcontracted to Bothell and are contained in a separate data package.

2.0 SAMPLE LIST

Refer to the *Chain of Custody* documents for a summary of sample information.

Each sub-group of samples received together for the entire sample delivery group is given an NCA #, proceeded by a "P" for Portland. This number consists of a one-digit code for the year, a two-digit code for the month and a sequential number for the group within the month. Each sample within the sub-group is numbered sequentially by placing a dash after the NCA#.

3.0 COMMENTS ON ANALYSIS

3.1 Sample Receipt

The samples were received intact from URS Greiner Woodward Clyde. The samples were clearly labeled and matched the chain of custody. Sample travel blank temperatures were measured directly upon receipt using a Digi-Thermo Probe. Sample temperatures are recorded with the sample log-in information.

3.2 Analysis

The samples were analyzed following the procedures outlined in the applicable methods. The samples were refrigerated at 4 °C and were extracted and analyzed within the EPA recommended holding times without incident; any exceptions are footnoted and described in the *Notes and Definitions* section of the *Analytical Report*. Exceptions requiring more detail are as follows:

Dissolved Metals
As indicated by the "*Date Analyzed*" date noted on the *Analytical Report*, samples were redigested and reanalyzed as batch #1190347 for copper due to the presence of this analyte in the method blank sample of the initial analysis. During analysis of the redigested batch, copper was again detected in the

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Case Narrative

method blank sample, but only as the Cu 63 ion. This analyte was therefore quantitated from the Cu 65 ion for all samples and QC samples of batch #1190347.

"*Date Analyzed*" dates noted on the *Analytical Report* may vary within a batch as a result of reanalysis required due to one or more of the following: check standard failure during a sequence, dilution required due to matrix interference or analyte concentration above the calibration range, an unacceptable internal standard for the sample or confirmation of a result.

Phenols by 8041
All samples were noted by the extractionist as containing significant sediment and formed emulsions during extraction. GC analysis of several samples, including the method blank, were confirmed by GC/MS analysis.

4.0 QC RESULTS

Surrogate and quality control parameters that were outside control limits are noted on the appropriate pages of the *Analytical Report*. Additional Quality Control issues are as follows:

Phenols by 8041
The 2,4,6-Tribromophenol surrogate recovery of sample 034-GG-01 was calculated from a value above the calibration curve. The recovery was therefore "J" flagged as an estimated value.

Pesticides/PCBs by 8081A/8082
Surrogate recovery for Decachlorobiphenyl was unacceptable for six of the nine samples analyzed. Recoveries for this surrogate were acceptable for all batch QC samples, indicating that low recoveries in samples were due to sample matrix rather than extraction efficiency.

MS/MSD samples were not quantitated for PCBs.

All quality control parameters other than those noted above or on the *Analytical Report* were within established control limits.

5.0 SAMPLE RESULTS

Where applicable, qualifiers have been added to sample results as footnotes and are detailed in the *Notes and Definitions* section of the analytical report.

The dilution factor for a sample, if applicable, is depicted on the *Analytical Report* as the MRL(s) for the quantitated analytes being raised by the dilution factor. The method blank sample may be referenced for the initial MRL.

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Case Narrative

CLIENT: URS Greiner Woodward Clyde
PROJECT: RPAC
PROJECT #: 92C0804A.00

November 29, 1999
NCA #s: P910480, P910486, P910491
P910537, P910538, P910540, P910542

" I certify that this data package is in compliance with the method, both technically and for completeness, for all conditions other than those listed above. Release of the data in this hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature."

Susan Schimelfining, QA Manager
North Creek Analytical, Beaverton

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
028-GG-01	P910480-01	Water	10/22/99
029-GG-01	P910480-02	Water	10/22/99
TRIP BLANK	P910480-03	Water	10/22/99
019-GG-01	P910486-01	Water	10/25/99
Trip Blank	P910486-02	Water	10/25/99
030-GG-01	P910491-01	Water	10/25/99
030-GG-02	P910491-02	Water	10/25/99
Trip Blank	P910491-03	Water	10/25/99
032-GG-01	P910537-01	Water	10/26/99
035-GG-01	P910538-01	Water	10/26/99
033-GG-01	P910540-01	Water	10/26/99
034-GG-01	P910540-02	Water	10/26/99
035-GG-01	P910540-03	Water	10/26/99
TRIP BLANK	P910540-04	Water	10/26/99
031-GG-01	P910542-01	Water	10/25/99
032-GG-01	P910542-02	Water	10/25/99
TRIP BLANK	P910542-03	Water	10/25/99

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Dissolved Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
028-GG-01			**P910480-01**				**Water**	
Arsenic	1190058	11/2/99	11/2/99	EPA 6020	0.00100	**0.00611**	mg/l	
Cadmium	"	"	"	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	ND	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.00671**	"	
Vanadium	"	"	"	EPA 6020	0.00500	ND	"	
Zinc	"	"	"	EPA 6020	0.00500	**0.0478**	"	
Mercury	1090851	10/28/99	10/29/99	EPA 7470A	0.000200	ND	"	
Copper	1190347	11/3/99	11/3/99	EPA 6020	0.00200	**0.00236**	"	
029-GG-01			**P910480-02**				**Water**	
Arsenic	1190058	11/2/99	11/2/99	EPA 6020	0.00100	**0.00182**	mg/l	
Cadmium	"	"	"	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	ND	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.00838**	"	
Vanadium	"	"	"	EPA 6020	0.00500	ND	"	
Zinc	"	"	"	EPA 6020	0.00500	**0.00737**	"	
Mercury	1090851	10/28/99	10/29/99	EPA 7470A	0.000200	ND	"	
Copper	1190347	11/3/99	11/3/99	EPA 6020	0.00200	**0.00219**	"	
019-GG-01			**P910486-01**				**Water**	
Arsenic	1190058	11/2/99	11/2/99	EPA 6020	0.00100	**0.00716**	mg/l	
Cadmium	"	"	"	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	**0.00216**	"	
Lead	"	"	"	EPA 6020	0.00100	**0.00101**	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.00946**	"	
Vanadium	"	"	"	EPA 6020	0.00500	**0.0522**	"	
Zinc	"	"	"	EPA 6020	0.00500	**0.00855**	"	
Mercury	1090851	10/28/99	10/29/99	EPA 7470A	0.000200	ND	"	
Copper	1190347	11/3/99	11/3/99	EPA 6020	0.00200	**0.00480**	"	
030-GG-01			**P910491-01**				**Water**	
Arsenic	1190058	11/2/99	11/2/99	EPA 6020	0.00100	**0.0294**	mg/l	
Cadmium	"	"	"	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	ND	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.00280**	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Dissolved Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
030-GG-01 (continued)			**P910491-01**				**Water**	
Vanadium	1190058	11/2/99	11/5/99	EPA 6020	0.100	ND	mg/l	1
Zinc	"	"	11/2/99	EPA 6020	0.00500	ND	"	
Mercury	1090851	10/28/99	10/29/99	EPA 7470A	0.000200	ND	"	
Copper	1190347	11/3/99	11/3/99	EPA 6020	0.00200	ND	"	
030-GG-02			**P910491-02**				**Water**	
Arsenic	1190058	11/2/99	11/2/99	EPA 6020	0.00100	**0.0294**	mg/l	
Cadmium	"	"	"	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	ND	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.00276**	"	
Vanadium	"	"	11/5/99	EPA 6020	0.100	ND	"	1
Zinc	"	"	11/2/99	EPA 6020	0.00500	ND	"	
Mercury	1090851	10/28/99	10/29/99	EPA 7470A	0.000200	ND	"	
Copper	1190347	11/3/99	11/3/99	EPA 6020	0.00200	ND	"	
032-GG-01			**P910537-01**				**Water**	
Arsenic	1190058	11/2/99	11/3/99	EPA 6020	0.00100	**0.00408**	mg/l	
Cadmium	"	"	"	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	**0.00296**	"	
Lead	"	"	"	EPA 6020	0.00100	**0.00421**	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.00541**	"	
Vanadium	"	"	"	EPA 6020	0.00500	**0.0346**	"	
Zinc	"	"	11/4/99	EPA 6020	0.00500	**0.0146**	"	
Mercury	1090851	10/28/99	10/29/99	EPA 7470A	0.000200	ND	"	
Copper	1190347	11/3/99	11/3/99	EPA 6020	0.00200	**0.0108**	"	
035-GG-01			**P910538-01**				**Water**	
Arsenic	1190058	11/2/99	11/3/99	EPA 6020	0.0115	ND	mg/l	1
Cadmium	"	"	"	EPA 6020	0.00575	**0.00822**	"	1
Chromium	"	"	"	EPA 6020	0.00575	ND	"	1
Lead	"	"	"	EPA 6020	0.00575	ND	"	1
Nickel	"	"	"	EPA 6020	0.0115	**0.107**	"	1
Vanadium	"	"	"	EPA 6020	0.0288	ND	"	1
Zinc	"	"	11/4/99	EPA 6020	0.00500	**0.0231**	"	
Mercury	1090851	10/28/99	10/29/99	EPA 7470A	0.000200	ND	"	
Copper	1190347	11/3/99	11/3/99	EPA 6020	0.0112	ND	"	1

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Dissolved Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
033-GG-01			**P910540-01**				**Water**	
Arsenic	1190058	11/2/99	11/3/99	EPA 6020	0.00100	**0.00169**	mg/l	
Cadmium	"	"	"	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	**0.00230**	"	
Lead	"	"	"	EPA 6020	0.00100	**0.00140**	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.00800**	"	
Vanadium	"	"	"	EPA 6020	0.00500	**0.0269**	"	
Zinc	"	"	11/4/99	EPA 6020	0.00500	**0.00870**	"	
Mercury	1090851	10/28/99	10/29/99	EPA 7470A	0.000200	ND	"	
Copper	1190347	11/3/99	11/3/99	EPA 6020	0.00200	**0.00642**	"	
034-GG-01			**P910540-02**				**Water**	
Arsenic	1190058	11/2/99	11/4/99	EPA 6020	0.0100	ND	mg/l	1
Cadmium	"	"	11/3/99	EPA 6020	0.00100	**0.00327**	"	
Chromium	"	"	"	EPA 6020	0.00100	**0.00166**	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.0616**	"	
Vanadium	"	"	"	EPA 6020	0.00500	**0.00583**	"	
Zinc	"	"	11/4/99	EPA 6020	0.00500	**0.0142**	"	
Mercury	1090851	10/28/99	10/29/99	EPA 7470A	0.000200	**0.000200**	"	
Copper	1190347	11/3/99	11/3/99	EPA 6020	0.00200	**0.00574**	"	
031-GG-01			**P910542-01**				**Water**	
Arsenic	1190058	11/2/99	11/3/99	EPA 6020	0.00100	ND	mg/l	
Cadmium	"	"	"	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	**0.00250**	"	
Lead	"	"	"	EPA 6020	0.00100	**0.00113**	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.0104**	"	
Vanadium	"	"	11/5/99	EPA 6020	0.100	ND	"	1
Zinc	"	"	11/4/99	EPA 6020	0.00500	**0.00560**	"	
Mercury	1090851	10/28/99	10/29/99	EPA 7470A	0.000200	ND	"	
Copper	1190347	11/3/99	11/3/99	EPA 6020	0.00200	ND	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Alcohols by GC/FID Headspace Analysis
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
028-GG-01			**P910480-01**				**Water**	2
Isobutyl alcohol	1190299	11/9/99	11/10/99	EPA 8015	10.0	ND	mg/l	
029-GG-01			**P910480-02**				**Water**	2
Isobutyl alcohol	1190299	11/9/99	11/10/99	EPA 8015	10.0	ND	mg/l	
019-GG-01			**P910486-01**				**Water**	2
Isobutyl alcohol	1190299	11/9/99	11/10/99	EPA 8015	10.0	ND	mg/l	
030-GG-01			**P910491-01**				**Water**	2
Isobutyl alcohol	1190299	11/9/99	11/10/99	EPA 8015	10.0	ND	mg/l	
030-GG-02			**P910491-02**				**Water**	2
Isobutyl alcohol	1190299	11/9/99	11/10/99	EPA 8015	10.0	ND	mg/l	
033-GG-01			**P910540-01**				**Water**	2
Isobutyl alcohol	1190299	11/9/99	11/10/99	EPA 8015	10.0	ND	mg/l	
034-GG-01			**P910540-02**				**Water**	2
Isobutyl alcohol	1190299	11/9/99	11/10/99	EPA 8015	10.0	ND	mg/l	
035-GG-01			**P910540-03**				**Water**	2
Isobutyl alcohol	1190299	11/9/99	11/10/99	EPA 8015	10.0	ND	mg/l	
031-GG-01			**P910542-01**				**Water**	2
Isobutyl alcohol	1190299	11/9/99	11/10/99	EPA 8015	10.0	ND	mg/l	
032-GG-01			**P910542-02**				**Water**	2
Isobutyl alcohol	1190299	11/9/99	11/10/99	EPA 8015	10.0	ND	mg/l	

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111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Phenols per EPA Method 8041
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
028-GG-01			**P910480-01**				**Water**	
4-Chloro-3-methylphenol	1090856	10/28/99	10/30/99		25.0	ND	ug/l	
2-Chlorophenol	"	"	"		25.0	ND	"	
Cresols	"	"	"		25.0	ND	"	
2,4-Dichlorophenol	"	"	"		25.0	ND	"	
2,6-Dichlorophenol	"	"	"		25.0	ND	"	
2,4-Dimethylphenol	"	"	"		25.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		25.0	ND	"	
2,4-Dinitrophenol	"	"	"		62.5	ND	"	
Dinoseb	"	"	"		25.0	ND	"	
2-Nitrophenol	"	"	"		25.0	ND	"	
4-Nitrophenol	"	"	"		25.0	ND	"	
Pentachlorophenol	"	"	"		25.0	ND	"	
Phenol	"	"	"		25.0	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		25.0	ND	"	
2,4,5-Trichlorophenol	"	"	"		25.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		25.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*57.7*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*100*	"	
029-GG-01			**P910480-02**				**Water**	**3**
4-Chloro-3-methylphenol	1090856	10/28/99	10/31/99		125	ND	ug/l	
2-Chlorophenol	"	"	"		125	ND	"	
Cresols	"	"	"		125	ND	"	
2,4-Dichlorophenol	"	"	"		125	ND	"	
2,6-Dichlorophenol	"	"	"		125	ND	"	
2,4-Dimethylphenol	"	"	"		125	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		125	ND	"	
2,4-Dinitrophenol	"	"	"		313	ND	"	
Dinoseb	"	"	"		125	ND	"	
2-Nitrophenol	"	"	"		125	ND	"	
4-Nitrophenol	"	"	"		125	ND	"	
Pentachlorophenol	"	"	"		125	ND	"	
Phenol	"	"	"		125	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		125	ND	"	
2,4,5-Trichlorophenol	"	"	"		125	ND	"	
2,4,6-Trichlorophenol	"	"	"		125	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*50.6*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*51.8*	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Phenols per EPA Method 8041
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
030-GG-01			**P910491-01**				**Water**	
4-Chloro-3-methylphenol	1090856	10/28/99	10/30/99		25.0	ND	ug/l	
2-Chlorophenol	"	"	"		25.0	ND	"	
Cresols	"	"	"		25.0	ND	"	
2,4-Dichlorophenol	"	"	"		25.0	ND	"	
2,6-Dichlorophenol	"	"	"		25.0	ND	"	
2,4-Dimethylphenol	"	"	"		25.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		25.0	ND	"	
2,4-Dinitrophenol	"	"	"		62.5	ND	"	
Dinoseb	"	"	"		25.0	ND	"	
2-Nitrophenol	"	"	"		25.0	ND	"	
4-Nitrophenol	"	"	"		25.0	ND	"	
Pentachlorophenol	"	"	"		25.0	ND	"	
Phenol	"	"	"		25.0	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		25.0	ND	"	
2,4,5-Trichlorophenol	"	"	"		25.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		25.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*39.3*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*70.9*	"	
030-GG-02			**P910491-02**				**Water**	
4-Chloro-3-methylphenol	1090856	10/28/99	10/30/99		25.0	ND	ug/l	
2-Chlorophenol	"	"	"		25.0	ND	"	
Cresols	"	"	"		25.0	ND	"	
2,4-Dichlorophenol	"	"	"		25.0	ND	"	
2,6-Dichlorophenol	"	"	"		25.0	ND	"	
2,4-Dimethylphenol	"	"	"		25.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		25.0	ND	"	
2,4-Dinitrophenol	"	"	"		62.5	ND	"	
Dinoseb	"	"	"		25.0	ND	"	
2-Nitrophenol	"	"	"		25.0	ND	"	
4-Nitrophenol	"	"	"		25.0	ND	"	
Pentachlorophenol	"	"	"		25.0	ND	"	
Phenol	"	"	"		25.0	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		25.0	ND	"	
2,4,5-Trichlorophenol	"	"	"		25.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		25.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*43.9*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*79.4*	"	

North Creek Analytical - Portland

**Refer to end of report for text of notes and definitions*

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Deborah Griffiths, Project Manager

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Phenols per EPA Method 8041
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
032-GG-01			**P910537-01**				**Water**	
4-Chloro-3-methylphenol	1090856	10/28/99	10/30/99		25.0	ND	ug/l	
2-Chlorophenol	"	"	"		25.0	ND	"	
Cresols	"	"	"		25.0	ND	"	
2,4-Dichlorophenol	"	"	"		25.0	ND	"	
2,6-Dichlorophenol	"	"	"		25.0	ND	"	
2,4-Dimethylphenol	"	"	"		25.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		25.0	ND	"	
2,4-Dinitrophenol	"	"	"		62.5	ND	"	
Dinoseb	"	"	"		25.0	ND	"	
2-Nitrophenol	"	"	"		25.0	ND	"	
4-Nitrophenol	"	"	"		25.0	ND	"	
Pentachlorophenol	"	"	"		25.0	ND	"	
Phenol	"	"	"		25.0	ND	"	
[illegible]6-Tetrachlorophenol	"	"	"		25.0	ND	"	
[illegible]-Trichlorophenol	"	"	"		25.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		25.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*38.6*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*59.3*	"	
035-GG-01			**P910538-01**				**Water**	
4-Chloro-3-methylphenol	1090856	10/28/99	10/30/99		25.0	ND	ug/l	
2-Chlorophenol	"	"	"		25.0	ND	"	
Cresols	"	"	"		25.0	ND	"	
2,4-Dichlorophenol	"	"	"		25.0	ND	"	
2,6-Dichlorophenol	"	"	"		25.0	ND	"	
2,4-Dimethylphenol	"	"	"		25.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		25.0	ND	"	
2,4-Dinitrophenol	"	"	"		62.5	ND	"	
Dinoseb	"	"	"		25.0	ND	"	
2-Nitrophenol	"	"	"		25.0	ND	"	
4-Nitrophenol	"	"	"		25.0	ND	"	
Pentachlorophenol	"	"	"		25.0	ND	"	
Phenol	"	"	"		25.0	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		25.0	ND	"	
2,4,5-Trichlorophenol	"	"	"		25.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		25.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*59.4*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*75.0*	"	

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**Refer to end of report for text of notes and definitions.*

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Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Phenols per EPA Method 8041
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
033-GG-01			**P910540-01**				**Water**	
4-Chloro-3-methylphenol	1090856	10/28/99	10/30/99		25.0	ND	ug/l	
2-Chlorophenol	"	"	"		25.0	ND	"	
Cresols	"	"	"		25.0	ND	"	
2,4-Dichlorophenol	"	"	"		25.0	ND	"	
2,6-Dichlorophenol	"	"	"		25.0	ND	"	
2,4-Dimethylphenol	"	"	"		25.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		25.0	ND	"	
2,4-Dinitrophenol	"	"	"		62.5	ND	"	
Dinoseb	"	"	"		25.0	ND	"	
2-Nitrophenol	"	"	"		25.0	ND	"	
4-Nitrophenol	"	"	"		25.0	ND	"	
Pentachlorophenol	"	"	"		25.0	ND	"	
Phenol	"	"	"		25.0	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		25.0	ND	"	
2,4,5-Trichlorophenol	"	"	"		25.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		25.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*51.9*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*92.6*	"	
034-GG-01			**P910540-02**				**Water**	
4-Chloro-3-methylphenol	1090856	10/28/99	10/30/99		25.0	ND	ug/l	
2-Chlorophenol	"	"	"		25.0	ND	"	
Cresols	"	"	"		25.0	ND	"	
2,4-Dichlorophenol	"	"	"		25.0	ND	"	
2,6-Dichlorophenol	"	"	"		25.0	ND	"	
2,4-Dimethylphenol	"	"	"		25.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		25.0	ND	"	
2,4-Dinitrophenol	"	"	"		62.5	ND	"	
Dinoseb	"	"	"		25.0	ND	"	
2-Nitrophenol	"	"	"		25.0	ND	"	
4-Nitrophenol	"	"	"		25.0	ND	"	
Pentachlorophenol	"	"	"		25.0	ND	"	
Phenol	"	"	"		25.0	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		25.0	ND	"	
2,4,5-Trichlorophenol	"	"	"		25.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		25.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*82.0*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*101*	"	*J*

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**Refer to end of report for text of notes and definitions*

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Phenols per EPA Method 8041
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
031-GG-01			**P910542-01**				**Water**	
4-Chloro-3-methylphenol	1090856	10/28/99	10/30/99		25.0	ND	ug/l	
2-Chlorophenol	"	"	"		25.0	ND	"	
Cresols	"	"	"		25.0	ND	"	
2,4-Dichlorophenol	"	"	"		25.0	ND	"	
2,6-Dichlorophenol	"	"	"		25.0	ND	"	
2,4-Dimethylphenol	"	"	"		25.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		25.0	ND	"	
2,4-Dinitrophenol	"	"	"		62.5	ND	"	
Dinoseb	"	"	"		25.0	ND	"	
2-Nitrophenol	"	"	"		25.0	ND	"	
4-Nitrophenol	"	"	"		25.0	ND	"	
Pentachlorophenol	"	"	"		25.0	ND	"	
Phenol	"	"	"		25.0	ND	"	
[illegible]6-Tetrachlorophenol	"	"	"		25.0	ND	"	
2,4,5-Trichlorophenol	"	"	"		25.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		25.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*45.2*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*89.4*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
028-GG-01			**P910480-01**				**Water**	
Aldrin	1090891	10/29/99	11/4/99		0.100	ND	ug/l	
alpha-BHC	"	"	"		0.100	ND	"	
beta-BHC	"	"	"		0.100	ND	"	
delta-BHC	"	"	"		0.100	ND	"	
gamma-BHC (Lindane)	"	"	"		0.100	ND	"	
alpha-Chlordane	"	"	"		0.100	ND	"	
gamma-Chlordane	"	"	"		0.100	ND	"	
Chlordane (tech)	"	"	"		1.00	ND	"	
4,4'-DDD	"	"	"		0.100	ND	"	
4,4'-DDE	"	"	"		0.100	ND	"	
4,4'-DDT	"	"	"		0.100	ND	"	
Dieldrin	"	"	"		0.100	ND	"	
Endosulfan I	"	"	"		0.100	ND	"	
Endosulfan II	"	"	"		0.100	ND	"	
Endosulfan sulfate	"	"	"		0.100	ND	"	
Endrin	"	"	"		0.100	ND	"	
Endrin aldehyde	"	"	"		0.100	ND	"	
Endrin ketone	"	"	"		0.100	ND	"	
Heptachlor	"	"	"		0.100	ND	"	
Heptachlor epoxide	"	"	"		0.100	ND	"	
Hexachlorobenzene	"	"	"		0.100	ND	"	
Methoxychlor	"	"	"		0.100	ND	"	
Toxaphene	"	"	"		2.50	ND	"	
Aroclor 1016	"	"	11/1/99		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*11/4/99*	*44.0-119*		*98.3*	*%*	
Surrogate: Decachlorobiphenyl	"	"	*11/1/99*	*54.0-128*		*51.3*	"	*5*

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
029-GG-01			**P910480-02**				**Water**	
Aldrin	1090891	10/29/99	11/4/99		0.100	ND	ug/l	
alpha-BHC	"	"	"		0.100	ND	"	
beta-BHC	"	"	"		0.100	ND	"	
delta-BHC	"	"	"		0.100	ND	"	
gamma-BHC (Lindane)	"	"	"		0.100	ND	"	
alpha-Chlordane	"	"	"		0.100	ND	"	
gamma-Chlordane	"	"	"		0.100	ND	"	
Chlordane (tech)	"	"	"		1.00	ND	"	
4,4'-DDD	"	"	"		0.100	ND	"	
4,4'-DDE	"	"	"		0.100	ND	"	
4,4'-DDT	"	"	"		0.100	ND	"	
Dieldrin	"	"	"		0.100	ND	"	
Endosulfan I	"	"	"		0.100	ND	"	
Endosulfan II	"	"	"		0.100	ND	"	
Endosulfan sulfate	"	"	"		0.100	ND	"	
Endrin	"	"	"		0.100	ND	"	
Endrin aldehyde	"	"	"		0.100	ND	"	
Endrin ketone	"	"	"		0.100	ND	"	
Heptachlor	"	"	"		0.100	ND	"	
Heptachlor epoxide	"	"	"		0.100	ND	"	
Hexachlorobenzene	"	"	"		0.100	ND	"	
Methoxychlor	"	"	"		0.100	ND	"	
Toxaphene	"	"	"		2.50	ND	"	
Aroclor 1016	"	"	11/1/99		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*11/4/99*	*44.0-119*		*101*	*%*	
Surrogate: Decachlorobiphenyl	"	"	*11/1/99*	*54.0-128*		*38.1*	"	*5*

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
030-GG-01			**P910491-01**				**Water**	
Aldrin	1090891	10/29/99	11/4/99		0.100	ND	ug/l	
alpha-BHC	"	"	"		0.100	ND	"	
beta-BHC	"	"	"		0.100	ND	"	
delta-BHC	"	"	"		0.100	ND	"	
gamma-BHC (Lindane)	"	"	"		0.100	ND	"	
alpha-Chlordane	"	"	"		0.100	ND	"	
gamma-Chlordane	"	"	"		0.100	ND	"	
Chlordane (tech)	"	"	"		1.00	ND	"	
4,4'-DDD	"	"	"		0.100	ND	"	
4,4'-DDE	"	"	"		0.100	ND	"	
4,4'-DDT	"	"	"		0.100	ND	"	
Dieldrin	"	"	"		0.100	ND	"	
Endosulfan I	"	"	"		0.100	ND	"	
Endosulfan II	"	"	"		0.100	ND	"	
Endosulfan sulfate	"	"	"		0.100	ND	"	
Endrin	"	"	"		0.100	ND	"	
Endrin aldehyde	"	"	"		0.100	ND	"	
Endrin ketone	"	"	"		0.100	ND	"	
Heptachlor	"	"	"		0.100	ND	"	
Heptachlor epoxide	"	"	"		0.100	ND	"	
Hexachlorobenzene	"	"	"		0.100	ND	"	
Methoxychlor	"	"	"		0.100	ND	"	
Toxaphene	"	"	"		2.50	ND	"	
Aroclor 1016	"	"	11/1/99		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*11/4/99*	*44.0-119*		*94.7*	*%*	
Surrogate: Decachlorobiphenyl	"	"	*11/1/99*	*54.0-128*		*59.7*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
030-GG-02			**P910491-02**				**Water**	
Aldrin	1090891	10/29/99	11/4/99		0.100	ND	ug/l	
alpha-BHC	"	"	"		0.100	ND	"	
beta-BHC	"	"	"		0.100	ND	"	
delta-BHC	"	"	"		0.100	ND	"	
gamma-BHC (Lindane)	"	"	"		0.100	ND	"	
alpha-Chlordane	"	"	"		0.100	ND	"	
gamma-Chlordane	"	"	"		0.100	ND	"	
Chlordane (tech)	"	"	"		1.00	ND	"	
4,4'-DDD	"	"	"		0.100	ND	"	
4,4'-DDE	"	"	"		0.100	ND	"	
4,4'-DDT	"	"	"		0.100	ND	"	
Dieldrin	"	"	"		0.100	ND	"	
Endosulfan I	"	"	"		0.100	ND	"	
Endosulfan II	"	"	"		0.100	ND	"	
Endosulfan sulfate	"	"	"		0.100	ND	"	
Endrin	"	"	"		0.100	ND	"	
Endrin aldehyde	"	"	"		0.100	ND	"	
Endrin ketone	"	"	"		0.100	ND	"	
Heptachlor	"	"	"		0.100	ND	"	
Heptachlor epoxide	"	"	"		0.100	ND	"	
Hexachlorobenzene	"	"	"		0.100	ND	"	
Methoxychlor	"	"	"		0.100	ND	"	
Toxaphene	"	"	"		2.50	ND	"	
Aroclor 1016	"	"	11/1/99		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*11/4/99*	*44.0-119*		*95.3*	*%*	
Surrogate: Decachlorobiphenyl	"	"	*11/1/99*	*54.0-128*		*64.4*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
032-GG-01			**P910537-01**				**Water**	
Aldrin	1090891	10/29/99	11/4/99		0.100	ND	ug/l	
alpha-BHC	"	"	"		0.100	ND	"	
beta-BHC	"	"	"		0.100	ND	"	
delta-BHC	"	"	"		0.100	ND	"	
gamma-BHC (Lindane)	"	"	"		0.100	ND	"	
alpha-Chlordane	"	"	"		0.100	ND	"	
gamma-Chlordane	"	"	"		0.100	ND	"	
Chlordane (tech)	"	"	"		1.00	ND	"	
4,4'-DDD	"	"	"		0.100	ND	"	
4,4'-DDE	"	"	"		0.100	ND	"	
4,4'-DDT	"	"	"		0.100	ND	"	
Dieldrin	"	"	"		0.100	ND	"	
Endosulfan I	"	"	"		0.100	ND	"	
Endosulfan II	"	"	"		0.100	ND	"	
Endosulfan sulfate	"	"	"		0.100	ND	"	
Endrin	"	"	"		0.100	ND	"	
Endrin aldehyde	"	"	"		0.100	ND	"	
Endrin ketone	"	"	"		0.100	ND	"	
Heptachlor	"	"	"		0.100	ND	"	
Heptachlor epoxide	"	"	"		0.100	ND	"	
Hexachlorobenzene	"	"	"		0.100	ND	"	
Methoxychlor	"	"	"		0.100	ND	"	
Toxaphene	"	"	"		2.50	ND	"	
Aroclor 1016	"	"	11/1/99		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*11/4/99*	*44.0-119*		*96.6*	%	
Surrogate: Decachlorobiphenyl	"	"	*11/1/99*	*54.0-128*		*33.1*	"	*5*

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
035-GG-01			**P910538-01**				**Water**	
Aldrin	1090891	10/29/99	11/4/99		0.100	ND	ug/l	
alpha-BHC	"	"	"		0.100	ND	"	
beta-BHC	"	"	"		0.100	ND	"	
delta-BHC	"	"	"		0.100	ND	"	
gamma-BHC (Lindane)	"	"	"		0.100	ND	"	
alpha-Chlordane	"	"	"		0.100	ND	"	
gamma-Chlordane	"	"	"		0.100	ND	"	
Chlordane (tech)	"	"	"		1.00	ND	"	
4,4'-DDD	"	"	"		0.100	ND	"	
4,4'-DDE	"	"	"		0.100	ND	"	
4,4'-DDT	"	"	"		0.100	ND	"	
Dieldrin	"	"	"		0.100	ND	"	
Endosulfan I	"	"	"		0.100	ND	"	
Endosulfan II	"	"	"		0.100	ND	"	
Endosulfan sulfate	"	"	"		0.100	ND	"	
Endrin	"	"	"		0.100	ND	"	
Endrin aldehyde	"	"	"		0.100	ND	"	
Endrin ketone	"	"	"		0.100	ND	"	
Heptachlor	"	"	"		0.100	ND	"	
Heptachlor epoxide	"	"	"		0.100	ND	"	
Hexachlorobenzene	"	"	"		0.100	ND	"	
Methoxychlor	"	"	"		0.100	ND	"	
Toxaphene	"	"	"		2.50	ND	"	
Aroclor 1016	"	"	11/1/99		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*11/4/99*	*44.0-119*		*106*	*%*	
Surrogate: Decachlorobiphenyl	"	"	*11/1/99*	*54.0-128*		*25.6*	"	*5*

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
033-GG-01			**P910540-01**				**Water**	
Aldrin	1090891	10/29/99	11/5/99		0.100	ND	ug/l	
alpha-BHC	"	"	"		0.100	ND	"	
beta-BHC	"	"	"		0.100	ND	"	
delta-BHC	"	"	"		0.100	ND	"	
gamma-BHC (Lindane)	"	"	"		0.100	ND	"	
alpha-Chlordane	"	"	"		0.100	ND	"	
gamma-Chlordane	"	"	"		0.100	ND	"	
Chlordane (tech)	"	"	"		1.00	ND	"	
4,4'-DDD	"	"	"		0.100	ND	"	
4,4'-DDE	"	"	"		0.100	ND	"	
4,4'-DDT	"	"	"		0.100	ND	"	
Dieldrin	"	"	"		0.100	ND	"	
Endosulfan I	"	"	"		0.100	ND	"	
Endosulfan II	"	"	"		0.100	ND	"	
Endosulfan sulfate	"	"	"		0.100	ND	"	
Endrin	"	"	"		0.100	ND	"	
Endrin aldehyde	"	"	"		0.100	ND	"	
Endrin ketone	"	"	"		0.100	ND	"	
Heptachlor	"	"	"		0.100	ND	"	
Heptachlor epoxide	"	"	"		0.100	ND	"	
Hexachlorobenzene	"	"	"		0.100	ND	"	
Methoxychlor	"	"	"		0.100	ND	"	
Toxaphene	"	"	"		2.50	ND	"	
Aroclor 1016	"	"	11/1/99		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*11/5/99*	*44.0-119*		*56.1*	*%*	
Surrogate: Decachlorobiphenyl	"	"	*11/1/99*	*54.0-128*		*57.2*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
034-GG-01			**P910540-02**				**Water**	
Aldrin	1090891	10/29/99	11/5/99		0.100	ND	ug/l	
alpha-BHC	"	"	"		0.100	ND	"	
beta-BHC	"	"	"		0.100	ND	"	
delta-BHC	"	"	"		0.100	ND	"	
gamma-BHC (Lindane)	"	"	"		0.100	ND	"	
alpha-Chlordane	"	"	"		0.100	ND	"	
gamma-Chlordane	"	"	"		0.100	ND	"	
Chlordane (tech)	"	"	"		1.00	ND	"	
4,4'-DDD	"	"	"		0.100	ND	"	
4,4'-DDE	"	"	"		0.100	ND	"	
4,4'-DDT	"	"	"		0.100	ND	"	
Dieldrin	"	"	"		0.100	ND	"	
Endosulfan I	"	"	"		0.100	ND	"	
Endosulfan II	"	"	"		0.100	ND	"	
Endosulfan sulfate	"	"	"		0.100	ND	"	
Endrin	"	"	"		0.100	ND	"	
Endrin aldehyde	"	"	"		0.100	ND	"	
Endrin ketone	"	"	"		0.100	ND	"	
Heptachlor	"	"	"		0.100	ND	"	
Heptachlor epoxide	"	"	"		0.100	ND	"	
Hexachlorobenzene	"	"	"		0.100	ND	"	
Methoxychlor	"	"	"		0.100	ND	"	
Toxaphene	"	"	"		2.50	ND	"	
Aroclor 1016	"	"	11/1/99		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*11/5/99*	*44.0-119*		*87.5*	*%*	
Surrogate: Decachlorobiphenyl	"	"	*11/1/99*	*54.0-128*		*29.2*	"	*5*

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
031-GG-01			**P910542-01**				**Water**	
Aldrin	1090891	10/29/99	11/4/99		0.100	ND	ug/l	
alpha-BHC	"	"	"		0.100	ND	"	
beta-BHC	"	"	"		0.100	ND	"	
delta-BHC	"	"	"		0.100	ND	"	
gamma-BHC (Lindane)	"	"	"		0.100	ND	"	
alpha-Chlordane	"	"	"		0.100	ND	"	
gamma-Chlordane	"	"	"		0.100	ND	"	
Chlordane (tech)	"	"	"		1.00	ND	"	
4,4'-DDD	"	"	"		0.100	ND	"	
4,4'-DDE	"	"	"		0.100	ND	"	
4,4'-DDT	"	"	"		0.100	ND	"	
Dieldrin	"	"	"		0.100	ND	"	
Endosulfan I	"	"	"		0.100	ND	"	
Endosulfan II	"	"	"		0.100	ND	"	
Endosulfan sulfate	"	"	"		0.100	ND	"	
Endrin	"	"	"		0.100	ND	"	
Endrin aldehyde	"	"	"		0.100	ND	"	
Endrin ketone	"	"	"		0.100	ND	"	
Heptachlor	"	"	"		0.100	ND	"	
Heptachlor epoxide	"	"	"		0.100	ND	"	
Hexachlorobenzene	"	"	"		0.100	ND	"	
Methoxychlor	"	"	"		0.100	ND	"	
Toxaphene	"	"	"		2.50	ND	"	
Aroclor 1016	"	"	11/1/99		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*11/4/99*	*44.0-119*		*65.9*	%	
Surrogate: Decachlorobiphenyl	"	"	*11/1/99*	*54.0-128*		*17.5*	"	*5*

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Organophosphorus Pesticides per EPA Method 8141A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
028-GG-01			**P910480-01**				**Water**	
Azinphos methyl	1090904	10/29/99	11/3/99		1.00	ND	ug/l	
Bolstar	"	"	"		1.00	ND	"	
Chlorpyrifos	"	"	"		1.00	ND	"	
Coumaphos	"	"	"		1.00	ND	"	
Demeton	"	"	"		1.00	ND	"	
Diazinon	"	"	"		1.00	ND	"	
Dichlorvos	"	"	"		1.00	ND	"	
Disulfoton	"	"	"		1.00	ND	"	
EPN	"	"	"		1.00	ND	"	
Ethoprop	"	"	"		1.00	ND	"	
Fensulfothion	"	"	"		2.00	ND	"	
Fenthion	"	"	"		1.00	ND	"	
Malathion	"	"	"		1.00	ND	"	
[illegible]phos	"	"	"		1.00	ND	"	
Naled	"	"	"		1.00	ND	"	
Parathion-ethyl	"	"	"		1.00	ND	"	
Parathion-methyl	"	"	"		1.00	ND	"	
Phorate	"	"	"		1.00	ND	"	
Ronnel	"	"	"		1.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		1.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		1.00	ND	"	
Trichloronate	"	"	"		1.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*80.1*	*%*	
Surrogate: TPP	"	"	"	*65.0-138*		*73.7*	"	
029-GG-01			**P910480-02**				**Water**	
Azinphos methyl	1090904	10/29/99	11/3/99		1.00	ND	ug/l	
Bolstar	"	"	"		1.00	ND	"	
Chlorpyrifos	"	"	"		1.00	ND	"	
Coumaphos	"	"	"		1.00	ND	"	
Demeton	"	"	"		1.00	ND	"	
Diazinon	"	"	"		1.00	ND	"	
Dichlorvos	"	"	"		1.00	ND	"	
Disulfoton	"	"	"		1.00	ND	"	
EPN	"	"	"		1.00	ND	"	
Ethoprop	"	"	"		1.00	ND	"	
Fensulfothion	"	"	"		2.00	ND	"	
Fenthion	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Organophosphorus Pesticides per EPA Method 8141A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
029-GG-01 (continued)			**P910480-02**				**Water**	
Malathion	1090904	10/29/99	11/3/99		1.00	ND	ug/l	
Mevinphos	"	"	"		1.00	ND	"	
Naled	"	"	"		1.00	ND	"	
Parathion-ethyl	"	"	"		1.00	ND	"	
Parathion-methyl	"	"	"		1.00	ND	"	
Phorate	"	"	"		1.00	ND	"	
Ronnel	"	"	"		1.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		1.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		1.00	ND	"	
Trichloronate	"	"	"		1.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*88.6*	*%*	
Surrogate: TPP	"	"	"	*65.0-138*		*76.3*	"	
030-GG-01			**P910491-01**				**Water**	
Azinphos methyl	1090904	10/29/99	11/3/99		1.00	ND	ug/l	
Bolstar	"	"	"		1.00	ND	"	
Chlorpyrifos	"	"	"		1.00	ND	"	
Coumaphos	"	"	"		1.00	ND	"	
Demeton	"	"	"		1.00	ND	"	
Diazinon	"	"	"		1.00	ND	"	
Dichlorvos	"	"	"		1.00	ND	"	
Disulfoton	"	"	"		1.00	ND	"	
EPN	"	"	"		1.00	ND	"	
Ethoprop	"	"	"		1.00	ND	"	
Fensulfothion	"	"	"		2.00	ND	"	
Fenthion	"	"	"		1.00	ND	"	
Malathion	"	"	"		1.00	ND	"	
Mevinphos	"	"	"		1.00	ND	"	
Naled	"	"	"		1.00	ND	"	
Parathion-ethyl	"	"	"		1.00	ND	"	
Parathion-methyl	"	"	"		1.00	ND	"	
Phorate	"	"	"		1.00	ND	"	
Ronnel	"	"	"		1.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		1.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		1.00	ND	"	
Trichloronate	"	"	"		1.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*77.5*	*%*	
Surrogate: TPP	"	"	"	*65.0-138*		*76.3*	"	

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Organophosphorus Pesticides per EPA Method 8141A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
030-GG-02			**P910491-02**				**Water**	
Azinphos methyl	1090904	10/29/99	11/3/99		1.00	ND	ug/l	
Bolstar	"	"	"		1.00	ND	"	
Chlorpyrifos	"	"	"		1.00	ND	"	
Coumaphos	"	"	"		1.00	ND	"	
Demeton	"	"	"		1.00	ND	"	
Diazinon	"	"	"		1.00	ND	"	
Dichlorvos	"	"	"		1.00	ND	"	
Disulfoton	"	"	"		1.00	ND	"	
EPN	"	"	"		1.00	ND	"	
Ethoprop	"	"	"		1.00	ND	"	
Fensulfothion	"	"	"		2.00	ND	"	
Fenthion	"	"	"		1.00	ND	"	
Malathion	"	"	"		1.00	ND	"	
[illegible]nphos	"	"	"		1.00	ND	"	
Naled	"	"	"		1.00	ND	"	
Parathion-ethyl	"	"	"		1.00	ND	"	
Parathion-methyl	"	"	"		1.00	ND	"	
Phorate	"	"	"		1.00	ND	"	
Ronnel	"	"	"		1.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		1.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		1.00	ND	"	
Trichloronate	"	"	"		1.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*80.9*	*%*	
Surrogate: TPP	"	"	"	*65.0-138*		*80.9*	"	
032-GG-01			**P910537-01**				**Water**	
Azinphos methyl	1090904	10/29/99	11/3/99		1.00	ND	ug/l	
Bolstar	"	"	"		1.00	ND	"	
Chlorpyrifos	"	"	"		1.00	ND	"	
Coumaphos	"	"	"		1.00	ND	"	
Demeton	"	"	"		1.00	ND	"	
Diazinon	"	"	"		1.00	ND	"	
Dichlorvos	"	"	"		1.00	ND	"	
Disulfoton	"	"	"		1.00	ND	"	
EPN	"	"	"		1.00	ND	"	
Ethoprop	"	"	"		1.00	ND	"	
Fensulfothion	"	"	"		2.00	ND	"	
Fenthion	"	"	"		1.00	ND	"	

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**Refer to end of report for text of notes and definitions.*

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Organophosphorus Pesticides per EPA Method 8141A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
032-GG-01 (continued)			**P910537-01**				**Water**	
Malathion	1090904	10/29/99	11/3/99		1.00	ND	ug/l	
Mevinphos	"	"	"		1.00	ND	"	
Naled	"	"	"		1.00	ND	"	
Parathion-ethyl	"	"	"		1.00	ND	"	
Parathion-methyl	"	"	"		1.00	ND	"	
Phorate	"	"	"		1.00	ND	"	
Ronnel	"	"	"		1.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		1.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		1.00	ND	"	
Trichloronate	"	"	"		1.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*81.4*	*%*	
Surrogate: TPP	"	"	"	*65.0-138*		*81.4*	"	
035-GG-01			**P910538-01**				**Water**	
Azinphos methyl	1090904	10/29/99	11/3/99		1.00	ND	ug/l	
Bolstar	"	"	"		1.00	ND	"	
Chlorpyrifos	"	"	"		1.00	ND	"	
Coumaphos	"	"	"		1.00	ND	"	
Demeton	"	"	"		1.00	ND	"	
Diazinon	"	"	"		1.00	ND	"	
Dichlorvos	"	"	"		1.00	ND	"	
Disulfoton	"	"	"		1.00	ND	"	
EPN	"	"	"		1.00	ND	"	
Ethoprop	"	"	"		1.00	ND	"	
Fensulfothion	"	"	"		2.00	ND	"	
Fenthion	"	"	"		1.00	ND	"	
Malathion	"	"	"		1.00	ND	"	
Mevinphos	"	"	"		1.00	ND	"	
Naled	"	"	"		1.00	ND	"	
Parathion-ethyl	"	"	"		1.00	ND	"	
Parathion-methyl	"	"	"		1.00	ND	"	
Phorate	"	"	"		1.00	ND	"	
Ronnel	"	"	"		1.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		1.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		1.00	ND	"	
Trichloronate	"	"	"		1.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*85.6*	*%*	
Surrogate: TPP	"	"	"	*65.0-138*		*88.6*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Organophosphorus Pesticides per EPA Method 8141A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
033-GG-01			**P910540-01**				**Water**	
Azinphos methyl	1090904	10/29/99	11/3/99		1.00	ND	ug/l	
Bolstar	"	"	"		1.00	ND	"	
Chlorpyrifos	"	"	"		1.00	ND	"	
Coumaphos	"	"	"		1.00	ND	"	
Demeton	"	"	"		1.00	ND	"	
Diazinon	"	"	"		1.00	ND	"	
Dichlorvos	"	"	"		1.00	ND	"	
Disulfoton	"	"	"		1.00	ND	"	
EPN	"	"	"		1.00	ND	"	
Ethoprop	"	"	"		1.00	ND	"	
Fensulfothion	"	"	"		2.00	ND	"	
Fenthion	"	"	"		1.00	ND	"	
Malathion	"	"	"		1.00	ND	"	
[illegible]inphos	"	"	"		1.00	ND	"	
Naled	"	"	"		1.00	ND	"	
Parathion-ethyl	"	"	"		1.00	ND	"	
Parathion-methyl	"	"	"		1.00	ND	"	
Phorate	"	"	"		1.00	ND	"	
Ronnel	"	"	"		1.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		1.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		1.00	ND	"	
Trichloronate	"	"	"		1.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*82.2*	*%*	
Surrogate: TPP	"	"	"	*65.0-138*		*76.7*	"	
034-GG-01			**P910540-02**				**Water**	
Azinphos methyl	1090904	10/29/99	11/3/99		1.00	ND	ug/l	
Bolstar	"	"	"		1.00	ND	"	
Chlorpyrifos	"	"	"		1.00	ND	"	
Coumaphos	"	"	"		1.00	ND	"	
Demeton	"	"	"		1.00	ND	"	
Diazinon	"	"	"		1.00	ND	"	
Dichlorvos	"	"	"		1.00	ND	"	
Disulfoton	"	"	"		1.00	ND	"	
EPN	"	"	"		1.00	ND	"	
Ethoprop	"	"	"		1.00	ND	"	
Fensulfothion	"	"	"		2.00	ND	"	
Fenthion	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Organophosphorus Pesticides per EPA Method 8141A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
034-GG-01 (continued)			**P910540-02**				**Water**	
Malathion	1090904	10/29/99	11/3/99		1.00	ND	ug/l	
Mevinphos	"	"	"		1.00	ND	"	
Naled	"	"	"		1.00	ND	"	
Parathion-ethyl	"	"	"		1.00	ND	"	
Parathion-methyl	"	"	"		1.00	ND	"	
Phorate	"	"	"		1.00	ND	"	
Ronnel	"	"	"		1.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		1.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		1.00	ND	"	
Trichloronate	"	"	"		1.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*86.4*	*%*	
Surrogate: TPP	"	"	"	*65.0-138*		*83.9*	"	
031-GG-01			**P910542-01**				**Water**	3
Azinphos methyl	1090904	10/29/99	11/3/99		2.00	ND	ug/l	
Bolstar	"	"	"		2.00	ND	"	
Chlorpyrifos	"	"	"		2.00	ND	"	
Coumaphos	"	"	"		2.00	ND	"	
Demeton	"	"	"		2.00	ND	"	
Diazinon	"	"	"		2.00	ND	"	
Dichlorvos	"	"	"		2.00	ND	"	
Disulfoton	"	"	"		2.00	ND	"	
EPN	"	"	"		2.00	ND	"	
Ethoprop	"	"	"		2.00	ND	"	
Fensulfothion	"	"	"		4.00	ND	"	
Fenthion	"	"	"		2.00	ND	"	
Malathion	"	"	"		2.00	ND	"	
Mevinphos	"	"	"		2.00	ND	"	
Naled	"	"	"		2.00	ND	"	
Parathion-ethyl	"	"	"		2.00	ND	"	
Parathion-methyl	"	"	"		2.00	ND	"	
Phorate	"	"	"		2.00	ND	"	
Ronnel	"	"	"		2.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		2.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		2.00	ND	"	
Trichloronate	"	"	"		2.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*73.3*	*%*	
Surrogate: TPP	"	"	"	*65.0-138*		*68.2*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
028-GG-01			**P910480-01**				**Water**	
Acetone	1190064	11/4/99	11/4/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
[illegible]on tetrachloride	"	"	"		2.00	ND	"	
[illegible]obenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
028-GG-01 (continued)			**P910480-01**				**Water**	
Ethylbenzene	1190064	11/4/99	11/4/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	**2.93**	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*113*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*121*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*104*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*104*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
029-GG-01			**P910480-02**				**Water**	
Acetone	1190064	11/4/99	11/4/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	**5.08**	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	**1.30**	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
[illegible]on tetrachloride	"	"	"		2.00	ND	"	
[illegible]robenzene	"	"	"		1.00	**2.19**	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	**1.42**	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
029-GG-01 (continued)			**P910480-02**				**Water**	
Ethylbenzene	1190064	11/4/99	11/4/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	**1.43**	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	**87.3**	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	**3.61**	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*108*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*119*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*104*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*104*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK			**P910480-03**				**Water**	
Acetone	1190064	11/4/99	11/4/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK (continued)			**P910480-03**				**Water**	
Ethylbenzene	1190064	11/4/99	11/4/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*112*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*118*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*105*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*101*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
019-GG-01			**P910486-01**				**Water**	
Acetone	1190064	11/4/99	11/4/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
[illegible]on tetrachloride	"	"	"		2.00	ND	"	
[illegible]obenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
019-GG-01 (continued)			**P910486-01**				**Water**	
Ethylbenzene	1190064	11/4/99	11/4/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*111*	%	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*115*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*105*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*106*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
Trip Blank			**P910486-02**				**Water**	
Acetone	1190064	11/4/99	11/4/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
[illegible]on tetrachloride	"	"	"		2.00	ND	"	
[illegible]orobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
[illegible]s-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
Trip Blank (continued)			**P910486-02**				**Water**	
Ethylbenzene	1190064	11/4/99	11/4/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*109*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*122*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*107*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*103*	"	

North Creek Analytical - Portland

**Refer to end of report for text of notes and definitions*

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Deborah Griffiths, Project Manager

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
030-GG-01			**P910491-01**				**Water**	
Acetone	1190064	11/4/99	11/4/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
[illegible]on tetrachloride	"	"	"		2.00	ND	"	
[illegible]robenzene	"	"	"		1.00	**6.51**	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	**1.74**	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
030-GG-01 (continued)			**P910491-01**				**Water**	
Ethylbenzene	1190064	11/4/99	11/4/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*106*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*121*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*107*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*108*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
030-GG-02			**P910491-02**				**Water**	
Acetone	1190064	11/4/99	11/4/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	**7.06**	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	**1.90**	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
030-GG-02 (continued)			**P910491-02**				**Water**	
Ethylbenzene	1190064	11/4/99	11/4/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*106*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*118*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*106*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*104*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
Trip Blank			**P910491-03**				**Water**	
Acetone	1190064	11/4/99	11/4/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
[illegible]n tetrachloride	"	"	"		2.00	ND	"	
[illegible]robenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
Trip Blank (continued)			**P910491-03**				**Water**	
Ethylbenzene	1190064	11/4/99	11/4/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*112*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*121*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*106*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*104*	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
033-GG-01			**P910540-01**				**Water**	
Acetone	1190064	11/4/99	11/4/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
[illegible]on tetrachloride	"	"	"		2.00	ND	"	
[illegible]robenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
033-GG-01 (continued)			**P910540-01**				**Water**	
Ethylbenzene	1190064	11/4/99	11/4/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*108*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*118*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*105*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*106*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
034-GG-01			**P910540-02**				**Water**	
Acetone	1190064	11/4/99	11/4/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
[illegible]on tetrachloride	"	"	"		2.00	ND	"	
[illegible]lorobenzene	"	"	"		1.00	**32.2**	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	**6.03**	"	
1,4-Dichlorobenzene	"	"	"		1.00	**57.7**	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	**1.51**	"	
cis-1,2-Dichloroethene	"	"	"		1.00	**6.07**	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	
[illegible]thylbenzene	"	"	"		1.00	ND	"	

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**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

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111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
034-GG-01 (continued)			**P910540-02**				**Water**	
Hexachlorobutadiene	1190064	11/4/99	11/4/99		2.00	ND	ug/l	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	**4.05**	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	**13.4**	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*106*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*116*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*106*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*103*	"	
1,2-Dichlorobenzene	1190232	11/8/99	11/8/99		2.00	**216**	ug/l	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*105*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*118*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*104*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*102*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
035-GG-01			**P910540-03**				**Water**	
Acetone	1190064	11/4/99	11/4/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	**4.71**	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
[illegible]on tetrachloride	"	"	"		2.00	ND	"	
[illegible]orobenzene	"	"	"		1.00	**6.89**	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	**20.9**	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	**4.09**	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	**3.58**	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
[illegible]ns-1,3-Dichloropropene	"	"	"		1.00	ND	"	

North Creek Analytical - Portland

**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
035-GG-01 (continued)			**P910540-03**				**Water**	
Ethylbenzene	1190064	11/4/99	11/4/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	**12.1**	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	**9.65**	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	**2.35**	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*108*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*119*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*101*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*104*	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK			**P910540-04**				**Water**	
Acetone	1190064	11/4/99	11/4/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
[illegible]n tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
[illegible]1,3-Dichloropropene	"	"	"		1.00	ND	"	

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Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK (continued)			**P910540-04**				**Water**	
Ethylbenzene	1190064	11/4/99	11/4/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*111*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*121*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*105*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*101*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
031-GG-01			**P910542-01**				**Water**	
Acetone	1190064	11/4/99	11/5/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	**1.23**	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
[illegible]n tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
[illegible]-1,3-Dichloropropene	"	"	"		1.00	ND	"	

North Creek Analytical - Portland

**Refer to end of report for text of notes and definitions.*

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Deborah Griffiths, Project Manager

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
031-GG-01 (continued)			**P910542-01**				**Water**	
Ethylbenzene	1190064	11/4/99	11/5/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	**5.34**	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*109*	%	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*119*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*106*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*101*	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
032-GG-01			**P910542-02**				**Water**	
Acetone	1190064	11/4/99	11/5/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
[illegible]on tetrachloride	"	"	"		2.00	ND	"	
[illegible]robenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
032-GG-01 (continued)			**P910542-02**				**Water**	
Ethylbenzene	1190064	11/4/99	11/5/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*111*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*121*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*106*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*106*	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK			**P910542-03**				**Water**	
Acetone	1190064	11/4/99	11/5/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK (continued)			**P910542-03**				**Water**	
Ethylbenzene	1190064	11/4/99	11/5/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*111*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*118*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*101*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*104*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Dissolved Metals per EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1090851	**Date Prepared: 10/28/99**					**Extraction Method: EPA 7470**				
Blank	**1090851-BLK1**									
Mercury	10/29/99			**ND**	mg/l	**0.000200**				
LCS	**1090851-BS1**									
Mercury	10/29/99	0.00500		0.00491	mg/l	80.0-120	98.2			
Duplicate	**1090851-DUP1**		**P910491-01**							
Mercury	10/29/99		ND	ND	mg/l			20.0		
Matrix Spike	**1090851-MS1**		**P910491-01**							
Mercury	10/29/99	0.00500	ND	0.00502	mg/l	75.0-125	**100**			
Matrix Spike	**1090851-MS2**		**P910560-01**							
Mercury	10/29/99	0.00500	ND	0.00475	mg/l	75.0-125	**95.0**			
Matrix Spike Dup	**1090851-MSD1**		**P910491-01**							
Mercury	10/29/99	0.00500	ND	0.00483	mg/l	75.0-125	**96.6**	20.0	**3.46**	
Matrix Spike Dup	**1090851-MSD2**		**P910560-01**							
Mercury	10/29/99	0.00500	ND	0.00469	mg/l	75.0-125	**93.8**	20.0	**1.27**	
Batch: 1190058	**Date Prepared: 11/2/99**					**Extraction Method: EPA 200/3005**				
Blank	**1190058-BLK1**									
Arsenic	11/2/99			**ND**	mg/l	**0.00100**				
Cadmium	"			**ND**	"	**0.00100**				
Chromium	"			**ND**	"	**0.00100**				
Lead	"			**ND**	"	**0.00100**				
Nickel	"			**ND**	"	**0.00200**				
Vanadium	"			**ND**	"	**0.00500**				
Zinc	"			**ND**	"	**0.00500**				
LCS	**1190058-BS1**									
Arsenic	11/2/99	0.100		0.0939	mg/l	80.0-120	93.9			
Cadmium	"	0.100		0.0975	"	80.0-120	97.5			
Chromium	"	0.100		0.0928	"	80.0-120	92.8			
Lead	"	0.100		0.0989	"	80.0-120	98.9			
Nickel	"	0.100		0.0932	"	80.0-120	93.2			
Vanadium	"	0.100		0.0936	"	80.0-120	93.6			

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Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Dissolved Metals per EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS (continued)	**1190058-BS1**									
Zinc	11/2/99	0.100		0.0962	mg/l	80.0-120	96.2			
Duplicate	**1190058-DUP1**		**P910491-01**							
Arsenic	11/2/99		0.0294	0.0296	mg/l			20.0	**0.678**	
Cadmium	"		ND	ND	"			20.0		
Chromium	"		ND	ND	"			20.0		
Lead	"		ND	ND	"			20.0		6
Nickel	"		0.00280	0.00482	"			20.0	**53.0**	
Vanadium	11/5/99		ND	ND	"			20.0		
Zinc	11/2/99		ND	ND	"			20.0		
Matrix Spike	**1190058-MS1**		**P910491-01**							
Arsenic	11/2/99	0.100	0.0294	0.138	mg/l	75.0-125	**109**			
Cadmium	"	0.100	ND	0.0955	"	75.0-125	**95.5**			
Chromium	"	0.100	ND	0.0959	"	75.0-125	**95.9**			
Lead	"	0.100	ND	0.0946	"	75.0-125	**94.6**			
Nickel	"	0.100	0.00280	0.0969	"	75.0-125	**94.1**			
Vanadium	"	0.100	ND	0.0871	"	75.0-125	**87.1**			
Zinc	"	0.100	ND	0.0900	"	75.0-125	**90.0**			
Matrix Spike Dup	**1190058-MSD1**		**P910491-01**							
Arsenic	11/2/99	0.100	0.0294	0.140	mg/l	75.0-125	**111**	20.0	**1.82**	
Cadmium	"	0.100	ND	0.0960	"	75.0-125	**96.0**	20.0	**0.522**	
Chromium	"	0.100	ND	0.0981	"	75.0-125	**98.1**	20.0	**2.27**	
Lead	"	0.100	ND	0.0946	"	75.0-125	**94.6**	20.0	**0**	
Nickel	"	0.100	0.00280	0.0968	"	75.0-125	**94.0**	20.0	**0.106**	
Vanadium	"	0.100	ND	0.0905	"	75.0-125	**90.5**	20.0	**3.83**	
Zinc	"	0.100	ND	0.0909	"	75.0-125	**90.9**	20.0	**0.995**	
Batch: 1190347	**Date Prepared: 11/3/99**					**Extraction Method: EPA 200/3005**				
Blank	**1190347-BLK1**									
Copper	11/3/99			**ND**	mg/l	**0.00200**				
LCS	**1190347-BS1**									
Copper	11/3/99	0.100		0.0931	mg/l	80.0-120	93.1			
Duplicate	**1190347-DUP1**		**P910491-02**							
Copper	11/3/99		ND	ND	mg/l			20.0		

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Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Dissolved Metals per EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike	**1190347-MS1**		**P910491-02**							
Copper	11/3/99	0.100	ND	0.0913	mg/l	75.0-125	**91.3**			
Matrix Spike Dup	**1190347-MSD1**		**P910491-02**							
Copper	11/3/99	0.100	ND	0.0943	mg/l	75.0-125	**94.3**	20.0	**3.23**	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Alcohols by GC/FID Headspace Analysis/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1190299	**Date Prepared: 11/9/99**					**Extraction Method: EPA 5030**				
Blank	**1190299-BLK1**									
Isobutyl alcohol	11/10/99			**ND**	mg/l	**10.0**				
LCS	**1190299-BS1**									
Isobutyl alcohol	11/10/99	50.0		48.5	mg/l	50.0-150	97.0			
LCS Dup	**1190299-BSD1**									
Isobutyl alcohol	11/10/99	50.0		48.6	mg/l	50.0-150	97.2	25.0	0.206	
Matrix Spike	**1190299-MS1**		**P910491-01**							
Isobutyl alcohol	11/10/99	50.0	ND	47.0	mg/l	50.0-150	**94.0**			
Matrix Spike Dup	**1190299-MSD1**		**P910491-01**							
Isobutyl alcohol	11/10/99	50.0	ND	48.1	mg/l	50.0-150	**96.2**	25.0	**2.31**	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Phenols per EPA Method 8041/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1090856	**Date Prepared: 10/28/99**					**Extraction Method: EPA 3510/600 Series**				
Blank	**1090856-BLK1**									
4-Chloro-3-methylphenol	10/30/99			**ND**	ug/l	**25.0**				
2-Chlorophenol	"			**ND**	"	**25.0**				
Cresols	"			**ND**	"	**25.0**				
2,4-Dichlorophenol	"			**ND**	"	**25.0**				
2,6-Dichlorophenol	"			**ND**	"	**25.0**				
2,4-Dimethylphenol	"			**ND**	"	**25.0**				
4,6-Dinitro-2-methylphenol	"			**ND**	"	**25.0**				
2,4-Dinitrophenol	"			**ND**	"	**62.5**				
Dinoseb	"			**ND**	"	**25.0**				
2-Nitrophenol	"			**ND**	"	**25.0**				
4-Nitrophenol	"			**ND**	"	**25.0**				
Pentachlorophenol	"			**ND**	"	**25.0**				
[illegible]ol	"			**ND**	"	**25.0**				
[illegible],4,6-Tetrachlorophenol	"			**ND**	"	**25.0**				
2,4,5-Trichlorophenol	"			**ND**	"	**25.0**				
2,4,6-Trichlorophenol	"			**ND**	"	**25.0**				
Surrogate: 2-Fluorophenol	"	*200*		*112*	"	*22.0-83.0*	*56.0*			
Surrogate: 2,4,6-Tribromophenol	"	*200*		*184*	"	*42.0-141*	*92.0*			
LCS	**1090856-BS1**									
4-Chloro-3-methylphenol	10/30/99	200		153	ug/l	23.0-97.0	76.5			
2-Chlorophenol	"	200		138	"	27.0-123	69.0			
4-Nitrophenol	"	200		77.5	"	10.0-80.0	38.8			
Pentachlorophenol	"	200		150	"	50.0-150	75.0			
Phenol	"	200		71.1	"	12.0-110	35.5			
Surrogate: 2-Fluorophenol	"	*200*		*110*	"	*22.0-83.0*	*55.0*			
Surrogate: 2,4,6-Tribromophenol	"	*200*		*184*	"	*42.0-141*	*92.0*			
Matrix Spike	**1090856-MS1**		**P910491-01**							
4-Chloro-3-methylphenol	10/30/99	189	ND	152	ug/l	23.0-97.0	**80.4**			
2-Chlorophenol	"	189	ND	140	"	27.0-123	**74.1**			
4-Nitrophenol	"	189	ND	79.8	"	10.0-80.0	**42.2**			
Pentachlorophenol	"	189	ND	178	"	50.0-150	**94.2**			
Phenol	"	189	ND	67.3	"	12.0-110	**35.6**			
Surrogate: 2-Fluorophenol	"	*189*		*100*	"	*22.0-83.0*	*52.9*			
Surrogate: 2,4,6-Tribromophenol	"	*189*		*180*	"	*42.0-141*	*95.2*			

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Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Phenols per EPA Method 8041/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike Dup	**1090856-MSD1**		**P910491-01**							
4-Chloro-3-methylphenol	10/30/99	189	ND	162	ug/l	23.0-97.0	**85.7**	50.0	**6.38**	
2-Chlorophenol	"	189	ND	137	"	27.0-123	**72.5**	50.0	**2.18**	
4-Nitrophenol	"	189	ND	83.0	"	10.0-80.0	**43.9**	50.0	**3.95**	
Pentachlorophenol	11/4/99	189	ND	230	"	50.0-150	**122**	50.0	**25.7**	
Phenol	10/30/99	189	ND	66.2	"	12.0-110	**35.0**	50.0	**1.70**	
Surrogate: 2-Fluorophenol	"	*189*		*92.7*	"	*22.0-83.0*	*49.0*			
Surrogate: 2,4,6-Tribromophenol	*11/4/99*	*189*		*215*	"	*42.0-141*	*114*			

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111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1090891	**Date Prepared: 10/29/99**					**Extraction Method: EPA 3510/600 Series**				
Blank	**1090891-BLK1**									
Aldrin	11/4/99			**ND**	ug/l	**0.100**				
alpha-BHC	"			**ND**	"	**0.100**				
beta-BHC	"			**ND**	"	**0.100**				
delta-BHC	"			**ND**	"	**0.100**				
gamma-BHC (Lindane)	"			**ND**	"	**0.100**				
alpha-Chlordane	"			**ND**	"	**0.100**				
gamma-Chlordane	"			**ND**	"	**0.100**				
Chlordane (tech)	"			**ND**	"	**1.00**				
4,4'-DDD	"			**ND**	"	**0.100**				
4,4'-DDE	"			**ND**	"	**0.100**				
4,4'-DDT	"			**ND**	"	**0.100**				
Dieldrin	"			**ND**	"	**0.100**				
Endosulfan I	"			**ND**	"	**0.100**				
Endosulfan II	"			**ND**	"	**0.100**				
Endosulfan sulfate	"			**ND**	"	**0.100**				
Endrin	"			**ND**	"	**0.100**				
Endrin aldehyde	"			**ND**	"	**0.100**				
Endrin ketone	"			**ND**	"	**0.100**				
Heptachlor	"			**ND**	"	**0.100**				
Heptachlor epoxide	"			**ND**	"	**0.100**				
Hexachlorobenzene	"			**ND**	"	**0.100**				
Methoxychlor	"			**ND**	"	**0.100**				
Toxaphene	"			**ND**	"	**2.50**				
Aroclor 1016	11/3/99			**ND**	"	**0.500**				
Aroclor 1221	"			**ND**	"	**1.00**				
Aroclor 1232	"			**ND**	"	**0.500**				
Aroclor 1242	"			**ND**	"	**0.500**				
Aroclor 1248	"			**ND**	"	**0.500**				
Aroclor 1254	"			**ND**	"	**0.500**				
Aroclor 1260	"			**ND**	"	**0.500**				
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	*11/4/99*	*0.500*		*0.600*	"	*44.0-119*	*120*			*5*
Surrogate: Decachlorobiphenyl	*11/3/99*	*0.500*		*0.478*	"	*54.0-128*	*95.6*			
LCS	**1090891-BS1**									
Aroclor 1016	11/1/99	5.00		4.20	ug/l	45.0-145	84.0			
Aroclor 1260	"	5.00		5.10	"	47.0-155	102			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	*0.500*		*0.407*	"	*44.0-119*	*81.4*			

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Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project: RPAC	Sampled:	10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number: Multiple Project Numbers	Received:	10/22/99 to 10/27/99
Portland, OR 97201	Project Manager: Karen Schadler	Reported:	11/24/99 13:33

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS (continued)	**1090891-BS1**									
Surrogate: Decachlorobiphenyl	*11/1/99*	*0.500*		*0.375*	*ug/l*	*54.0-128*	*75.0*			
LCS	**1090891-BS2**									
Aldrin	11/4/99	0.250		0.158	ug/l	48.0-123	63.2			
gamma-BHC (Lindane)	"	0.250		0.226	"	47.0-137	90.4			
4,4'-DDT	"	1.00		0.850	"	77.0-128	85.0			
Dieldrin	"	1.00		0.900	"	84.0-135	90.0			
Endrin	"	1.00		0.855	"	81.0-133	85.5			
Heptachlor	"	0.250		0.205	"	48.0-124	82.0			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	*0.500*		*0.550*	"	*44.0-119*	*110*			
Surrogate: Decachlorobiphenyl	"	*0.500*		*0.530*	"	*54.0-128*	*106*			
Matrix Spike	**1090891-MS1**		**P910491-01**							
Aldrin	11/4/99	0.250	ND	0.184	ug/l	50.0-150	**73.6**			
gamma-BHC (Lindane)	"	0.250	ND	0.220	"	50.0-150	**88.0**			
4,4'-DDT	"	1.00	ND	0.905	"	50.0-150	**90.5**			
Dieldrin	"	1.00	ND	0.925	"	50.0-150	**92.5**			
Endrin	"	1.00	ND	0.890	"	50.0-150	**89.0**			
Heptachlor	"	0.250	ND	0.236	"	50.0-150	**94.4**			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	*0.500*		*0.474*	"	*44.0-119*	*94.8*			
Surrogate: Decachlorobiphenyl	"	*0.500*		*0.360*	"	*54.0-128*	*72.0*			
Matrix Spike Dup	**1090891-MSD1**		**P910491-01**							
Aldrin	11/4/99	0.250	ND	0.183	ug/l	50.0-150	**73.2**	50.0	**0.545**	
gamma-BHC (Lindane)	"	0.250	ND	0.202	"	50.0-150	**80.8**	50.0	**8.53**	
4,4'-DDT	"	1.00	ND	0.825	"	50.0-150	**82.5**	50.0	**9.25**	
Dieldrin	"	1.00	ND	0.875	"	50.0-150	**87.5**	50.0	**5.56**	
Endrin	"	1.00	ND	0.815	"	50.0-150	**81.5**	50.0	**8.80**	
Heptachlor	"	0.250	ND	0.218	"	50.0-150	**87.2**	50.0	**7.93**	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	*0.500*		*0.454*	"	*44.0-119*	*90.8*			
Surrogate: Decachlorobiphenyl	"	*0.500*		*0.271*	"	*54.0-128*	*54.2*			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Organophosphorus Pesticides per EPA Method 8141A/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1090904	**Date Prepared: 10/29/99**					**Extraction Method: EPA 3510/600 Series**				
Blank	**1090904-BLK1**									
Azinphos methyl	11/3/99			**ND**	ug/l	**1.00**				
Bolstar	"			**ND**	"	**1.00**				
Chlorpyrifos	"			**ND**	"	**1.00**				
Coumaphos	"			**ND**	"	**1.00**				
Demeton	"			**ND**	"	**1.00**				
Diazinon	"			**ND**	"	**1.00**				
Dichlorvos	"			**ND**	"	**1.00**				
Disulfoton	"			**ND**	"	**1.00**				
EPN	"			**ND**	"	**1.00**				
Ethoprop	"			**ND**	"	**1.00**				
Fensulfothion	"			**ND**	"	**2.00**				
Fenthion	"			**ND**	"	**1.00**				
[illegible]thion	"			**ND**	"	**1.00**				
[illegible]vinphos	"			**ND**	"	**1.00**				
Naled	"			**ND**	"	**1.00**				
Parathion-ethyl	"			**ND**	"	**1.00**				
Parathion-methyl	"			**ND**	"	**1.00**				
Phorate	"			**ND**	"	**1.00**				
Ronnel	"			**ND**	"	**1.00**				
Stirophos (Tetrachlorvinphos)	"			**ND**	"	**1.00**				
Tokuthion (Prothiofos)	"			**ND**	"	**1.00**				
Trichloronate	"			**ND**	"	**1.00**				
Surrogate: TBP	"	*2.50*		*1.71*	"	*64.0-132*	*68.4*			
Surrogate: TPP	"	*2.50*		*1.76*	"	*65.0-138*	*70.4*			
LCS	**1090904-BS1**									
Dichlorvos	11/3/99	2.50		2.02	ug/l	35.0-144	80.8			
Ethoprop	"	2.50		2.08	"	51.0-145	83.2			
Parathion-methyl	"	2.50		2.12	"	60.0-142	84.8			
Stirophos (Tetrachlorvinphos)	"	2.50		2.18	"	40.0-161	87.2			
Surrogate: TBP	"	*2.50*		*2.02*	"	*64.0-132*	*80.8*			
Surrogate: TPP	"	*2.50*		*2.00*	"	*65.0-138*	*80.0*			
Matrix Spike	**1090904-MS1**		**P910491-01**							
Dichlorvos	11/3/99	2.36	ND	2.25	ug/l	35.0-144	**95.3**			
Ethoprop	"	2.36	ND	2.15	"	51.0-145	**91.1**			
Parathion-methyl	"	2.36	ND	2.19	"	60.0-142	**92.8**			

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**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Organophosphorus Pesticides per EPA Method 8141A/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike (continued)	**1090904-MS1**		**P910491-01**							
Stirophos (Tetrachlorvinphos)	11/3/99	2.36	ND	2.23	ug/l	40.0-161	**94.5**			
Surrogate: TBP	"	*2.36*		*2.09*	"	*64.0-132*	*88.6*			
Surrogate: TPP	"	*2.36*		*2.02*	"	*65.0-138*	*85.6*			
Matrix Spike Dup	**1090904-MSD1**		**P910491-01**							
Dichlorvos	11/3/99	2.36	ND	1.94	ug/l	35.0-144	**82.2**	50.0	**14.8**	
Ethoprop	"	2.36	ND	1.86	"	51.0-145	**78.8**	50.0	**14.5**	
Parathion-methyl	"	2.36	ND	1.92	"	60.0-142	**81.4**	50.0	**13.1**	
Stirophos (Tetrachlorvinphos)	"	2.36	ND	2.08	"	40.0-161	**88.1**	50.0	**7.01**	
Surrogate: TBP	"	*2.36*		*1.80*	"	*64.0-132*	*76.3*			
Surrogate: TPP	"	*2.36*		*1.86*	"	*65.0-138*	*78.8*			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1190064	**Date Prepared: 11/4/99**					**Extraction Method: EPA 5030**				
Blank	**1190064-BLK1**									
Acetone	11/4/99			ND	ug/l	25.0				
Benzene	"			ND	"	1.00				
Bromobenzene	"			ND	"	1.00				
Bromochloromethane	"			ND	"	1.00				
Bromodichloromethane	"			ND	"	1.00				
Bromoform	"			ND	"	1.00				
Bromomethane	"			ND	"	10.0				
2-Butanone	"			ND	"	25.0				
n-Butylbenzene	"			ND	"	1.00				
sec-Butylbenzene	"			ND	"	1.00				
tert-Butylbenzene	"			ND	"	1.00				
Carbon disulfide	"			ND	"	10.0				
[illegible]n tetrachloride	"			ND	"	2.00				
[illegible]robenzene	"			ND	"	1.00				
Chloroethane	"			ND	"	2.00				
Chloroform	"			ND	"	1.00				
Chloromethane	"			ND	"	5.00				
2-Chlorotoluene	"			ND	"	1.00				
4-Chlorotoluene	"			ND	"	1.00				
1,2-Dibromo-3-chloropropane	"			ND	"	1.00				
Dibromochloromethane	"			ND	"	1.00				
1,2-Dibromoethane	"			ND	"	1.00				
Dibromomethane	"			ND	"	1.00				
1,2-Dichlorobenzene	"			ND	"	1.00				
1,3-Dichlorobenzene	"			ND	"	1.00				
1,4-Dichlorobenzene	"			ND	"	1.00				
Dichlorodifluoromethane	"			ND	"	5.00				
1,1-Dichloroethane	"			ND	"	1.00				
1,2-Dichloroethane	"			ND	"	1.00				
1,1-Dichloroethene	"			ND	"	1.00				
cis-1,2-Dichloroethene	"			ND	"	1.00				
trans-1,2-Dichloroethene	"			ND	"	1.00				
1,2-Dichloropropane	"			ND	"	1.00				
1,3-Dichloropropane	"			ND	"	1.00				
2,2-Dichloropropane	"			ND	"	1.00				
1,1-Dichloropropene	"			ND	"	1.00				
cis-1,3-Dichloropropene	"			ND	"	1.00				

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Refer to end of report for text of notes and definitions.

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	**1190064-BLK1**									
trans-1,3-Dichloropropene	11/4/99			**ND**	ug/l	**1.00**				
Ethylbenzene	"			**ND**	"	**1.00**				
Hexachlorobutadiene	"			**ND**	"	**2.00**				
2-Hexanone	"			**ND**	"	**10.0**				
Iodomethane	"			**ND**	"	**20.0**				
Isopropylbenzene	"			**ND**	"	**1.00**				
p-Isopropyltoluene	"			**ND**	"	**1.00**				
4-Methyl-2-pentanone	"			**ND**	"	**5.00**				
Methylene chloride	"			**ND**	"	**5.00**				
Naphthalene	"			**ND**	"	**1.00**				
n-Propylbenzene	"			**ND**	"	**1.00**				
Styrene	"			**ND**	"	**1.00**				
1,1,1,2-Tetrachloroethane	"			**ND**	"	**1.00**				
1,1,2,2-Tetrachloroethane	"			**ND**	"	**1.00**				
Tetrachloroethene	"			**ND**	"	**1.00**				
Toluene	"			**ND**	"	**1.00**				
1,2,3-Trichlorobenzene	"			**ND**	"	**1.00**				
1,2,4-Trichlorobenzene	"			**ND**	"	**1.00**				
1,1,1-Trichloroethane	"			**ND**	"	**1.00**				
1,1,2-Trichloroethane	"			**ND**	"	**1.00**				
Trichloroethene	"			**ND**	"	**1.00**				
Trichlorofluoromethane	"			**ND**	"	**1.00**				
1,2,3-Trichloropropane	"			**ND**	"	**1.00**				
1,2,4-Trimethylbenzene	"			**ND**	"	**1.00**				
1,3,5-Trimethylbenzene	"			**ND**	"	**1.00**				
Vinyl chloride	"			**ND**	"	**1.00**				
o-Xylene	"			**ND**	"	**1.00**				
m,p-Xylene	"			**ND**	"	**2.00**				
Surrogate: 4-BFB	"	*20.0*		*21.7*	"	*75.0-135*	*109*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*23.5*	"	*70.0-135*	*118*			
Surrogate: Dibromofluoromethane	"	*20.0*		*21.2*	"	*80.0-125*	*106*			
Surrogate: Toluene-d8	"	*20.0*		*20.0*	"	*80.0-120*	*100*			
LCS	**1190064-BS1**									
Benzene	11/4/99	20.0		19.8	ug/l	80.0-125	99.0			
Chlorobenzene	"	20.0		19.9	"	80.0-125	99.5			
1,1-Dichloroethene	"	20.0		21.5	"	70.0-135	108			
Toluene	"	20.0		19.8	"	80.0-125	99.0			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS (continued)	**1190064-BS1**									
Trichloroethene	11/4/99	20.0		19.4	ug/l	70.0-130	97.0			
Surrogate: 4-BFB	"	*20.0*		*21.4*	"	*75.0-135*	*107*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*23.2*	"	*70.0-135*	*116*			
Surrogate: Dibromofluoromethane	"	*20.0*		*21.0*	"	*80.0-125*	*105*			
Surrogate: Toluene-d8	"	*20.0*		*21.1*	"	*80.0-120*	*106*			
LCS Dup	**1190064-BSD1**									
Benzene	11/4/99	20.0		20.2	ug/l	80.0-125	101	25.0	2.00	
Chlorobenzene	"	20.0		20.1	"	80.0-125	101	25.0	1.50	
1,1-Dichloroethene	"	20.0		20.7	"	70.0-135	104	25.0	3.77	
Toluene	"	20.0		19.3	"	80.0-125	96.5	25.0	2.56	
Trichloroethene	"	20.0		20.0	"	70.0-130	100	25.0	3.05	
Surrogate: 4-BFB	"	*20.0*		*20.9*	"	*75.0-135*	*104*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*22.9*	"	*70.0-135*	*114*			
Surrogate: Dibromofluoromethane	"	*20.0*		*20.2*	"	*80.0-125*	*101*			
Surrogate: Toluene-d8	"	*20.0*		*20.7*	"	*80.0-120*	*104*			
Matrix Spike	**1190064-MS1**		**P910491-01**							
Benzene	11/5/99	20.0	ND	20.7	ug/l	80.0-125	**104**			
Chlorobenzene	"	20.0	6.51	25.8	"	80.0-125	**96.4**			
1,1-Dichloroethene	"	20.0	ND	22.4	"	70.0-135	**112**			
Toluene	"	20.0	ND	19.2	"	80.0-125	**96.0**			
Trichloroethene	"	20.0	ND	20.3	"	70.0-130	**101**			
Surrogate: 4-BFB	"	*20.0*		*22.3*	"	*75.0-135*	*111*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*24.0*	"	*70.0-135*	*120*			
Surrogate: Dibromofluoromethane	"	*20.0*		*21.5*	"	*80.0-125*	*108*			
Surrogate: Toluene-d8	"	*20.0*		*19.7*	"	*80.0-120*	*98.5*			
Matrix Spike Dup	**1190064-MSD1**		**P910491-01**							
Benzene	11/5/99	20.0	ND	20.0	ug/l	80.0-125	**100**	25.0	**3.92**	
Chlorobenzene	"	20.0	6.51	26.2	"	80.0-125	**98.5**	25.0	**2.15**	
1,1-Dichloroethene	"	20.0	ND	21.2	"	70.0-135	**106**	25.0	**5.50**	
Toluene	"	20.0	ND	19.9	"	80.0-125	**99.5**	25.0	**3.58**	
Trichloroethene	"	20.0	ND	20.1	"	70.0-130	**101**	25.0	**0**	
Surrogate: 4-BFB	"	*20.0*		*21.0*	"	*75.0-135*	*105*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*23.2*	"	*70.0-135*	*116*			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike Dup (continued)	**1190064-MSD1**		**P910491-01**							
Surrogate: Dibromofluoromethane	*11/5/99*	*20.0*		*20.6*	*ug/l*	*80.0-125*	*103*			
Surrogate: Toluene-d8	*"*	*20.0*		*20.9*	*"*	*80.0-120*	*104*			
Batch: 1190232	**Date Prepared: 11/8/99**					**Extraction Method: EPA 5030**				
Blank	**1190232-BLK1**									
Acetone	11/8/99			ND	ug/l	25.0				
Benzene	"			ND	"	1.00				
Bromobenzene	"			ND	"	1.00				
Bromochloromethane	"			ND	"	1.00				
Bromodichloromethane	"			ND	"	1.00				
Bromoform	"			ND	"	1.00				
Bromomethane	"			ND	"	10.0				
2-Butanone	"			ND	"	25.0				
n-Butylbenzene	"			ND	"	1.00				
sec-Butylbenzene	"			ND	"	1.00				
tert-Butylbenzene	"			ND	"	1.00				
Carbon disulfide	"			ND	"	10.0				
Carbon tetrachloride	"			ND	"	2.00				
Chlorobenzene	"			ND	"	1.00				
Chloroethane	"			ND	"	2.00				
Chloroform	"			ND	"	1.00				
Chloromethane	"			ND	"	5.00				
2-Chlorotoluene	"			ND	"	1.00				
4-Chlorotoluene	"			ND	"	1.00				
1,2-Dibromo-3-chloropropane	"			ND	"	1.00				
Dibromochloromethane	"			ND	"	1.00				
1,2-Dibromoethane	"			ND	"	1.00				
Dibromomethane	"			ND	"	1.00				
1,2-Dichlorobenzene	"			ND	"	1.00				
1,3-Dichlorobenzene	"			ND	"	1.00				
1,4-Dichlorobenzene	"			ND	"	1.00				
Dichlorodifluoromethane	"			ND	"	5.00				
1,1-Dichloroethane	"			ND	"	1.00				
1,2-Dichloroethane	"			ND	"	1.00				
1,1-Dichloroethene	"			ND	"	1.00				
cis-1,2-Dichloroethene	"			ND	"	1.00				
trans-1,2-Dichloroethene	"			ND	"	1.00				
1,2-Dichloropropane	"			ND	"	1.00				

North Creek Analytical - Portland

**Refer to end of report for text of notes and definitions*

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	**1190232-BLK1**									
1,3-Dichloropropane	11/8/99			ND	ug/l	1.00				
2,2-Dichloropropane	"			ND	"	1.00				
1,1-Dichloropropene	"			ND	"	1.00				
cis-1,3-Dichloropropene	"			ND	"	1.00				
trans-1,3-Dichloropropene	"			ND	"	1.00				
Ethylbenzene	"			ND	"	1.00				
Hexachlorobutadiene	"			ND	"	2.00				
2-Hexanone	"			ND	"	10.0				
Iodomethane	"			ND	"	20.0				
Isopropylbenzene	"			ND	"	1.00				
p-Isopropyltoluene	"			ND	"	1.00				
4-Methyl-2-pentanone	"			ND	"	5.00				
Methylene chloride	"			ND	"	5.00				
[illegible]thalene	"			ND	"	1.00				
[illegible]opylbenzene	"			ND	"	1.00				
Styrene	"			ND	"	1.00				
1,1,1,2-Tetrachloroethane	"			ND	"	1.00				
1,1,2,2-Tetrachloroethane	"			ND	"	1.00				
Tetrachloroethene	"			ND	"	1.00				
Toluene	"			ND	"	1.00				
1,2,3-Trichlorobenzene	"			ND	"	1.00				
1,2,4-Trichlorobenzene	"			ND	"	1.00				
1,1,1-Trichloroethane	"			ND	"	1.00				
1,1,2-Trichloroethane	"			ND	"	1.00				
Trichloroethene	"			ND	"	1.00				
Trichlorofluoromethane	"			ND	"	1.00				
1,2,3-Trichloropropane	"			ND	"	1.00				
1,2,4-Trimethylbenzene	"			ND	"	1.00				
1,3,5-Trimethylbenzene	"			ND	"	1.00				
Vinyl chloride	"			ND	"	1.00				
o-Xylene	"			ND	"	1.00				
m,p-Xylene	"			ND	"	2.00				
Surrogate: 4-BFB	"	*20.0*		*22.0*	"	*75.0-135*	*110*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*22.9*	"	*70.0-135*	*114*			
Surrogate: Dibromofluoromethane	"	*20.0*		*20.9*	"	*80.0-125*	*104*			
Surrogate: Toluene-d8	"	*20.0*		*19.9*	"	*80.0-120*	*99.5*			

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS	**1190232-BS1**									
Benzene	11/8/99	20.0		19.9	ug/l	80.0-125	99.5			
Chlorobenzene	"	20.0		17.6	"	80.0-125	88.0			
1,1-Dichloroethene	"	20.0		20.9	"	70.0-135	104			
Toluene	"	20.0		18.4	"	80.0-125	92.0			
Trichloroethene	"	20.0		19.5	"	70.0-130	97.5			
Surrogate: 4-BFB	"	*20.0*		*20.6*	"	*75.0-135*	*103*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*22.9*	"	*70.0-135*	*114*			
Surrogate: Dibromofluoromethane	"	*20.0*		*20.2*	"	*80.0-125*	*101*			
Surrogate: Toluene-d8	"	*20.0*		*19.5*	"	*80.0-120*	*97.5*			
LCS Dup	**1190232-BSD1**									
Benzene	11/8/99	20.0		19.8	ug/l	80.0-125	99.0	25.0	0.504	
Chlorobenzene	"	20.0		20.0	"	80.0-125	100	25.0	12.8	
1,1-Dichloroethene	"	20.0		20.6	"	70.0-135	103	25.0	0.966	
Toluene	"	20.0		19.5	"	80.0-125	97.5	25.0	5.80	
Trichloroethene	"	20.0		19.8	"	70.0-130	99.0	25.0	1.53	
Surrogate: 4-BFB	"	*20.0*		*21.9*	"	*75.0-135*	*109*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*22.8*	"	*70.0-135*	*114*			
Surrogate: Dibromofluoromethane	"	*20.0*		*20.4*	"	*80.0-125*	*102*			
Surrogate: Toluene-d8	"	*20.0*		*20.0*	"	*80.0-120*	*100*			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/22/99 to 10/26/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/22/99 to 10/27/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 13:33

Notes and Definitions

#	Note
J	Estimated value.
1	Reporting limits raised due to matrix interference.
2	This sample was analyzed outside of the EPA recommended holding time.
3	Reporting limits raised due to dilution necessary for analysis. Sample contains high levels of reported analyte, non-target analyte, and/or matrix interference.
4	This footnote intentionally left blank.
5	Surrogate recovery is out of control limits. QA criteria are met when one surrogate is within control limits. Acceptable QC sample surrogate recoveries indicates that low sample surrogate recovery is due to matrix affect rather than extraction efficiency.
	Analyses are not controlled on RPD values from sample concentrations less than 5 times the reporting limit.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

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Case Narrative

CLIENT: **URS Greiner Woodward Clyde** **December 1, 1999**
PROJECT: **RPAC** **NCA #s: P910560, P910561**
P910562, P910604 & P910605
PROJECT #: **92C0804A.00**

1.0 DESCRIPTION OF CASE

North Creek Analytical, Beaverton received a total of twelve water samples, including five trip blanks, from 10/27/99 through 10/28/99 from URS Greiner Woodward Clyde for analysis by one or more of the following EPA Methods: 6020 Dissolved Metals, 7470A Dissolved Mercury, Isobutyl Alcohol by GC/FID, 8041 Phenols, 8151A Chlorinated Herbicides, 8260B Volatile Organics, 8081A/8082 Pesticides/PCBs, and 8141 Organophosphorous Pesticides. The samples were logged in as the five NCA project numbers referenced above. Results and raw data for all sample analyses are reported in a single combined *Analytical Report* and included as one data package, with the exception of 8151A Chlorinated Herbicides. 8151A Chlorinated Herbicides analyses were subcontracted to Bothell and are contained in a separate data package.

2.0 SAMPLE LIST

Refer to the *Chain of Custody* documents for a summary of sample information.

Each sub-group of samples received together for the entire sample delivery group is given an NCA #, proceeded by a "P" for Portland. This number consists of a one-digit code for the year, a two-digit code for the month and a sequential number for the group within the month. Each sample within the sub-group is numbered sequentially by placing a dash after the NCA#.

3.0 COMMENTS ON ANALYSIS

3.1 Sample Receipt

The samples were received intact from URS Greiner Woodward Clyde. The samples were clearly labeled and matched the chain of custody. Sample travel blank temperatures were measured directly upon receipt using a Digi-Thermo Probe. Sample temperatures are recorded with the sample log-in information.

3.2 Analysis

The samples were analyzed following the procedures outlined in the applicable methods. The samples were refrigerated at 4 °C and were extracted and analyzed within the EPA recommended holding times without incident; any exceptions are footnoted and described in the *Notes and Definitions* section of the *Analytical Report*. Exceptions requiring more detail are as follows:

Dissolved Metals

"*Date Analyzed*" dates noted on the *Analytical Report* may vary within a batch as a result of reanalysis required due to one or more of the following: check standard failure during a sequence, dilution required due to matrix interference or analyte concentration above the calibration range, an unacceptable internal standard for the sample or confirmation of a result.

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Case Narrative

Due to interference during analysis, Cu for all samples and QC samples was quantitated from the Cu 65 ion rather than the CU 63 ion.

Pesticides/PCBs by 8081A/8082
Samples 039-GG-01 and 041-GG-01 were analyzed outside of the 12-hour standard window. However "ND" results for the samples were not negatively impacted.

Organophosphorus Pesticides by 8141
Samples 039-GG-01 and 040-GG-02 were inadvertently omitted from analysis batch # 1190041 and were extracted and analyzed as batch # 1190115. Sample 037-GG-01 was also included in both batches because it was the only sample with sufficient volume to be utilized as an MS/MSD for both batches. Results of both analyses of sample 037-GG-01 are reported.

4.0 QC RESULTS

Surrogate and quality control parameters that were outside control limits are noted on the appropriate pages of the *Analytical Report.* Additional Quality Control issues are as follows:

Phenols by 8041
Quantitation of Pentachlorophenol for QC samples is footnoted on the *Analytical Report,* because the %RSD value for this analyte during calibration was greater than 25%. However, the method criteria for the calibration curve was satisfied by a 0.999 correlation coefficient for quantitation by linear regression.

Pesticides/PCBs by 8081A/8082
Both reported surrogate recoveries for sample 041-GG-01 were outside of established control limits. 2,4,5,6- Tetrachloro-m-xylene recovery is reported from pesticide analysis and Decachlorobiphenyl is reported from PCB analysis. The reported Decachlorobiphenyl recovery is footnoted on the *Analytical Report* as "QA criteria are met when one surrogate is within control limits" because the 2,4,5,6-Tetrachloro-m-xylene surrogate recovery from the PCB analysis (83.7%, refer to the sample raw data) is acceptable. Although both surrogate recoveries are unacceptable for pesticide analysis, the "ND" sample results are not negatively impacted by the high bias of the 2,4,5,6- Tetrachloro-m-xylene recovery.

MS/MSD samples were not quantitated for PCBs.

All quality control parameters other than those noted above or on the *Analytical Report* were within established control limits.

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Case Narrative

CLIENT: URS Greiner Woodward Clyde
PROJECT: RPAC
PROJECT #: 92C0804A.00

December 1, 1999
NCA #s: P910560, P910561
P910562, P910604 & P910605

5.0 SAMPLE RESULTS

Where applicable, qualifiers have been added to sample results as footnotes and are detailed in the *Notes and Definitions* section of the *Analytical Report.*

The dilution factor for a sample, if applicable, is depicted on the *Analytical Report* as the MRL(s) for the quantitated analytes being raised by the dilution factor. The method blank sample may be referenced for the initial MRL.

" I certify that this data package is in compliance with the method, both technically and for completeness, for all conditions other than those listed above. Release of the data in this hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature."

Susan Schimelfining, QA Manager
North Creek Analytical, Beaverton

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
037-GG-01	P910560-01	Water	10/27/99
037-GG-02	P910560-02	Water	10/27/99
TRIP BLANK	P910560-03	Water	10/27/99
036-GG-04	P910561-01	Water	10/27/99
Trip Blank	P910561-02	Water	10/27/99
038-GG-01	P910562-01	Water	10/27/99
Trip Blank	P910562-02	Water	10/27/99
039-GG-01	P910604-01	Water	10/28/99
040-GG-01	P910604-02	Water	10/28/99
TRIP BLANK	P910604-03	Water	10/28/99
041-GG-01	P910605-01	Water	10/28/99
TRIP BLANK	P910605-02	Water	10/28/99

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Deborah Griffiths, Project Manager

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111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Dissolved Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
037-GG-01			**P910560-01**				**Water**	
Arsenic	1190060	11/2/99	11/18/99	EPA 6020	0.0100	**0.0113**	mg/l	1
Cadmium	"	"	11/3/99	EPA 6020	0.0100	**0.0151**	"	1
Chromium	"	"	"	EPA 6020	0.0100	ND	"	1
Copper	"	"	"	EPA 6020	0.0200	**0.0466**	"	1
Lead	"	"	11/2/99	EPA 6020	0.00100	ND	"	
Nickel	"	"	11/3/99	EPA 6020	0.0200	**0.281**	"	1
Vanadium	"	"	"	EPA 6020	0.0500	ND	"	1
Zinc	"	"	"	EPA 6020	0.0500	**0.0513**	"	1
Mercury	1090851	10/28/99	10/29/99	EPA 7470A	0.000200	ND	"	
037-GG-02			**P910560-02**				**Water**	
Arsenic	1190060	11/2/99	11/18/99	EPA 6020	0.00629	ND	mg/l	1
Cadmium	"	"	11/3/99	EPA 6020	0.00629	**0.0140**	"	1
[illegible]mium	"	"	"	EPA 6020	0.00629	ND	"	1
[illegible]per	"	"	"	EPA 6020	0.0126	**0.0131**	"	1
Lead	"	"	"	EPA 6020	0.00629	ND	"	1
Nickel	"	"	"	EPA 6020	0.0126	**0.286**	"	1
Vanadium	"	"	"	EPA 6020	0.0315	ND	"	1
Zinc	"	"	"	EPA 6020	0.0315	**0.0589**	"	1
Mercury	1090851	10/28/99	10/26/99	EPA 7470A	0.000200	ND	"	
036-GG-04			**P910561-01**				**Water**	
Arsenic	1190060	11/2/99	11/4/99	EPA 6020	0.00500	ND	mg/l	1
Cadmium	"	"	11/3/99	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	ND	"	
Copper	"	"	"	EPA 6020	0.00200	**0.00414**	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	
Nickel	"	"	"	EPA 6020	0.00200	ND	"	
Vanadium	"	"	"	EPA 6020	0.00500	ND	"	
Zinc	"	"	"	EPA 6020	0.00500	ND	"	
Mercury	1090851	10/28/99	10/26/99	EPA 7470A	0.000200	ND	"	
038-GG-01			**P910562-01**				**Water**	
Arsenic	1190060	11/2/99	11/3/99	EPA 6020	0.0100	ND	mg/l	1
Cadmium	"	"	"	EPA 6020	0.00634	ND	"	1
Chromium	"	"	"	EPA 6020	0.00634	ND	"	1
Copper	"	"	"	EPA 6020	0.0127	ND	"	1
Lead	"	"	"	EPA 6020	0.00100	ND	"	

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Refer to end of report for text of notes and definitions.

Deborah Griffiths, Project Manager

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Dissolved Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
038-GG-01 (continued)			**P910562-01**				**Water**	
Nickel	1190060	11/2/99	11/3/99	EPA 6020	0.0127	**0.103**	mg/l	1
Vanadium	"	"	"	EPA 6020	0.0317	ND	"	1
Zinc	"	"	"	EPA 6020	0.0317	**0.0379**	"	1
Mercury	1090851	10/28/99	10/26/99	EPA 7470A	0.000200	ND	"	
039-GG-01			**P910604-01**				**Water**	
Arsenic	1190060	11/2/99	11/3/99	EPA 6020	0.00588	ND	mg/l	1
Cadmium	"	"	"	EPA 6020	0.00100	**0.0185**	"	
Chromium	"	"	"	EPA 6020	0.00100	**0.00203**	"	
Copper	"	"	"	EPA 6020	0.00200	**0.0229**	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.160**	"	
Vanadium	"	"	11/4/99	EPA 6020	0.00500	**0.00551**	"	
Zinc	"	"	11/3/99	EPA 6020	0.00500	**0.0492**	"	
Mercury	1190357	11/10/99	11/11/99	EPA 7470A	0.000200	ND	"	
040-GG-01			**P910604-02**				**Water**	
Arsenic	1190060	11/2/99	11/3/99	EPA 6020	0.0100	ND	mg/l	1
Cadmium	"	"	"	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	**0.00404**	"	
Copper	"	"	"	EPA 6020	0.00200	**0.00579**	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.0604**	"	
Vanadium	"	"	11/5/99	EPA 6020	0.00500	ND	"	
Zinc	"	"	11/3/99	EPA 6020	0.00500	**0.0276**	"	
Mercury	1190357	11/10/99	11/11/99	EPA 7470A	0.000200	ND	"	
041-GG-01			**P910605-01**				**Water**	
Arsenic	1190060	11/2/99	11/3/99	EPA 6020	0.00100	**0.0160**	mg/l	
Cadmium	"	"	"	EPA 6020	0.00100	ND	"	
Chromium	"	"	"	EPA 6020	0.00100	**0.00263**	"	
Copper	"	"	"	EPA 6020	0.00200	**0.00602**	"	
Lead	"	"	"	EPA 6020	0.00100	ND	"	
Nickel	"	"	"	EPA 6020	0.00200	**0.0347**	"	
Vanadium	"	"	11/4/99	EPA 6020	0.100	ND	"	1
Zinc	"	"	11/3/99	EPA 6020	0.00500	**0.0158**	"	
Mercury	1190357	11/10/99	11/11/99	EPA 7470A	0.000200	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Alcohols by GC/FID Headspace Analysis
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
037-GG-01			**P910560-01**				**Water**	
Isobutyl alcohol	1190310	11/10/99	11/10/99	EPA 8015	10.0	ND	mg/l	
037-GG-02			**P910560-02**				**Water**	
Isobutyl alcohol	1190310	11/10/99	11/10/99	EPA 8015	10.0	ND	mg/l	
036-GG-04			**P910561-01**				**Water**	
Isobutyl alcohol	1190310	11/10/99	11/10/99	EPA 8015	10.0	ND	mg/l	
038-GG-01			**P910562-01**				**Water**	
Isobutyl alcohol	1190310	11/10/99	11/10/99	EPA 8015	10.0	ND	mg/l	
039-GG-01			**P910604-01**				**Water**	
Isobutyl alcohol	1190310	11/10/99	11/10/99	EPA 8015	10.0	ND	mg/l	
[illegible]-GG-01			**P910604-02**				**Water**	
Isobutyl alcohol	1190310	11/10/99	11/10/99	EPA 8015	10.0	ND	mg/l	
041-GG-01			**P910605-01**				**Water**	
Isobutyl alcohol	1190310	11/10/99	11/10/99	EPA 8015	10.0	ND	mg/l	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Phenols per EPA Method 8041
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
037-GG-01			**P910560-01**				**Water**	
4-Chloro-3-methylphenol	1190030	11/1/99	11/4/99		25.0	ND	ug/l	
2-Chlorophenol	"	"	"		25.0	ND	"	
Cresols	"	"	"		25.0	ND	"	
2,4-Dichlorophenol	"	"	"		25.0	ND	"	
2,6-Dichlorophenol	"	"	"		25.0	ND	"	
2,4-Dimethylphenol	"	"	"		25.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		25.0	ND	"	
2,4-Dinitrophenol	"	"	"		62.5	ND	"	
Dinoseb	"	"	"		25.0	ND	"	
2-Nitrophenol	"	"	"		25.0	ND	"	
4-Nitrophenol	"	"	"		25.0	ND	"	
Pentachlorophenol	"	"	"		25.0	ND	"	
Phenol	"	"	"		25.0	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		25.0	ND	"	
2,4,5-Trichlorophenol	"	"	"		25.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		25.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*61.5*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*81.0*	"	
037-GG-02			**P910560-02**				**Water**	
4-Chloro-3-methylphenol	1190030	11/1/99	11/4/99		25.0	ND	ug/l	
2-Chlorophenol	"	"	"		25.0	ND	"	
Cresols	"	"	"		25.0	ND	"	
2,4-Dichlorophenol	"	"	"		25.0	ND	"	
2,6-Dichlorophenol	"	"	"		25.0	ND	"	
2,4-Dimethylphenol	"	"	"		25.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		25.0	ND	"	
2,4-Dinitrophenol	"	"	"		62.5	ND	"	
Dinoseb	"	"	"		25.0	ND	"	
2-Nitrophenol	"	"	"		25.0	ND	"	
4-Nitrophenol	"	"	"		25.0	ND	"	
Pentachlorophenol	"	"	"		25.0	ND	"	
Phenol	"	"	"		25.0	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		25.0	ND	"	
2,4,5-Trichlorophenol	"	"	"		25.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		25.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*63.4*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*82.4*	"	

North Creek Analytical - Portland

**Refer to end of report for text of notes and definitions*

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Phenols per EPA Method 8041
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
036-GG-04			**P910561-01**				**Water**	
4-Chloro-3-methylphenol	1190030	11/1/99	11/4/99		25.0	ND	ug/l	
2-Chlorophenol	"	"	"		25.0	ND	"	
Cresols	"	"	"		25.0	ND	"	
2,4-Dichlorophenol	"	"	"		25.0	ND	"	
2,6-Dichlorophenol	"	"	"		25.0	ND	"	
2,4-Dimethylphenol	"	"	"		25.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		25.0	ND	"	
2,4-Dinitrophenol	"	"	"		62.5	ND	"	
Dinoseb	"	"	"		25.0	ND	"	
2-Nitrophenol	"	"	"		25.0	ND	"	
4-Nitrophenol	"	"	"		25.0	ND	"	
Pentachlorophenol	"	"	"		25.0	ND	"	
Phenol	"	"	"		25.0	ND	"	
[illegible]6-Tetrachlorophenol	"	"	"		25.0	ND	"	
[illegible]-Trichlorophenol	"	"	"		25.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		25.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*42.1*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*81.5*	"	
038-GG-01			**P910562-01**				**Water**	
4-Chloro-3-methylphenol	1190030	11/1/99	11/4/99		25.0	ND	ug/l	
2-Chlorophenol	"	"	"		25.0	ND	"	
Cresols	"	"	"		25.0	ND	"	
2,4-Dichlorophenol	"	"	"		25.0	ND	"	
2,6-Dichlorophenol	"	"	"		25.0	ND	"	
2,4-Dimethylphenol	"	"	"		25.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		25.0	ND	"	
2,4-Dinitrophenol	"	"	"		62.5	ND	"	
Dinoseb	"	"	"		25.0	ND	"	
2-Nitrophenol	"	"	"		25.0	ND	"	
4-Nitrophenol	"	"	"		25.0	ND	"	
Pentachlorophenol	"	"	"		25.0	ND	"	
Phenol	"	"	"		25.0	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		25.0	ND	"	
2,4,5-Trichlorophenol	"	"	"		25.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		25.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*52.8*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*83.7*	"	

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**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

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111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Phenols per EPA Method 8041
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
039-GG-01			**P910604-01**				**Water**	
4-Chloro-3-methylphenol	1190030	11/1/99	11/4/99		25.0	ND	ug/l	
2-Chlorophenol	"	"	"		25.0	ND	"	
Cresols	"	"	"		25.0	ND	"	
2,4-Dichlorophenol	"	"	"		25.0	ND	"	
2,6-Dichlorophenol	"	"	"		25.0	ND	"	
2,4-Dimethylphenol	"	"	"		25.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		25.0	ND	"	
2,4-Dinitrophenol	"	"	"		62.5	ND	"	
Dinoseb	"	"	"		25.0	ND	"	
2-Nitrophenol	"	"	"		25.0	ND	"	
4-Nitrophenol	"	"	"		25.0	ND	"	
Pentachlorophenol	"	"	"		25.0	ND	"	
Phenol	"	"	"		25.0	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		25.0	ND	"	
2,4,5-Trichlorophenol	"	"	"		25.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		25.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*56.7*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*76.9*	"	
040-GG-01			**P910604-02**				**Water**	
4-Chloro-3-methylphenol	1190030	11/1/99	11/5/99		25.0	ND	ug/l	
2-Chlorophenol	"	"	"		25.0	ND	"	
Cresols	"	"	"		25.0	ND	"	
2,4-Dichlorophenol	"	"	"		25.0	ND	"	
2,6-Dichlorophenol	"	"	"		25.0	ND	"	
2,4-Dimethylphenol	"	"	"		25.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		25.0	ND	"	
2,4-Dinitrophenol	"	"	"		62.5	ND	"	
Dinoseb	"	"	"		25.0	ND	"	
2-Nitrophenol	"	"	"		25.0	ND	"	
4-Nitrophenol	"	"	"		25.0	ND	"	
Pentachlorophenol	"	"	"		25.0	ND	"	
Phenol	"	"	"		25.0	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		25.0	ND	"	
2,4,5-Trichlorophenol	"	"	"		25.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		25.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*35.5*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*72.0*	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Phenols per EPA Method 8041
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
041-GG-01			**P910605-01**				**Water**	
4-Chloro-3-methylphenol	1190030	11/1/99	11/5/99		25.0	ND	ug/l	
2-Chlorophenol	"	"	"		25.0	ND	"	
Cresols	"	"	"		25.0	ND	"	
2,4-Dichlorophenol	"	"	"		25.0	ND	"	
2,6-Dichlorophenol	"	"	"		25.0	ND	"	
2,4-Dimethylphenol	"	"	"		25.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		25.0	ND	"	
2,4-Dinitrophenol	"	"	"		62.5	ND	"	
Dinoseb	"	"	"		25.0	ND	"	
2-Nitrophenol	"	"	"		25.0	ND	"	
4-Nitrophenol	"	"	"		25.0	ND	"	
Pentachlorophenol	"	"	"		25.0	ND	"	
Phenol	"	"	"		25.0	ND	"	
[illegible],6-Tetrachlorophenol	"	"	"		25.0	ND	"	
2,4,5-Trichlorophenol	"	"	"		25.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		25.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*59.0*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*89.0*	"	

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Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
037-GG-01			**P910560-01**				**Water**	
Aldrin	1190031	11/1/99	11/5/99		0.100	ND	ug/l	
alpha-BHC	"	"	"		0.100	ND	"	
beta-BHC	"	"	"		0.100	ND	"	
delta-BHC	"	"	"		0.100	ND	"	
gamma-BHC (Lindane)	"	"	"		0.100	ND	"	
alpha-Chlordane	"	"	"		0.100	ND	"	
gamma-Chlordane	"	"	"		0.100	ND	"	
Chlordane (tech)	"	"	"		1.00	ND	"	
4,4'-DDD	"	"	"		0.100	ND	"	
4,4'-DDE	"	"	"		0.100	ND	"	
4,4'-DDT	"	"	"		0.100	ND	"	
Dieldrin	"	"	"		0.100	ND	"	
Endosulfan I	"	"	"		0.100	ND	"	
Endosulfan II	"	"	"		0.100	ND	"	
Endosulfan sulfate	"	"	"		0.100	ND	"	
Endrin	"	"	"		0.100	ND	"	
Endrin aldehyde	"	"	"		0.100	ND	"	
Endrin ketone	"	"	"		0.100	ND	"	
Heptachlor	"	"	"		0.100	ND	"	
Heptachlor epoxide	"	"	"		0.100	ND	"	
Hexachlorobenzene	"	"	"		0.100	ND	"	
Methoxychlor	"	"	"		0.100	ND	"	
Toxaphene	"	"	"		2.50	ND	"	
Aroclor 1016	"	"	11/3/99		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*11/5/99*	*44.0-119*		*98.3*	%	
Surrogate: Decachlorobiphenyl	"	"	*11/3/99*	*54.0-128*		*33.6*	"	*2*

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Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
037-GG-02			P910560-02				Water	
Aldrin	1190031	11/1/99	11/5/99		0.100	ND	ug/l	
alpha-BHC	"	"	"		0.100	ND	"	
beta-BHC	"	"	"		0.100	ND	"	
delta-BHC	"	"	"		0.100	ND	"	
gamma-BHC (Lindane)	"	"	"		0.100	ND	"	
alpha-Chlordane	"	"	"		0.100	ND	"	
gamma-Chlordane	"	"	"		0.100	ND	"	
Chlordane (tech)	"	"	"		1.00	ND	"	
4,4'-DDD	"	"	"		0.100	ND	"	
4,4'-DDE	"	"	"		0.100	ND	"	
4,4'-DDT	"	"	"		0.100	ND	"	
Dieldrin	"	"	"		0.100	ND	"	
Endosulfan I	"	"	"		0.100	ND	"	
Endosulfan II	"	"	"		0.100	ND	"	
Endosulfan sulfate	"	"	"		0.100	ND	"	
Endrin	"	"	"		0.100	ND	"	
Endrin aldehyde	"	"	"		0.100	ND	"	
Endrin ketone	"	"	"		0.100	ND	"	
Heptachlor	"	"	"		0.100	ND	"	
Heptachlor epoxide	"	"	"		0.100	ND	"	
Hexachlorobenzene	"	"	"		0.100	ND	"	
Methoxychlor	"	"	"		0.100	ND	"	
Toxaphene	"	"	"		2.50	ND	"	
Aroclor 1016	"	"	11/3/99		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*11/5/99*	*44.0-119*		*91.6*	%	
Surrogate: Decachlorobiphenyl	"	"	*11/3/99*	*54.0-128*		*30.9*	"	*2*

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
036-GG-04			**P910561-01**				**Water**	
Aldrin	1190031	11/1/99	11/5/99		0.100	ND	ug/l	
alpha-BHC	"	"	"		0.100	ND	"	
beta-BHC	"	"	"		0.100	ND	"	
delta-BHC	"	"	"		0.100	ND	"	
gamma-BHC (Lindane)	"	"	"		0.100	ND	"	
alpha-Chlordane	"	"	"		0.100	ND	"	
gamma-Chlordane	"	"	"		0.100	ND	"	
Chlordane (tech)	"	"	"		1.00	ND	"	
4,4'-DDD	"	"	"		0.100	ND	"	
4,4'-DDE	"	"	"		0.100	ND	"	
4,4'-DDT	"	"	"		0.100	ND	"	
Dieldrin	"	"	"		0.100	ND	"	
Endosulfan I	"	"	"		0.100	ND	"	
Endosulfan II	"	"	"		0.100	ND	"	
Endosulfan sulfate	"	"	"		0.100	ND	"	
Endrin	"	"	"		0.100	ND	"	
Endrin aldehyde	"	"	"		0.100	ND	"	
Endrin ketone	"	"	"		0.100	ND	"	
Heptachlor	"	"	"		0.100	ND	"	
Heptachlor epoxide	"	"	"		0.100	ND	"	
Hexachlorobenzene	"	"	"		0.100	ND	"	
Methoxychlor	"	"	"		0.100	ND	"	
Toxaphene	"	"	"		2.50	ND	"	
Aroclor 1016	"	"	11/3/99		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*11/5/99*	*44.0-119*		*105*	%	
Surrogate: Decachlorobiphenyl	"	"	*11/3/99*	*54.0-128*		*47.0*	"	*2*

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
038-GG-01			P910562-01				Water	
Aldrin	1190031	11/1/99	11/5/99		0.100	ND	ug/l	
alpha-BHC	"	"	"		0.100	ND	"	
beta-BHC	"	"	"		0.100	ND	"	
delta-BHC	"	"	"		0.100	ND	"	
gamma-BHC (Lindane)	"	"	"		0.100	ND	"	
alpha-Chlordane	"	"	"		0.100	ND	"	
gamma-Chlordane	"	"	"		0.100	ND	"	
Chlordane (tech)	"	"	"		1.00	ND	"	
4,4'-DDD	"	"	"		0.100	ND	"	
4,4'-DDE	"	"	"		0.100	ND	"	
4,4'-DDT	"	"	"		0.100	ND	"	
Dieldrin	"	"	"		0.100	ND	"	
Endosulfan I	"	"	"		0.100	ND	"	
[illegible]ulfan II	"	"	"		0.100	ND	"	
[illegible]sulfan sulfate	"	"	"		0.100	ND	"	
Endrin	"	"	"		0.100	ND	"	
Endrin aldehyde	"	"	"		0.100	ND	"	
Endrin ketone	"	"	"		0.100	ND	"	
Heptachlor	"	"	"		0.100	ND	"	
Heptachlor epoxide	"	"	"		0.100	ND	"	
Hexachlorobenzene	"	"	"		0.100	ND	"	
Methoxychlor	"	"	"		0.100	ND	"	
Toxaphene	"	"	"		2.50	ND	"	
Aroclor 1016	"	"	11/3/99		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*11/5/99*	*44.0-119*		*102*	%	
Surrogate: Decachlorobiphenyl	"	"	*11/3/99*	*54.0-128*		*37.3*	"	*2*

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**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

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111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
039-GG-01			**P910604-01**				**Water**	
Aldrin	1190031	11/1/99	11/5/99		0.100	ND	ug/l	
alpha-BHC	"	"	"		0.100	ND	"	
beta-BHC	"	"	"		0.100	ND	"	
delta-BHC	"	"	"		0.100	ND	"	
gamma-BHC (Lindane)	"	"	"		0.100	ND	"	
alpha-Chlordane	"	"	"		0.100	ND	"	
gamma-Chlordane	"	"	"		0.100	ND	"	
Chlordane (tech)	"	"	"		1.00	ND	"	
4,4'-DDD	"	"	"		0.100	ND	"	
4,4'-DDE	"	"	"		0.100	ND	"	
4,4'-DDT	"	"	"		0.100	ND	"	
Dieldrin	"	"	"		0.100	ND	"	
Endosulfan I	"	"	"		0.100	ND	"	
Endosulfan II	"	"	"		0.100	ND	"	
Endosulfan sulfate	"	"	"		0.100	ND	"	
Endrin	"	"	"		0.100	ND	"	
Endrin aldehyde	"	"	"		0.100	ND	"	
Endrin ketone	"	"	"		0.100	ND	"	
Heptachlor	"	"	"		0.100	ND	"	
Heptachlor epoxide	"	"	"		0.100	ND	"	
Hexachlorobenzene	"	"	"		0.100	ND	"	
Methoxychlor	"	"	"		0.100	ND	"	
Toxaphene	"	"	"		2.50	ND	"	
Aroclor 1016	"	"	11/3/99		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*11/5/99*	*44.0-119*		*98.3*	*%*	
Surrogate: Decachlorobiphenyl	"	"	*11/3/99*	*54.0-128*		*35.4*	"	*2*

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
040-GG-01			**P910604-02**				**Water**	
Aldrin	1190031	11/1/99	11/15/99		0.200	ND	ug/l	3
alpha-BHC	"	"	"		0.200	ND	"	3
beta-BHC	"	"	"		0.200	ND	"	3
delta-BHC	"	"	"		0.200	ND	"	3
gamma-BHC (Lindane)	"	"	"		0.200	ND	"	3
alpha-Chlordane	"	"	"		0.200	ND	"	3
gamma-Chlordane	"	"	"		0.200	ND	"	3
Chlordane (tech)	"	"	"		2.00	ND	"	3
4,4'-DDD	"	"	"		0.200	ND	"	3
4,4'-DDE	"	"	"		0.200	ND	"	3
4,4'-DDT	"	"	"		0.200	**0.844**	"	3
Dieldrin	"	"	"		0.200	ND	"	3
Endosulfan I	"	"	"		0.200	ND	"	3
[illegible]osulfan II	"	"	"		0.200	ND	"	3
Endosulfan sulfate	"	"	"		0.200	ND	"	3
Endrin	"	"	"		0.200	ND	"	3
Endrin aldehyde	"	"	"		0.200	ND	"	3
Endrin ketone	"	"	"		0.200	ND	"	3
Heptachlor	"	"	"		0.200	ND	"	3
Heptachlor epoxide	"	"	"		0.200	ND	"	3
Hexachlorobenzene	"	"	"		0.200	ND	"	3
Methoxychlor	"	"	"		0.200	ND	"	3
Toxaphene	"	"	"		5.00	ND	"	3
Aroclor 1016	"	"	11/3/99		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*11/15/99*	*44.0-119*		*53.3*	*%*	
Surrogate: Decachlorobiphenyl	"	"	*11/3/99*	*54.0-128*		*20.3*	"	*2*

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
041-GG-01			**P910605-01**				**Water**	
Aldrin	1190031	11/1/99	11/5/99		0.100	ND	ug/l	
alpha-BHC	"	"	"		0.100	ND	"	
beta-BHC	"	"	"		0.100	ND	"	
delta-BHC	"	"	"		0.100	ND	"	
gamma-BHC (Lindane)	"	"	"		0.100	ND	"	
alpha-Chlordane	"	"	"		0.100	ND	"	
gamma-Chlordane	"	"	"		0.100	ND	"	
Chlordane (tech)	"	"	"		1.00	ND	"	
4,4'-DDD	"	"	"		0.100	ND	"	
4,4'-DDE	"	"	"		0.100	ND	"	
4,4'-DDT	"	"	"		0.100	ND	"	
Dieldrin	"	"	"		0.100	ND	"	
Endosulfan I	"	"	"		0.100	ND	"	
Endosulfan II	"	"	"		0.100	ND	"	
Endosulfan sulfate	"	"	"		0.100	ND	"	
Endrin	"	"	"		0.100	ND	"	
Endrin aldehyde	"	"	"		0.100	ND	"	
Endrin ketone	"	"	"		0.100	ND	"	
Heptachlor	"	"	"		0.100	ND	"	
Heptachlor epoxide	"	"	"		0.100	ND	"	
Hexachlorobenzene	"	"	"		0.100	ND	"	
Methoxychlor	"	"	"		0.100	ND	"	
Toxaphene	"	"	"		2.50	ND	"	
Aroclor 1016	"	"	11/3/99		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*11/5/99*	*44.0-119*		*120*	*%*	*4*
Surrogate: Decachlorobiphenyl	"	"	*11/3/99*	*54.0-128*		*20.3*	"	*2*

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Organophosphorus Pesticides per EPA Method 8141A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
037-GG-01			**P910560-01**				**Water**	
Azinphos methyl	1190041	11/1/99	11/4/99		1.00	ND	ug/l	
Bolstar	"	"	"		1.00	ND	"	
Chlorpyrifos	"	"	"		1.00	ND	"	
Coumaphos	"	"	"		1.00	ND	"	
Demeton	"	"	"		1.00	ND	"	
Diazinon	"	"	"		1.00	ND	"	
Dichlorvos	"	"	"		1.00	ND	"	
Disulfoton	"	"	"		1.00	ND	"	
EPN	"	"	"		1.00	ND	"	
Ethoprop	"	"	"		1.00	ND	"	
Fensulfothion	"	"	"		2.00	ND	"	
Fenthion	"	"	"		1.00	ND	"	
Malathion	"	"	"		1.00	ND	"	
[illegible]phos	"	"	"		1.00	ND	"	
Naled	"	"	"		1.00	ND	"	
Parathion-ethyl	"	"	"		1.00	ND	"	
Parathion-methyl	"	"	"		1.00	ND	"	
Phorate	"	"	"		1.00	ND	"	
Ronnel	"	"	"		1.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		1.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		1.00	ND	"	
Trichloronate	"	"	"		1.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*106*	*%*	
Surrogate: TPP	"	"	"	*65.0-138*		*96.2*	"	
Azinphos methyl	1190115	11/3/99	11/5/99		1.00	ND	ug/l	
Bolstar	"	"	"		1.00	ND	"	
Chlorpyrifos	"	"	"		1.00	ND	"	
Coumaphos	"	"	"		1.00	ND	"	
Demeton	"	"	"		1.00	ND	"	
Diazinon	"	"	"		1.00	ND	"	
Dichlorvos	"	"	"		1.00	ND	"	
Disulfoton	"	"	"		1.00	ND	"	
EPN	"	"	"		1.00	ND	"	
Ethoprop	"	"	"		1.00	ND	"	
Fensulfothion	"	"	"		2.00	ND	"	
Fenthion	"	"	"		1.00	ND	"	
Malathion	"	"	"		1.00	ND	"	
Mevinphos	"	"	"		1.00	ND	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Organophosphorus Pesticides per EPA Method 8141A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
037-GG-01 (continued)			**P910560-01**				**Water**	
Naled	1190115	11/3/99	11/5/99		1.00	ND	ug/l	
Parathion-ethyl	"	"	"		1.00	ND	"	
Parathion-methyl	"	"	"		1.00	ND	"	
Phorate	"	"	"		1.00	ND	"	
Ronnel	"	"	"		1.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		1.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		1.00	ND	"	
Trichloronate	"	"	"		1.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*88.8*	%	
Surrogate: TPP	"	"	"	*65.0-138*		*80.8*	"	
037-GG-02			**P910560-02**				**Water**	
Azinphos methyl	1190041	11/1/99	11/4/99		1.00	ND	ug/l	
Bolstar	"	"	"		1.00	ND	"	
Chlorpyrifos	"	"	"		1.00	ND	"	
Coumaphos	"	"	"		1.00	ND	"	
Demeton	"	"	"		1.00	ND	"	
Diazinon	"	"	"		1.00	ND	"	
Dichlorvos	"	"	"		1.00	ND	"	
Disulfoton	"	"	"		1.00	ND	"	
EPN	"	"	"		1.00	ND	"	
Ethoprop	"	"	"		1.00	ND	"	
Fensulfothion	"	"	"		2.00	ND	"	
Fenthion	"	"	"		1.00	ND	"	
Malathion	"	"	"		1.00	ND	"	
Mevinphos	"	"	"		1.00	ND	"	
Naled	"	"	"		1.00	ND	"	
Parathion-ethyl	"	"	"		1.00	ND	"	
Parathion-methyl	"	"	"		1.00	ND	"	
Phorate	"	"	"		1.00	ND	"	
Ronnel	"	"	"		1.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		1.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		1.00	ND	"	
Trichloronate	"	"	"		1.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*101*	%	
Surrogate: TPP	"	"	"	*65.0-138*		*89.6*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Organophosphorus Pesticides per EPA Method 8141A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
036-GG-04			**P910561-01**				**Water**	
Azinphos methyl	1190041	11/1/99	11/4/99		1.00	ND	ug/l	
Bolstar	"	"	"		1.00	ND	"	
Chlorpyrifos	"	"	"		1.00	ND	"	
Coumaphos	"	"	"		1.00	ND	"	
Demeton	"	"	"		1.00	ND	"	
Diazinon	"	"	"		1.00	ND	"	
Dichlorvos	"	"	"		1.00	ND	"	
Disulfoton	"	"	"		1.00	ND	"	
EPN	"	"	"		1.00	ND	"	
Ethoprop	"	"	"		1.00	ND	"	
Fensulfothion	"	"	"		2.00	ND	"	
Fenthion	"	"	"		1.00	ND	"	
Malathion	"	"	"		1.00	ND	"	
[illegible]aphos	"	"	"		1.00	ND	"	
Naled	"	"	"		1.00	ND	"	
Parathion-ethyl	"	"	"		1.00	ND	"	
Parathion-methyl	"	"	"		1.00	ND	"	
Phorate	"	"	"		1.00	ND	"	
Ronnel	"	"	"		1.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		1.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		1.00	ND	"	
Trichloronate	"	"	"		1.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*104*	*%*	
Surrogate: TPP	"	"	"	*65.0-138*		*95.3*	"	
038-GG-01			**P910562-01**				**Water**	
Azinphos methyl	1190041	11/1/99	11/4/99		1.41	ND	ug/l	5
Bolstar	"	"	"		1.41	ND	"	5
Chlorpyrifos	"	"	"		1.41	ND	"	5
Coumaphos	"	"	"		1.41	ND	"	5
Demeton	"	"	"		1.41	ND	"	5
Diazinon	"	"	"		1.41	ND	"	5
Dichlorvos	"	"	"		1.41	ND	"	5
Disulfoton	"	"	"		1.41	ND	"	5
EPN	"	"	"		1.41	ND	"	5
Ethoprop	"	"	"		1.41	ND	"	5
Fensulfothion	"	"	"		2.82	ND	"	5
Fenthion	"	"	"		1.41	ND	"	5

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Organophosphorus Pesticides per EPA Method 8141A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
038-GG-01 (continued)			**P910562-01**				**Water**	
Malathion	1190041	11/1/99	11/4/99		1.41	ND	ug/l	5
Mevinphos	"	"	"		1.41	ND	"	5
Naled	"	"	"		1.41	ND	"	5
Parathion-ethyl	"	"	"		1.41	ND	"	5
Parathion-methyl	"	"	"		1.41	ND	"	5
Phorate	"	"	"		1.41	ND	"	5
Ronnel	"	"	"		1.41	ND	"	5
Stirophos (Tetrachlorvinphos)	"	"	"		1.41	ND	"	5
Tokuthion (Prothiofos)	"	"	"		1.41	ND	"	5
Trichloronate	"	"	"		1.41	ND	"	5
Surrogate: TBP	"	"	"	*64.0-132*		*108*	*%*	
Surrogate: TPP	"	"	"	*65.0-138*		*92.9*	"	
039-GG-01			**P910604-01**				**Water**	
Azinphos methyl	1190115	11/3/99	11/5/99		1.43	ND	ug/l	5
Bolstar	"	"	"		1.43	ND	"	5
Chlorpyrifos	"	"	"		1.43	ND	"	5
Coumaphos	"	"	"		1.43	ND	"	5
Demeton	"	"	"		1.43	ND	"	5
Diazinon	"	"	"		1.43	ND	"	5
Dichlorvos	"	"	"		1.43	ND	"	5
Disulfoton	"	"	"		1.43	ND	"	5
EPN	"	"	"		1.43	ND	"	5
Ethoprop	"	"	"		1.43	ND	"	5
Fensulfothion	"	"	"		2.86	ND	"	5
Fenthion	"	"	"		1.43	ND	"	5
Malathion	"	"	"		1.43	ND	"	5
Mevinphos	"	"	"		1.43	ND	"	5
Naled	"	"	"		1.43	ND	"	5
Parathion-ethyl	"	"	"		1.43	ND	"	5
Parathion-methyl	"	"	"		1.43	ND	"	5
Phorate	"	"	"		1.43	ND	"	5
Ronnel	"	"	"		1.43	ND	"	5
Stirophos (Tetrachlorvinphos)	"	"	"		1.43	ND	"	5
Tokuthion (Prothiofos)	"	"	"		1.43	ND	"	5
Trichloronate	"	"	"		1.43	ND	"	5
Surrogate: TBP	"	"	"	*64.0-132*		*86.6*	*%*	
Surrogate: TPP	"	"	"	*65.0-138*		*74.5*	"	

North Creek Analytical - Portland

**Refer to end of report for text of notes and definitions*

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Organophosphorus Pesticides per EPA Method 8141A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
040-GG-01			**P910604-02**				**Water**	
Azinphos methyl	1190115	11/3/99	11/5/99		1.00	ND	ug/l	
Bolstar	"	"	"		1.00	ND	"	
Chlorpyrifos	"	"	"		1.00	ND	"	
Coumaphos	"	"	"		1.00	ND	"	
Demeton	"	"	"		1.00	ND	"	
Diazinon	"	"	"		1.00	ND	"	
Dichlorvos	"	"	"		1.00	ND	"	
Disulfoton	"	"	"		1.00	ND	"	
EPN	"	"	"		1.00	ND	"	
Ethoprop	"	"	"		1.00	ND	"	
Fensulfothion	"	"	"		2.00	ND	"	
Fenthion	"	"	"		1.00	ND	"	
Malathion	"	"	"		1.00	ND	"	
[illegible]phos	"	"	"		1.00	ND	"	
Naled	"	"	"		1.00	ND	"	
Parathion-ethyl	"	"	"		1.00	ND	"	
Parathion-methyl	"	"	"		1.00	ND	"	
Phorate	"	"	"		1.00	ND	"	
Ronnel	"	"	"		1.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		1.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		1.00	ND	"	
Trichloronate	"	"	"		1.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*84.2*	*%*	
Surrogate: TPP	"	"	"	*65.0-138*		*65.8*	"	
041-GG-01			**P910605-01**				**Water**	
Azinphos methyl	1190041	11/1/99	11/4/99		1.00	ND	ug/l	
Bolstar	"	"	"		1.00	ND	"	
Chlorpyrifos	"	"	"		1.00	ND	"	
Coumaphos	"	"	"		1.00	ND	"	
Demeton	"	"	"		1.00	ND	"	
Diazinon	"	"	"		1.00	ND	"	
Dichlorvos	"	"	"		1.00	ND	"	
Disulfoton	"	"	"		1.00	ND	"	
EPN	"	"	"		1.00	ND	"	
Ethoprop	"	"	"		1.00	ND	"	
Fensulfothion	"	"	"		2.00	ND	"	
Fenthion	"	"	"		1.00	ND	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported:	11/24/99 14:52

Organophosphorus Pesticides per EPA Method 8141A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
041-GG-01 (continued)			**P910605-01**				**Water**	
Malathion	1190041	11/1/99	11/4/99		1.00	ND	ug/l	
Mevinphos	"	"	"		1.00	ND	"	
Naled	"	"	"		1.00	ND	"	
Parathion-ethyl	"	"	"		1.00	ND	"	
Parathion-methyl	"	"	"		1.00	ND	"	
Phorate	"	"	"		1.00	ND	"	
Ronnel	"	"	"		1.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		1.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		1.00	ND	"	
Trichloronate	"	"	"		1.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*100*	*%*	
Surrogate: TPP	"	"	"	*65.0-138*		*90.4*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
037-GG-01			**P910560-01**				**Water**	
Acetone	1190230	11/9/99	11/9/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	**4.02**	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
[illegible]robenzene	"	"	"		1.00	**8.74**	"	
[illegible]loroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	**30.7**	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	**6.04**	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	**4.70**	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
037-GG-01 (continued)			**P910560-01**				**Water**	
Ethylbenzene	1190230	11/9/99	11/9/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	**8.92**	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	**1.05**	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	**11.5**	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*106*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*114*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*104*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*98.5*	"	

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Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
037-GG-02			P910560-02				Water	
Acetone	1190230	11/9/99	11/9/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	**4.06**	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
[illegible]robenzene	"	"	"		1.00	**8.89**	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	**31.1**	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	**5.83**	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	**1.00**	"	
cis-1,2-Dichloroethene	"	"	"		1.00	**5.00**	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
037-GG-02 (continued)			**P910560-02**				**Water**	
Ethylbenzene	1190230	11/9/99	11/9/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	**8.94**	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	**1.13**	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	**12.2**	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*107*	%	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*115*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*107*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*101*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK			**P910560-03**				**Water**	
Acetone	1190230	11/9/99	11/9/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
[illegible]on tetrachloride	"	"	"		2.00	ND	"	
[illegible]obenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK (continued)			**P910560-03**				**Water**	
Ethylbenzene	1190230	11/9/99	11/9/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*104*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*111*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*104*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*106*	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
036-GG-04			**P910561-01**				**Water**	
Acetone	1190230	11/9/99	11/9/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
[illegible]robenzene	"	"	"		1.00	ND	"	
[illegible]roethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
036-GG-04 (continued)			**P910561-01**				**Water**	
Ethylbenzene	1190230	11/9/99	11/9/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*106*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*114*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*104*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*103*	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
Trip Blank			**P910561-02**				**Water**	
Acetone	1190230	11/9/99	11/10/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
Trip Blank (continued)			**P910561-02**				**Water**	
Ethylbenzene	1190230	11/9/99	11/10/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*108*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*116*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*106*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*101*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
038-GG-01			**P910562-01**				**Water**	
Acetone	1190230	11/9/99	11/10/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	**2.94**	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	**1.00**	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
038-GG-01 (continued)			**P910562-01**				**Water**	
Ethylbenzene	1190230	11/9/99	11/10/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	**6.41**	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*110*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*114*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*106*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*101*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
Trip Blank			**P910562-02**				**Water**	
Acetone	1190230	11/9/99	11/10/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
[illegible]robenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
Trip Blank (continued)			**P910562-02**				**Water**	
Ethylbenzene	1190230	11/9/99	11/10/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*109*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*117*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*106*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*103*	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
039-GG-01			P910604-01				Water	
Acetone	1190230	11/9/99	11/10/99		25.0	**27.9**	ug/l	
Benzene	"	"	"		1.00	**1.41**	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	**1.29**	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	**11.5**	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	**1.83**	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
039-GG-01 (continued)			**P910604-01**				**Water**	
Ethylbenzene	1190230	11/9/99	11/10/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	**3.73**	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*109*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*120*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*107*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*103*	"	

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Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
040-GG-01			**P910604-02**				**Water**	
Acetone	1190230	11/9/99	11/10/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	**2.33**	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	**1.62**	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
040-GG-01 (continued)			**P910604-02**				**Water**	
Ethylbenzene	1190230	11/9/99	11/10/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	**5.63**	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	**26.4**	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*107*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*121*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*107*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*103*	"	

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111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK			**P910604-03**				**Water**	
Acetone	1190230	11/9/99	11/10/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
[illegible]robenzene	"	"	"		1.00	ND	"	
[illegible]roethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK (continued)			**P910604-03**				**Water**	
Ethylbenzene	1190230	11/9/99	11/10/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*106*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*118*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*108*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*101*	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
041-GG-01			**P910605-01**				**Water**	
Acetone	1190230	11/9/99	11/10/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	**1.39**	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
[illegible]benzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

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Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
041-GG-01 (continued)			**P910605-01**				**Water**	
Ethylbenzene	1190230	11/9/99	11/10/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	**3.02**	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*113*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*119*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*105*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*101*	"	

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Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK			**P910605-02**				**Water**	
Acetone	1190230	11/9/99	11/10/99		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

North Creek Analytical - Portland

**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK (continued)			**P910605-02**				**Water**	
Ethylbenzene	1190230	11/9/99	11/10/99		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*109*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*119*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*109*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*105*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Dissolved Metals per EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1090851	**Date Prepared: 10/28/99**					**Extraction Method: EPA 7470**				
Blank	**1090851-BLK1**									
Mercury	10/29/99			**ND**	mg/l	**0.000200**				
LCS	**1090851-BS1**									
Mercury	10/29/99	0.00500		0.00491	mg/l	80.0-120	98.2			
Duplicate	**1090851-DUP1**		**P910491-01**							
Mercury	10/29/99		ND	ND	mg/l			20.0		
Matrix Spike	**1090851-MS1**		**P910491-01**							
Mercury	10/29/99	0.00500	ND	0.00502	mg/l	75.0-125	**100**			
Matrix Spike	**1090851-MS2**		**P910560-01**							
[illegible]cury	10/29/99	0.00500	ND	0.00475	mg/l	75.0-125	**95.0**			
Matrix Spike Dup	**1090851-MSD1**		**P910491-01**							
Mercury	10/29/99	0.00500	ND	0.00483	mg/l	75.0-125	**96.6**	20.0	**3.46**	
Matrix Spike Dup	**1090851-MSD2**		**P910560-01**							
Mercury	10/29/99	0.00500	ND	0.00469	mg/l	75.0-125	**93.8**	20.0	**1.27**	
Batch: 1190060	**Date Prepared: 11/2/99**					**Extraction Method: EPA 200/3005**				
Blank	**1190060-BLK1**									
Arsenic	11/3/99			**ND**	mg/l	**0.00100**				
Cadmium	"			**ND**	"	**0.00100**				
Chromium	"			**ND**	"	**0.00100**				
Copper	"			**ND**	"	**0.00200**				
Lead	"			**ND**	"	**0.00100**				
Nickel	"			**ND**	"	**0.00200**				
Vanadium	"			**ND**	"	**0.00500**				
Zinc	"			**ND**	"	**0.00500**				
LCS	**1190060-BS1**									
Arsenic	11/3/99	0.100		0.0898	mg/l	80.0-120	89.8			
Cadmium	"	0.100		0.0908	"	80.0-120	90.8			
Chromium	"	0.100		0.0960	"	80.0-120	96.0			
Copper	"	0.100		0.0964	"	80.0-120	96.4			
Lead	"	0.100		0.0959	"	80.0-120	95.9			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Dissolved Metals per EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS (continued)	**1190060-BS1**									
Nickel	11/3/99	0.100		0.0970	mg/l	80.0-120	97.0			
Vanadium	"	0.100		0.0968	"	80.0-120	96.8			
Zinc	"	0.100		0.0897	"	80.0-120	89.7			
Duplicate	**1190060-DUP1**		**P910560-01**							
Arsenic	11/18/99		0.0113	ND	mg/l			20.0		1,6
Cadmium	11/3/99		0.0151	0.0141	"			20.0	**6.85**	1
Chromium	"		ND	ND	"			20.0		1
Copper	"		0.0466	ND	"			20.0		1,6
Lead	"		ND	ND	"			20.0		1
Nickel	"		0.281	0.265	"			20.0	**5.86**	1
Vanadium	"		ND	ND	"			20.0		1
Zinc	"		0.0513	0.0481	"			20.0	**6.44**	1
Matrix Spike	**1190060-MS1**		**P910560-01**							
Arsenic	11/3/99	0.100	0.0113	0.0887	mg/l	75.0-125	**77.4**			1
Cadmium	"	0.100	0.0151	0.0988	"	75.0-125	**83.7**			1
Chromium	"	0.100	ND	0.111	"	75.0-125	**111**			1
Copper	"	0.100	0.0466	0.142	"	75.0-125	**95.4**			1
Lead	"	0.100	ND	0.0873	"	75.0-125	**87.3**			1
Nickel	"	0.100	0.281	0.367	"	75.0-125	**86.0**			1
Vanadium	"	0.100	ND	0.123	"	75.0-125	**123**			1
Zinc	"	0.100	0.0513	0.129	"	75.0-125	**77.7**			1
Matrix Spike Dup	**1190060-MSD1**		**P910560-01**							
Arsenic	11/3/99	0.100	0.0113	0.0918	mg/l	75.0-125	**80.5**	20.0	**3.93**	1
Cadmium	"	0.100	0.0151	0.102	"	75.0-125	**86.9**	20.0	**3.75**	1
Chromium	"	0.100	ND	0.117	"	75.0-125	**117**	20.0	**5.26**	1
Copper	"	0.100	0.0466	0.152	"	75.0-125	**105**	20.0	**9.58**	1
Lead	"	0.100	ND	0.0917	"	75.0-125	**91.7**	20.0	**4.92**	1
Nickel	"	0.100	0.281	0.379	"	75.0-125	**98.0**	20.0	**13.0**	1
Vanadium	"	0.100	ND	0.128	"	75.0-125	**128**	20.0	**3.98**	1,7
Zinc	"	0.100	0.0513	0.130	"	75.0-125	**78.7**	20.0	**1.28**	1
Batch: 1190357	**Date Prepared: 11/10/99**					**Extraction Method: Metals**				
Blank	**1190357-BLK1**									
Mercury	11/11/99			**ND**	mg/l	**0.000200**				

North Creek Analytical - Portland

**Refer to end of report for text of notes and definitions*

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Dissolved Metals per EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS	**1190357-BS1**									
Mercury	11/11/99	0.00500		0.00495	mg/l	80.0-120	99.0			
Duplicate	**1190357-DUP1**		**P910604-01**							
Mercury	11/11/99		ND	ND	mg/l			20.0		
Matrix Spike	**1190357-MS1**		**P910604-01**							
Mercury	11/11/99	0.00500	ND	0.00503	mg/l	75.0-125	**101**			
Matrix Spike Dup	**1190357-MSD1**		**P910604-01**							
Mercury	11/11/99	0.00500	ND	0.00499	mg/l	75.0-125	**99.8**	20.0	**1.20**	

Creek Analytical - Portland

**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Alcohols by GC/FID Headspace Analysis/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1190310	**Date Prepared: 11/10/99**					**Extraction Method: EPA 5030**				
Blank	**1190310-BLK1**									
Isobutyl alcohol	11/10/99			**ND**	mg/l	**10.0**				
LCS	**1190310-BS1**									
Isobutyl alcohol	11/10/99	50.0		47.4	mg/l	50.0-150	94.8			
Matrix Spike	**1190310-MS1**		**P910560-01**							
Isobutyl alcohol	11/10/99	50.0	ND	52.6	mg/l	50.0-150	**105**			
Matrix Spike Dup	**1190310-MSD1**		**P910560-01**							
Isobutyl alcohol	11/10/99	50.0	ND	54.1	mg/l	50.0-150	**108**	25.0	**2.82**	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Phenols per EPA Method 8041/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1190030	**Date Prepared: 11/1/99**					**Extraction Method: EPA 3510/600 Series**				
Blank	**1190030-BLK1**									
4-Chloro-3-methylphenol	11/4/99			**ND**	ug/l	**25.0**				
2-Chlorophenol	"			**ND**	"	**25.0**				
Cresols	"			**ND**	"	**25.0**				
2,4-Dichlorophenol	"			**ND**	"	**25.0**				
2,6-Dichlorophenol	"			**ND**	"	**25.0**				
2,4-Dimethylphenol	"			**ND**	"	**25.0**				
4,6-Dinitro-2-methylphenol	"			**ND**	"	**25.0**				
2,4-Dinitrophenol	"			**ND**	"	**62.5**				
Dinoseb	"			**ND**	"	**25.0**				
2-Nitrophenol	"			**ND**	"	**25.0**				
4-Nitrophenol	"			**ND**	"	**25.0**				
Pentachlorophenol	"			**ND**	"	**25.0**				8
[illegible]ol	"			**ND**	"	**25.0**				
[illegible]4,6-Tetrachlorophenol	"			**ND**	"	**25.0**				
2,4,5-Trichlorophenol	"			**ND**	"	**25.0**				
2,4,6-Trichlorophenol	"			**ND**	"	**25.0**				
Surrogate: 2-Fluorophenol	"	*200*		*93.5*	"	*22.0-83.0*	*46.8*			
Surrogate: 2,4,6-Tribromophenol	"	*200*		*170*	"	*42.0-141*	*85.0*			
LCS	**1190030-BS1**									
4-Chloro-3-methylphenol	11/4/99	200		157	ug/l	23.0-97.0	78.5			
2-Chlorophenol	"	200		137	"	27.0-123	68.5			
4-Nitrophenol	"	200		76.0	"	10.0-80.0	38.0			
Pentachlorophenol	"	200		119	"	50.0-150	59.5			8
Phenol	"	200		64.8	"	12.0-110	32.4			
Surrogate: 2-Fluorophenol	"	*200*		*90.0*	"	*22.0-83.0*	*45.0*			
Surrogate: 2,4,6-Tribromophenol	"	*200*		*173*	"	*42.0-141*	*86.5*			
Matrix Spike	**1190030-MS1**		**P910560-01**							
4-Chloro-3-methylphenol	11/4/99	200	ND	162	ug/l	23.0-97.0	**81.0**			
2-Chlorophenol	"	200	ND	151	"	27.0-123	**75.5**			
4-Nitrophenol	"	200	ND	96.3	"	10.0-80.0	**48.2**			
Pentachlorophenol	"	200	ND	188	"	50.0-150	**94.0**			8
Phenol	"	200	ND	71.4	"	12.0-110	**35.7**			
Surrogate: 2-Fluorophenol	"	*200*		*134*	"	*22.0-83.0*	*67.0*			
Surrogate: 2,4,6-Tribromophenol	"	*200*		*175*	"	*42.0-141*	*87.5*			

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Phenols per EPA Method 8041/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike Dup	**1190030-MSD1**		**P910560-01**							
4-Chloro-3-methylphenol	11/4/99	200	ND	141	ug/l	23.0-97.0	**70.5**	50.0	**13.9**	
2-Chlorophenol	"	200	ND	127	"	27.0-123	**63.5**	50.0	**17.3**	
4-Nitrophenol	"	200	ND	76.4	"	10.0-80.0	**38.2**	50.0	**23.1**	
Pentachlorophenol	"	200	ND	170	"	50.0-150	**85.0**	50.0	**10.1**	8
Phenol	"	200	ND	56.9	"	12.0-110	**28.5**	50.0	**22.4**	
Surrogate: 2-Fluorophenol	"	*200*		*110*	"	*22.0-83.0*	*55.0*			
Surrogate: 2,4,6-Tribromophenol	"	*200*		*158*	"	*42.0-141*	*79.0*			

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1190031	**Date Prepared: 11/1/99**					**Extraction Method: EPA 3510/600 Series**				
Blank	**1190031-BLK1**									
Aldrin	11/14/99			ND	ug/l	0.100				
alpha-BHC	"			ND	"	0.100				
beta-BHC	"			ND	"	0.100				
delta-BHC	"			ND	"	0.100				
gamma-BHC (Lindane)	"			ND	"	0.100				
alpha-Chlordane	"			ND	"	0.100				
gamma-Chlordane	"			ND	"	0.100				
Chlordane (tech)	"			ND	"	1.00				
4,4'-DDD	"			ND	"	0.100				
4,4'-DDE	"			ND	"	0.100				
4,4'-DDT	"			ND	"	0.100				
Dieldrin	"			ND	"	0.100				
[illegible]sulfan I	"			ND	"	0.100				
[illegible]sulfan II	"			ND	"	0.100				
Endosulfan sulfate	"			ND	"	0.100				
Endrin	"			ND	"	0.100				
Endrin aldehyde	"			ND	"	0.100				
Endrin ketone	"			ND	"	0.100				
Heptachlor	"			ND	"	0.100				
Heptachlor epoxide	"			ND	"	0.100				
Hexachlorobenzene	"			ND	"	0.100				
Methoxychlor	"			ND	"	0.100				
Toxaphene	"			ND	"	2.50				
Aroclor 1016	11/3/99			ND	"	0.500				
Aroclor 1221	"			ND	"	1.00				
Aroclor 1232	"			ND	"	0.500				
Aroclor 1242	"			ND	"	0.500				
Aroclor 1248	"			ND	"	0.500				
Aroclor 1254	"			ND	"	0.500				
Aroclor 1260	"			ND	"	0.500				
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	*11/14/99*	*0.500*		*0.360*	"	*44.0-119*	*72.0*			
Surrogate: Decachlorobiphenyl	*11/3/99*	*0.500*		*0.359*	"	*54.0-128*	*71.8*			
LCS	**1190031-BS1**									
Aldrin	11/14/99	0.250		0.228	ug/l	48.0-123	91.2			
gamma-BHC (Lindane)	"	0.250		0.254	"	47.0-137	102			
4,4'-DDT	"	1.00		0.875	"	77.0-128	87.5			

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Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS (continued)	**1190031-BS1**									
Dieldrin	11/14/99	1.00		0.920	ug/l	84.0-135	92.0			
Endrin	"	1.00		1.01	"	81.0-133	101			
Heptachlor	"	0.250		0.235	"	48.0-124	94.0			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	*0.500*		*0.441*	"	*44.0-119*	*88.2*			
Surrogate: Decachlorobiphenyl	"	*0.500*		*0.216*	"	*54.0-128*	*43.2*			*2*
LCS	**1190031-BS2**									
Aroclor 1016	11/3/99	5.00		4.54	ug/l	45.0-145	90.8			
Aroclor 1260	"	5.00		3.47	"	47.0-155	69.4			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	*0.500*		*0.459*	"	*44.0-119*	*91.8*			
Surrogate: Decachlorobiphenyl	"	*0.500*		*0.282*	"	*54.0-128*	*56.4*			
Matrix Spike	**1190031-MS1**		**P910560-01**							
Aldrin	11/14/99	0.260	ND	0.246	ug/l	50.0-150	**94.6**			
gamma-BHC (Lindane)	"	0.260	ND	0.268	"	50.0-150	**103**			
4,4'-DDT	"	1.04	ND	0.901	"	50.0-150	**86.6**			
Dieldrin	"	1.04	ND	0.958	"	50.0-150	**92.1**			
Endrin	"	1.04	ND	1.04	"	50.0-150	**100**			
Heptachlor	"	0.260	ND	0.253	"	50.0-150	**97.3**			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	*0.521*		*0.444*	"	*44.0-119*	*85.2*			
Surrogate: Decachlorobiphenyl	"	*0.521*		*0.193*	"	*54.0-128*	*37.0*			*2*
Matrix Spike Dup	**1190031-MSD1**		**P910560-01**							
Aldrin	11/14/99	0.260	ND	0.242	ug/l	50.0-150	**93.1**	50.0	**1.60**	
gamma-BHC (Lindane)	"	0.260	ND	0.269	"	50.0-150	**103**	50.0	**0**	
4,4'-DDT	"	1.04	ND	0.865	"	50.0-150	**83.2**	50.0	**4.00**	
Dieldrin	"	1.04	ND	0.964	"	50.0-150	**92.7**	50.0	**0.649**	
Endrin	"	1.04	ND	1.04	"	50.0-150	**100**	50.0	**0**	
Heptachlor	"	0.260	ND	0.250	"	50.0-150	**96.2**	50.0	**1.14**	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	*0.521*		*0.451*	"	*44.0-119*	*86.6*			
Surrogate: Decachlorobiphenyl	"	*0.521*		*0.188*	"	*54.0-128*	*36.1*			*2*

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Organophosphorus Pesticides per EPA Method 8141A/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1190041	**Date Prepared: 11/1/99**					**Extraction Method: EPA 3510/600 Series**				
Blank	**1190041-BLK1**									
Azinphos methyl	11/4/99			**ND**	ug/l	**1.00**				
Bolstar	"			**ND**	"	**1.00**				
Chlorpyrifos	"			**ND**	"	**1.00**				
Coumaphos	"			**ND**	"	**1.00**				
Demeton	"			**ND**	"	**1.00**				
Diazinon	"			**ND**	"	**1.00**				
Dichlorvos	"			**ND**	"	**1.00**				
Disulfoton	"			**ND**	"	**1.00**				
EPN	"			**ND**	"	**1.00**				
Ethoprop	"			**ND**	"	**1.00**				
Fensulfothion	"			**ND**	"	**2.00**				
Fenthion	"			**ND**	"	**1.00**				
[illegible]hion	"			**ND**	"	**1.00**				
Mevinphos	"			**ND**	"	**1.00**				
Naled	"			**ND**	"	**1.00**				
Parathion-ethyl	"			**ND**	"	**1.00**				
Parathion-methyl	"			**ND**	"	**1.00**				
Phorate	"			**ND**	"	**1.00**				
Ronnel	"			**ND**	"	**1.00**				
Stirophos (Tetrachlorvinphos)	"			**ND**	"	**1.00**				
Tokuthion (Prothiofos)	"			**ND**	"	**1.00**				
Trichloronate	"			**ND**	"	**1.00**				
Surrogate: TBP	"	*2.50*		*2.62*	"	*64.0-132*	*105*			
Surrogate: TPP	"	*2.50*		*2.32*	"	*65.0-138*	*92.8*			
LCS	**1190041-BS1**									
Dichlorvos	11/4/99	2.50		2.46	ug/l	35.0-144	98.4			
Ethoprop	"	2.50		2.50	"	51.0-145	100			
Parathion-methyl	"	2.50		2.42	"	60.0-142	96.8			
Stirophos (Tetrachlorvinphos)	"	2.50		2.44	"	40.0-161	97.6			
Surrogate: TBP	"	*2.50*		*2.40*	"	*64.0-132*	*96.0*			
Surrogate: TPP	"	*2.50*		*2.18*	"	*65.0-138*	*87.2*			
Matrix Spike	**1190041-MS1**		**P910560-01**							
Dichlorvos	11/4/99	2.60	ND	2.85	ug/l	35.0-144	**110**			
Ethoprop	"	2.60	ND	2.71	"	51.0-145	**104**			
Parathion-methyl	"	2.60	ND	2.71	"	60.0-142	**104**			

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Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project: RPAC	Sampled:	10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number: Multiple Project Numbers	Received:	10/27/99 to 10/28/99
Portland, OR 97201	Project Manager: Karen Schadler	Reported:	11/24/99 14:52

Organophosphorus Pesticides per EPA Method 8141A/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike (continued)	**1190041-MS1**		**P910560-01**							
Stirophos (Tetrachlorvinphos)	11/4/99	2.60	ND	2.69	ug/l	40.0-161	**103**			
Surrogate: TBP	"	*2.60*		*2.63*	"	*64.0-132*	*101*			
Surrogate: TPP	"	*2.60*		*2.40*	"	*65.0-138*	*92.3*			
Matrix Spike Dup	**1190041-MSD1**		**P910560-01**							
Dichlorvos	11/4/99	2.60	ND	2.63	ug/l	35.0-144	**101**	50.0	**8.53**	
Ethoprop	"	2.60	ND	2.77	"	51.0-145	**107**	50.0	**2.84**	
Parathion-methyl	"	2.60	ND	2.67	"	60.0-142	**103**	50.0	**0.966**	
Stirophos (Tetrachlorvinphos)	"	2.60	ND	2.75	"	40.0-161	**106**	50.0	**2.87**	
Surrogate: TBP	"	*2.60*		*2.46*	"	*64.0-132*	*94.6*			
Surrogate: TPP	"	*2.60*		*2.15*	"	*65.0-138*	*82.7*			
Batch: 1190115	**Date Prepared: 11/3/99**					**Extraction Method: EPA 3510/600 Series**				
Blank	**1190115-BLK1**									
Azinphos methyl	11/5/99			**ND**	ug/l	**1.00**				
Bolstar	"			**ND**	"	**1.00**				
Chlorpyrifos	"			**ND**	"	**1.00**				
Coumaphos	"			**ND**	"	**1.00**				
Demeton	"			**ND**	"	**1.00**				
Diazinon	"			**ND**	"	**1.00**				
Dichlorvos	"			**ND**	"	**1.00**				
Disulfoton	"			**ND**	"	**1.00**				
EPN	"			**ND**	"	**1.00**				
Ethoprop	"			**ND**	"	**1.00**				
Fensulfothion	"			**ND**	"	**2.00**				
Fenthion	"			**ND**	"	**1.00**				
Malathion	"			**ND**	"	**1.00**				
Mevinphos	"			**ND**	"	**1.00**				
Naled	"			**ND**	"	**1.00**				
Parathion-ethyl	"			**ND**	"	**1.00**				
Parathion-methyl	"			**ND**	"	**1.00**				
Phorate	"			**ND**	"	**1.00**				
Ronnel	"			**ND**	"	**1.00**				
Stirophos (Tetrachlorvinphos)	"			**ND**	"	**1.00**				
Tokuthion (Prothiofos)	"			**ND**	"	**1.00**				
Trichloronate	"			**ND**	"	**1.00**				
Surrogate: TBP	"	*2.50*		*2.38*	"	*64.0-132*	*95.2*			
Surrogate: TPP	"	*2.50*		*2.22*	"	*65.0-138*	*88.8*			

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Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Organophosphorus Pesticides per EPA Method 8141A/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS	**1190115-BS1**									
Dichlorvos	11/5/99	2.50		2.48	ug/l	35.0-144	99.2			
Ethoprop	"	2.50		2.62	"	51.0-145	105			
Parathion-methyl	"	2.50		2.48	"	60.0-142	99.2			
Stirophos (Tetrachlorvinphos)	"	2.50		2.48	"	40.0-161	99.2			
Surrogate: TBP	"	*2.50*		*2.42*	"	*64.0-132*	*96.8*			
Surrogate: TPP	"	*2.50*		*2.26*	"	*65.0-138*	*90.4*			
Matrix Spike	**1190115-MS1**		**P910560-01**							
Dichlorvos	11/5/99	2.60	ND	2.92	ug/l	35.0-144	**112**			
Ethoprop	"	2.60	ND	2.88	"	51.0-145	**111**			
Parathion-methyl	"	2.60	ND	2.81	"	60.0-142	**108**			
Stirophos (Tetrachlorvinphos)	"	2.60	ND	2.75	"	40.0-161	**106**			
Surrogate: TBP	"	*2.60*		*2.69*	"	*64.0-132*	*103*			
Surrogate: TPP	"	*2.60*		*2.44*	"	*65.0-138*	*93.8*			
Matrix Spike Dup	**1190115-MSD1**		**P910560-01**							
Dichlorvos	11/5/99	2.60	ND	2.90	ug/l	35.0-144	**112**	50.0	**0**	
Ethoprop	"	2.60	ND	2.85	"	51.0-145	**110**	50.0	**0.905**	
Parathion-methyl	"	2.60	ND	2.63	"	60.0-142	**101**	50.0	**6.70**	
Stirophos (Tetrachlorvinphos)	"	2.60	ND	2.69	"	40.0-161	**103**	50.0	**2.87**	
Surrogate: TBP	"	*2.60*		*2.56*	"	*64.0-132*	*98.5*			
Surrogate: TPP	"	*2.60*		*2.33*	"	*65.0-138*	*89.6*			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1190230	**Date Prepared: 11/9/99**					**Extraction Method: EPA 5030**				
Blank	**1190230-BLK1**									
Acetone	11/9/99			ND	ug/l	25.0				
Benzene	"			ND	"	1.00				
Bromobenzene	"			ND	"	1.00				
Bromochloromethane	"			ND	"	1.00				
Bromodichloromethane	"			ND	"	1.00				
Bromoform	"			ND	"	1.00				
Bromomethane	"			ND	"	10.0				
2-Butanone	"			ND	"	25.0				
n-Butylbenzene	"			ND	"	1.00				
sec-Butylbenzene	"			ND	"	1.00				
tert-Butylbenzene	"			ND	"	1.00				
Carbon disulfide	"			ND	"	10.0				
Carbon tetrachloride	"			ND	"	2.00				
Chlorobenzene	"			ND	"	1.00				
Chloroethane	"			ND	"	2.00				
Chloroform	"			ND	"	1.00				
Chloromethane	"			ND	"	5.00				
2-Chlorotoluene	"			ND	"	1.00				
4-Chlorotoluene	"			ND	"	1.00				
1,2-Dibromo-3-chloropropane	"			ND	"	1.00				
Dibromochloromethane	"			ND	"	1.00				
1,2-Dibromoethane	"			ND	"	1.00				
Dibromomethane	"			ND	"	1.00				
1,2-Dichlorobenzene	"			ND	"	1.00				
1,3-Dichlorobenzene	"			ND	"	1.00				
1,4-Dichlorobenzene	"			ND	"	1.00				
Dichlorodifluoromethane	"			ND	"	5.00				
1,1-Dichloroethane	"			ND	"	1.00				
1,2-Dichloroethane	"			ND	"	1.00				
1,1-Dichloroethene	"			ND	"	1.00				
cis-1,2-Dichloroethene	"			ND	"	1.00				
trans-1,2-Dichloroethene	"			ND	"	1.00				
1,2-Dichloropropane	"			ND	"	1.00				
1,3-Dichloropropane	"			ND	"	1.00				
2,2-Dichloropropane	"			ND	"	1.00				
1,1-Dichloropropene	"			ND	"	1.00				
cis-1,3-Dichloropropene	"			ND	"	1.00				

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received: 10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 11/24/99 14:52

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	**1190230-BLK1**									
trans-1,3-Dichloropropene	11/9/99			ND	ug/l	1.00				
Ethylbenzene	"			ND	"	1.00				
Hexachlorobutadiene	"			ND	"	2.00				
2-Hexanone	"			ND	"	10.0				
Iodomethane	"			ND	"	20.0				
Isopropylbenzene	"			ND	"	1.00				
p-Isopropyltoluene	"			ND	"	1.00				
4-Methyl-2-pentanone	"			ND	"	5.00				
Methylene chloride	"			ND	"	5.00				
Naphthalene	"			ND	"	1.00				
n-Propylbenzene	"			ND	"	1.00				
Styrene	"			ND	"	1.00				
1,1,1,2-Tetrachloroethane	"			ND	"	1.00				
1,1,2,2-Tetrachloroethane	"			ND	"	1.00				
Tetrachloroethene	"			ND	"	1.00				
Toluene	"			ND	"	1.00				
1,2,3-Trichlorobenzene	"			ND	"	1.00				
1,2,4-Trichlorobenzene	"			ND	"	1.00				
1,1,1-Trichloroethane	"			ND	"	1.00				
1,1,2-Trichloroethane	"			ND	"	1.00				
Trichloroethene	"			ND	"	1.00				
Trichlorofluoromethane	"			ND	"	1.00				
1,2,3-Trichloropropane	"			ND	"	1.00				
1,2,4-Trimethylbenzene	"			ND	"	1.00				
1,3,5-Trimethylbenzene	"			ND	"	1.00				
Vinyl chloride	"			ND	"	1.00				
o-Xylene	"			ND	"	1.00				
m,p-Xylene	"			ND	"	2.00				
Surrogate: 4-BFB	"	*20.0*		*21.0*	"	*75.0-135*	*105*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*21.7*	"	*70.0-135*	*109*			
Surrogate: Dibromofluoromethane	"	*20.0*		*20.0*	"	*80.0-125*	*100*			
Surrogate: Toluene-d8	"	*20.0*		*20.6*	"	*80.0-120*	*103*			
LCS	**1190230-BS1**									
Benzene	11/9/99	20.0		19.8	ug/l	80.0-125	99.0			
Chlorobenzene	"	20.0		19.4	"	80.0-125	97.0			
1,1-Dichloroethene	"	20.0		22.0	"	70.0-135	110			
Toluene	"	20.0		18.6	"	80.0-125	93.0			

North Creek Analytical - Portland

**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

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URS Greiner Woodward Clyde	Project: RPAC	Sampled:	10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number: Multiple Project Numbers	Received:	10/27/99 to 10/28/99
Portland, OR 97201	Project Manager: Karen Schadler	Reported:	11/24/99 14:52

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS (continued)	**1190230-BS1**									
Trichloroethene	11/9/99	20.0		19.3	ug/l	70.0-130	96.5			
Surrogate: 4-BFB	"	*20.0*		*22.1*	"	*75.0-135*	*111*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*21.9*	"	*70.0-135*	*109*			
Surrogate: Dibromofluoromethane	"	*20.0*		*20.6*	"	*80.0-125*	*103*			
Surrogate: Toluene-d8	"	*20.0*		*20.3*	"	*80.0-120*	*101*			
Matrix Spike	**1190230-MS1**		**P910560-01**							
Benzene	11/9/99	20.0	4.02	23.9	ug/l	80.0-125	**99.4**			
Chlorobenzene	"	20.0	8.74	28.6	"	80.0-125	**99.3**			
1,1-Dichloroethene	"	20.0	ND	24.4	"	70.0-135	**122**			
Toluene	"	20.0	8.92	27.8	"	80.0-125	**94.4**			
Trichloroethene	"	20.0	1.05	22.6	"	70.0-130	**108**			
Surrogate: 4-BFB	"	*20.0*		*21.8*	"	*75.0-135*	*109*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*22.9*	"	*70.0-135*	*114*			
Surrogate: Dibromofluoromethane	"	*20.0*		*21.8*	"	*80.0-125*	*109*			
Surrogate: Toluene-d8	"	*20.0*		*20.8*	"	*80.0-120*	*104*			
Matrix Spike Dup	**1190230-MSD1**		**P910560-01**							
Benzene	11/9/99	20.0	4.02	22.2	ug/l	80.0-125	**90.9**	25.0	**8.93**	
Chlorobenzene	"	20.0	8.74	26.5	"	80.0-125	**88.8**	25.0	**11.2**	
1,1-Dichloroethene	"	20.0	ND	21.0	"	70.0-135	**105**	25.0	**15.0**	
Toluene	"	20.0	8.92	27.3	"	80.0-125	**91.9**	25.0	**2.68**	
Trichloroethene	"	20.0	1.05	19.3	"	70.0-130	**91.2**	25.0	**16.9**	
Surrogate: 4-BFB	"	*20.0*		*21.5*	"	*75.0-135*	*108*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*22.6*	"	*70.0-135*	*113*			
Surrogate: Dibromofluoromethane	"	*20.0*		*19.8*	"	*80.0-125*	*99.0*			
Surrogate: Toluene-d8	"	*20.0*		*20.8*	"	*80.0-120*	*104*			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled:	10/27/99 to 10/28/99
111 SW Columbia, Suite 900	Project Number:	Multiple Project Numbers	Received:	10/27/99 to 10/28/99
Portland, OR 97201	Project Manager:	Karen Schadler	Reported:	11/24/99 14:52

Notes and Definitions

#	Note
1	The reporting limit for this analyte was raised due to matrix interference.
2	Surrogate recovery is out of control limits. QA criteria are met when one surrogate is within control limits.
3	Reporting limits raised due to dilution necessary for analysis. Sample contains high levels of reported analyte, non-target analyte, and/or matrix interference.
4	Surrogate recovery is above control limits. Since no analytes were detected in the sample, the quality of the data has not been affected.
5	The reporting limit for this analyte was raised to compensate for the limited sample quantity available for the analysis.
6	Analyses are not controlled on RPD values from sample concentrations less than 5 times the reporting limit.
7	The spike recovery for this QC sample is outside of established control limits due to sample matrix interference.
8	25% RSD for this analyte, r = 0.999
9	Sample results, including MRL values, should be considered estimates due to Method Blank surrogate recovery below control limits.
10	Surrogate recovery below established control limits. Sample data integrity indeterminate.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

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North Creek Analytical- Bothell Case Narrative:
Chlorinated Herbicides in Waters by EPA Method 8151A

Client: North Creek Analytical - Portland
Project ID: Deborah Griffiths
Project No.: Multiple Project Numbers
Laboratory ID: B9J0162_165_186_187_193_198_206_219_220_221_260_276_314_320_321_322_348_349_352_373_374

Summary

A total of thirty water samples were analyzed for Chlorinated Herbicides by EPA Method 8151A.

Sample Receiving

The water samples were subcontracted by NCA-Portland and received at NCA-Bothell on October 20, 21, 22, 26, 27, 28, 29, and 30. The samples' receiving temperatures were 7.1, 8.9, 4.3, 12.3, 2.3, 6.2, 5.8, 5.1, 3.2, 4.5, and 9.5°C. The appropriate temperature range is 4 ± 2°C.

The client requested that MS/MSD be performed on sample P910342-01-01 (B9J0162-01).

The client also requested that the samples from 10/18 to 10/22 be batched together.

Sample Preparation

The samples were prepared for EPA 8151A analysis by EPA Methods 1658 and 8151A. The surrogate 2,4-DCAA was added to all samples and associated batch QC during sample preparation. All the samples were extracted within the recommended hold-time of seven days.

The work orders were prepared in the following analytical batches:

Batch 9J24007 (EPA 8151A Extraction):
B9J0162, B9J0165, B9J0186, B9J0187, B9J0193, B9J0198, B9J0206, B9J0219, B9J0220, B9J0221
Per client request, these samples (samples from 10/18 to 10/22) were batched together.

Batch 9J29023 (EPA 1658 Extraction):
B9J0260, B9J0276, B9J0314, B9J0320, B9J0321, B9J0322

Batch 9K02006 (EPA 1658 Extraction):
B9J0348, B9J0349, B9J0352, B9J0373, B9J0374

Initial Calibration

The Electron Capture Detectors were initially calibrated for herbicides [instruments ECD1, ECD2, and ECD3] and bromoxynil [ECD1] using a minimum five-point calibration curve. All compounds met the minimum criteria of <20% RSD or a correlation coefficient of >0.99.

A mid-point second source validation standard was not analyzed immediately following the initial calibration.

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Continuing Calibration

A mid-point calibration standard was analyzed to verify the initial calibration. Continuing Calibration Verifications (CCV) were analyzed at the beginning and ending of each analytical sequence.

Quality Assurance

Surrogates:
The surrogate 2,4-DCAA was added to all samples and associated batch QC during sample preparation. The surrogate recoveries were within the accepted recovery limits of 24.0 – 135% or qualified.

Surrogate recoveries could not be determined on samples B0J0162-01, B0J0162-02, B0J0165-01, B0J0165-02, 9J24007-MS1, and 9J24007-MSD1 due to sample dilutions.

Method Blank 9K02006-BLK1 had a low surrogate recovery of 6.01%. Due to limited sample volumes, the samples in analytical batch 9K02006 could not be re-extracted and re-analyzed. The low surrogate recovery in the method blank was qualified and reported.

Method Blanks:
The Method Blanks [9J24007-BLK1, 9J29023-BLK1, and 9K02006-BLK1] were non-detect for all target compounds.

Laboratory Control Spike:
The Laboratory Control Spike target analyte recoveries for 9J24007-BS2, 9J24007-BSD2, 9J29023-BS1, 9J29023-BSD1, 9J29023-BS2, 9J29023-BSD2, 9K02006-BS1, 9K02006-BSD1, 9K02006-BS2, 9K02006-BSD2, were within established control limits and met acceptance criteria.

A Non-Conformance Report was completed for analytical batch 9J24007. It stated that the 2,4-D result in 9J24007-BS1 was higher than the spike level, and that it might be from a sample in the batch. The department manager recommended that the sample be re-shot to check the results. (Please refer to page 692 in the data package for a copy of the Non-Conformance Report).

The spike recoveries were higher than expected for both 9J24007-BS1 and 9J24007-BSD1. Both of these QC samples were re-shot to confirm the results. The high 2,4-D results for both of these QC samples were reported and qualified stating, "The high 2,4-D recovery may be from a sample in the batch."

Matrix Spikes/Matrix Spike Duplicates:
Per client request, a Matrix Spike and a Matrix Spike Duplicate was performed on sample P910342-01-01 (B9J0162-01).

Analyses are not controlled on Matrix Spike RPD and/or percent recoveries when the sample concentration is significantly higher than the spike level.

Some MS/MSD compound recoveries were qualified as being outside of control limits due to dilution required from high analyte concentration and/or matrix interferences.

Matrix Spike and Matrix Spike Duplicate recoveries and RPDs were within established control limits or qualified for all target analytes and met acceptance criteria.

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"I certify that this data package is in compliance with the Contract both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature:"

Prepared by: Alaina Kube, *Q.A. Associate* — Date: 11/22/99

Reviewed by: Steve Kouri, *Q.A. Manager* — Date: 11/23/99

URS Greiner ID	North Creek Analytical –PDX	North Creek Analytical – Bothell
015-GG-01	P910342-01	B9J0162-01
015-GG-02	P910342-02	B9J0162-02
016-GG-01	P910341-01	B9J0165-01
017-GG-01	P910341-02	B9J0165-02
017-GG-04	P910376-01	B9J0186-01
018-GG-01	P910374-01	B9J0187-01
020-GG-01	P910377-01	B9J0193-01
021-GG-01	P910399-01	B9J0198-01
022-GG-01	P910400-02	B9J0206-01
023-GG-01	P910431-01	B9J0219-01
024-GG-01	P910432-01	B9J0220-01
025-GG-01	P910432-02	B9J0220-02
026-GG-01	P910433-01	B9J0221-01
027-GG-01	P910433-02	B9J0221-02
028-GG-01	P910480-01	B9J0260-01
029-GG-01	P910480-02	B9J0260-02
030-GG-01	P910491-01	B9J0276-01
030-GG-02	P910491-02	B9J0276-02
032-GG-01	P910537-01	B9J0314-01
031-GG-01	P910542-01	B9J0320-01
033-GG-01	P910540-01	B9J0321-01
034-GG-01	P910540-02	B9J0321-02
035-GG-01	P910538-01	B9J0322-01
037-GG-01	P910560-01	B9J0348-01
037-GG-02	P910560-02	B9J0348-02
038-GG-01	P910562-01	B9J0349-01
036-GG-04	P910561-01	B9J0352-01
041-GG-01	P910605-01	B9J0373-01
039-GG-01	P910604-01	B9J0374-01
040-GG-01	P910604-02	B9J0374-02

FROM :NORTH CREEK ANALYTICAL TO :8222429 2 1999.11-29 03:03PM #403 P.02/02

North Creek Analytical - Portland	Project:	Multiple Projects	Sampled:	10/18/99 to 10/21/99
9405 SW Nimbus Ave.	Project Number:	Multiple Project Numbers	Received:	10/20/99 to 10/22/99
Beaverton, OR 97008	Project Manager:	Deborah Griffiths	Reported:	11/12/99 11:27

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
P910342-01	B9J0162-01	Water	10/18/99
P910342-02	B9J0162-02	Water	10/18/99
P910341-01	B9J0165-01	Water	10/18/99
P910341-02	B9J0165-02	Water	10/18/99
P910376-01	B9J0186-01	Water	10/19/99
P910374-01	B9J0187-01	Water	10/19/99
P910377-01	B9J0193-01	Water	10/19/99
P910399-01	B9J0198-01	Water	10/20/99
P910400-02	B9J0206-01	Water	10/21/99
P910431-01	B9J0219-01	Water	10/21/99
P910432-01	B9J0220-01	Water	10/21/99
P910432-02	B9J0220-02	Water	10/21/99
P910433-01	B9J0221-01	Water	10/21/99
P910433-02	B9J0221-02	Water	10/21/99

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Amar Gill, Project Manager

0000002

SCOEPA00009463

North Creek Analytical - Portland	Project:	Multiple Projects	Sampled: 10/18/99 to 10/21/99
9405 SW Nimbus Ave.	Project Number:	Multiple Project Numbers	Received: 10/20/99 to 10/22/99
Beaverton, OR 97008	Project Manager:	Deborah Griffiths	Reported: 11/12/99 11:27

Chlorinated Herbicides by EPA Method 8151A
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
P910342-01			**B9J0162-01**				Water	
Bromoxynil	9J24007	10/24/99	11/5/99	EPA 8151A	201	ND	ug/l	
2,4-D	"	"	11/10/99	EPA 8151A	10000	**37100**	"	
2,4-DB	"	"	11/11/99	EPA 8151A	804	**1600**	"	
2,4,5-T	"	"	11/5/99	EPA 8151A	201	ND	"	
2,4,5-TP (Silvex)	"	"	"	EPA 8151A	201	ND	"	
Dalapon	"	"	"	EPA 8151A	2010	ND	"	
Dicamba	"	"	"	EPA 8151A	201	ND	"	
Dichlorprop	"	"	"	EPA 8151A	201	ND	"	
Dinoseb	"	"	"	EPA 8151A	402	ND	"	
MCPA	"	"	"	EPA 8151A	12100	ND	"	
MCPP	"	"	"	EPA 8151A	10100	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24-135*		*NR*	*%*	*S-01*
P910342-02			**B9J0162-02**				Water	
Bromoxynil	9J24007	10/24/99	11/5/99	EPA 8151A	201	ND	ug/l	
2,4-D	"	"	11/11/99	EPA 8151A	10000	**25300**	"	
2,4-DB	"	"	"	EPA 8151A	804	**983**	"	
2,4,5-T	"	"	11/5/99	EPA 8151A	201	ND	"	
2,4,5-TP (Silvex)	"	"	"	EPA 8151A	201	ND	"	
Dalapon	"	"	"	EPA 8151A	2010	ND	"	
Dicamba	"	"	"	EPA 8151A	201	ND	"	
Dichlorprop	"	"	"	EPA 8151A	201	ND	"	
Dinoseb	"	"	"	EPA 8151A	402	ND	"	
MCPA	"	"	"	EPA 8151A	12100	ND	"	
MCPP	"	"	"	EPA 8151A	10100	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24-135*		*NR*	*%*	*S-01*
P910341-01			**B9J0165-01**				Water	
Bromoxynil	9J24007	10/24/99	11/5/99	EPA 8151A	201	**1950**	ug/l	
2,4-D	"	"	11/10/99	EPA 8151A	10000	**33400**	"	
2,4-DB	"	"	11/5/99	EPA 8151A	804	ND	"	
2,4,5-T	"	"	"	EPA 8151A	201	ND	"	
2,4,5-TP (Silvex)	"	"	"	EPA 8151A	201	ND	"	
Dalapon	"	"	"	EPA 8151A	2010	ND	"	
Dicamba	"	"	"	EPA 8151A	201	ND	"	
Dichlorprop	"	"	"	EPA 8151A	201	ND	"	
Dinoseb	"	"	"	EPA 8151A	402	ND	"	
MCPA	"	"	"	EPA 8151A	12100	ND	"	

North Creek Analytical - Bothell

**Refer to end of report for text of notes and definitions.*

Amar Gill, Project Manager

0000003

SCOEPA00009464

North Creek Analytical - Portland	Project:	Multiple Projects	Sampled: 10/18/99 to 10/21/99
9405 SW Nimbus Ave.	Project Number:	Multiple Project Numbers	Received: 10/20/99 to 10/22/99
Beaverton, OR 97008	Project Manager:	Deborah Griffiths	Reported: 11/12/99 11:27

Chlorinated Herbicides by EPA Method 8151A
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
P910341-01 (continued)			**B9J0165-01**				Water	
MCPP	9J24007	10/24/99	11/5/99	EPA 8151A	10100	ND	ug/l	
Surrogate: 2,4-DCAA	"	"	"	*24-135*		*NR*	*%*	*S-01*
P910341-02			**B9J0165-02**				Water	
Bromoxynil	9J24007	10/24/99	11/5/99	EPA 8151A	201	**305**	ug/l	
2,4-D	"	"	11/10/99	EPA 8151A	1000	**5880**	"	
2,4-DB	"	"	11/5/99	EPA 8151A	804	ND	"	
2,4,5-T	"	"	"	EPA 8151A	201	ND	"	
2,4,5-TP (Silvex)	"	"	"	EPA 8151A	201	ND	"	
Dalapon	"	"	"	EPA 8151A	2010	ND	"	
Dicamba	"	"	"	EPA 8151A	201	ND	"	
Dichlorprop	"	"	"	EPA 8151A	201	ND	"	
Dinoseb	"	"	"	EPA 8151A	402	ND	"	
MCPA	"	"	"	EPA 8151A	12100	ND	"	
MCPP	"	"	"	EPA 8151A	10100	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24-135*		*NR*	*%*	*S-01*
P910376-01			**B9J0186-01**				Water	
Bromoxynil	9J24007	10/24/99	11/5/99	EPA 8151A	1.00	ND	ug/l	
2,4-D	"	"	"	EPA 8151A	1.00	ND	"	
2,4-DB	"	"	"	EPA 8151A	4.00	ND	"	
2,4,5-T	"	"	"	EPA 8151A	1.00	ND	"	
2,4,5-TP (Silvex)	"	"	"	EPA 8151A	1.00	ND	"	
Dalapon	"	"	"	EPA 8151A	10.0	ND	"	
Dicamba	"	"	"	EPA 8151A	1.00	ND	"	
Dichlorprop	"	"	"	EPA 8151A	1.00	ND	"	
Dinoseb	"	"	"	EPA 8151A	2.00	ND	"	
MCPA	"	"	"	EPA 8151A	60.0	ND	"	
MCPP	"	"	"	EPA 8151A	50.0	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24-135*		*79.5*	*%*	
P910374-01			**B9J0187-01**				Water	
Bromoxynil	9J24007	10/24/99	11/5/99	EPA 8151A	1.00	ND	ug/l	
2,4-D	"	"	11/10/99	EPA 8151A	11.0	**46.9**	"	
2,4-DB	"	"	11/5/99	EPA 8151A	4.00	ND	"	
2,4,5-T	"	"	"	EPA 8151A	1.00	ND	"	
2,4,5-TP (Silvex)	"	"	"	EPA 8151A	1.00	ND	"	
Dalapon	"	"	"	EPA 8151A	10.0	ND	"	

North Creek Analytical - Bothell

**Refer to end of report for text of notes and definitions.*

Amar Gill, Project Manager

0000004

SCOEPA00009465

North Creek Analytical - Portland	Project:	Multiple Projects	Sampled: 10/18/99 to 10/21/99
9405 SW Nimbus Ave.	Project Number:	Multiple Project Numbers	Received: 10/20/99 to 10/22/99
Beaverton, OR 97008	Project Manager:	Deborah Griffiths	Reported: 11/12/99 11:27

Chlorinated Herbicides by EPA Method 8151A
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
P910374-01 (continued)			**B9J0187-01**				**Water**	
Dicamba	9J24007	10/24/99	11/5/99	EPA 8151A	1.00	ND	ug/l	
Dichlorprop	"	"	"	EPA 8151A	1.00	ND	"	
Dinoseb	"	"	"	EPA 8151A	2.00	ND	"	
MCPA	"	"	"	EPA 8151A	60.0	ND	"	
MCPP	"	"	"	EPA 8151A	50.0	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24-135*		*52.6*	*%*	
P910377-01			**B9J0193-01**				**Water**	
Bromoxynil	9J24007	10/24/99	11/5/99	EPA 8151A	1.00	ND	ug/l	
2,4-D	"	"	11/10/99	EPA 8151A	5.00	**15.2**	"	
2,4-DB	"	"	11/5/99	EPA 8151A	4.00	ND	"	
2,4,5-T	"	"	11/10/99	EPA 8151A	1.00	ND	"	
2,4,5-TP (Silvex)	"	"	"	EPA 8151A	1.00	**6.11**	"	
Dalapon	"	"	11/5/99	EPA 8151A	10.0	ND	"	
Dicamba	"	"	"	EPA 8151A	1.00	ND	"	
Dichlorprop	"	"	"	EPA 8151A	5.00	ND	"	
Dinoseb	"	"	"	EPA 8151A	2.00	ND	"	
MCPA	"	"	"	EPA 8151A	60.0	ND	"	
MCPP	"	"	"	EPA 8151A	50.0	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24-135*		*59.3*	*%*	
P910399-01			**B9J0198-01**				**Water**	
Bromoxynil	9J24007	10/24/99	11/5/99	EPA 8151A	1.00	ND	ug/l	
2,4-D	"	"	11/10/99	EPA 8151A	1.00	**8.68**	"	
2,4-DB	"	"	11/5/99	EPA 8151A	4.00	ND	"	
2,4,5-T	"	"	"	EPA 8151A	1.00	ND	"	
2,4,5-TP (Silvex)	"	"	"	EPA 8151A	1.00	ND	"	
Dalapon	"	"	"	EPA 8151A	10.0	ND	"	
Dicamba	"	"	"	EPA 8151A	1.00	ND	"	
Dichlorprop	"	"	"	EPA 8151A	1.00	ND	"	
Dinoseb	"	"	"	EPA 8151A	2.00	ND	"	
MCPA	"	"	"	EPA 8151A	60.0	ND	"	
MCPP	"	"	"	EPA 8151A	50.0	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24-135*		*36.4*	*%*	
P910400-02			**B9J0206-01**				**Water**	
Bromoxynil	9J24007	10/24/99	11/5/99	EPA 8151A	1.00	ND	ug/l	
2,4-D	"	"	11/10/99	EPA 8151A	5.00	**13.1**	"	

North Creek Analytical - Bothell

**Refer to end of report for text of notes and definitions.*

Amar Gill, Project Manager

0000005

SCOEPA00009466

Chlorinated Herbicides by EPA Method 8151A
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
P910400-02 (continued)			**B9J0206-01**				**Water**	
2,4-DB	9J24007	10/24/99	11/5/99	EPA 8151A	4.00	ND	ug/l	
2,4,5-T	"	"	"	EPA 8151A	1.00	ND	"	
2,4,5-TP (Silvex)	"	"	"	EPA 8151A	1.00	ND	"	
Dalapon	"	"	"	EPA 8151A	50.0	ND	"	
Dicamba	"	"	"	EPA 8151A	1.00	ND	"	
Dichlorprop	"	"	"	EPA 8151A	1.00	ND	"	
Dinoseb	"	"	"	EPA 8151A	2.00	ND	"	
MCPA	"	"	"	EPA 8151A	60.0	ND	"	
MCPP	"	"	"	EPA 8151A	50.0	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24-135*		*77.7*	*%*	
P910431-01			**B9J0219-01**				**Water**	
Bromoxynil	9J24007	10/24/99	11/5/99	EPA 8151A	1.00	ND	ug/l	
2,4-D	"	"	11/10/99	EPA 8151A	5.00	**22.6**	"	
2,4-DB	"	"	11/5/99	EPA 8151A	4.00	ND	"	
2,4,5-T	"	"	"	EPA 8151A	1.00	ND	"	
2,4,5-TP (Silvex)	"	"	"	EPA 8151A	1.00	ND	"	
Dalapon	"	"	11/6/99	EPA 8151A	50.0	ND	"	
Dicamba	"	"	"	EPA 8151A	5.00	ND	"	
Dichlorprop	"	"	11/5/99	EPA 8151A	1.00	ND	"	
Dinoseb	"	"	"	EPA 8151A	2.00	ND	"	
MCPA	"	"	"	EPA 8151A	60.0	ND	"	
MCPP	"	"	"	EPA 8151A	50.0	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24-135*		*46.6*	*%*	
P910432-01			**B9J0220-01**				**Water**	
Bromoxynil	9J24007	10/24/99	11/5/99	EPA 8151A	1.00	ND	ug/l	
2,4-D	"	"	11/10/99	EPA 8151A	1.00	**2.38**	"	
2,4-DB	"	"	11/5/99	EPA 8151A	4.00	ND	"	
2,4,5-T	"	"	"	EPA 8151A	1.00	ND	"	
2,4,5-TP (Silvex)	"	"	"	EPA 8151A	1.00	ND	"	
Dalapon	"	"	"	EPA 8151A	10.0	ND	"	
Dicamba	"	"	"	EPA 8151A	1.00	ND	"	
Dichlorprop	"	"	"	EPA 8151A	1.00	ND	"	
Dinoseb	"	"	"	EPA 8151A	2.00	ND	"	
MCPA	"	"	"	EPA 8151A	60.0	ND	"	
MCPP	"	"	"	EPA 8151A	50.0	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24-135*		*24.0*	*%*	

North Creek Analytical - Portland	Project:	Multiple Projects	Sampled: 10/18/99 to 10/21/99
9405 SW Nimbus Ave.	Project Number:	Multiple Project Numbers	Received: 10/20/99 to 10/22/99
Beaverton, OR 97008	Project Manager:	Deborah Griffiths	Reported: 11/12/99 11:27

Chlorinated Herbicides by EPA Method 8151A
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
P910432-02			**B9J0220-02**				Water	
Bromoxynil	9J24007	10/24/99	11/5/99	EPA 8151A	1.00	ND	ug/l	
2,4-D	"	"	11/10/99	EPA 8151A	1.00	6.11	"	
2,4-DB	"	"	11/5/99	EPA 8151A	4.00	ND	"	
2,4,5-T	"	"	"	EPA 8151A	1.00	ND	"	
2,4,5-TP (Silvex)	"	"	"	EPA 8151A	1.00	ND	"	
Dalapon	"	"	"	EPA 8151A	10.0	ND	"	
Dicamba	"	"	"	EPA 8151A	1.00	ND	"	
Dichlorprop	"	"	"	EPA 8151A	1.00	ND	"	
Dinoseb	"	"	"	EPA 8151A	2.00	ND	"	
MCPA	"	"	"	EPA 8151A	60.0	ND	"	
MCPP	"	"	"	EPA 8151A	50.0	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24-135*		*74.1*	*%*	
P910433-01			**B9J0221-01**				Water	
Bromoxynil	9J24007	10/24/99	11/5/99	EPA 8151A	1.00	ND	ug/l	
2,4-D	"	"	11/10/99	EPA 8151A	21.0	53.9	"	
2,4-DB	"	"	11/11/99	EPA 8151A	4.00	ND	"	
2,4,5-T	"	"	11/5/99	EPA 8151A	1.00	ND	"	
2,4,5-TP (Silvex)	"	"	"	EPA 8151A	1.00	ND	"	
Dalapon	"	"	"	EPA 8151A	10.0	ND	"	
Dicamba	"	"	"	EPA 8151A	1.00	ND	"	
Dichlorprop	"	"	"	EPA 8151A	1.00	ND	"	
Dinoseb	"	"	"	EPA 8151A	2.00	ND	"	
MCPA	"	"	"	EPA 8151A	60.0	ND	"	
MCPP	"	"	"	EPA 8151A	50.0	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24-135*		*47.6*	*%*	
P910433-02			**B9J0221-02**				Water	
Bromoxynil	9J24007	10/24/99	11/5/99	EPA 8151A	1.00	ND	ug/l	
2,4-D	"	"	"	EPA 8151A	1.00	ND	"	
2,4-DB	"	"	"	EPA 8151A	4.00	ND	"	
2,4,5-T	"	"	"	EPA 8151A	1.00	ND	"	
2,4,5-TP (Silvex)	"	"	"	EPA 8151A	1.00	ND	"	
Dalapon	"	"	"	EPA 8151A	10.0	ND	"	
Dicamba	"	"	"	EPA 8151A	1.00	ND	"	
Dichlorprop	"	"	"	EPA 8151A	1.00	ND	"	
Dinoseb	"	"	"	EPA 8151A	2.00	ND	"	
MCPA	"	"	"	EPA 8151A	60.0	ND	"	

North Creek Analytical - Bothell

**Refer to end of report for text of notes and definitions.*

Amar Gill, Project Manager

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SCOEPA00009468

North Creek Analytical - Portland		Project:	Multiple Projects	Sampled:	10/18/99 to 10/21/99
9405 SW Nimbus Ave.		Project Number:	Multiple Project Numbers	Received:	10/20/99 to 10/22/99
Beaverton, OR 97008		Project Manager:	Deborah Griffiths	Reported:	11/12/99 11:27

Chlorinated Herbicides by EPA Method 8151A
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
P910433-02 (continued)			**B9J0221-02**				**Water**	
MCPP	9J24007	10/24/99	11/5/99	EPA 8151A	50.0	ND	ug/l	
Surrogate: 2,4-DCAA	"	"	"	*24-135*		*55.0*	%	

North Creek Analytical - Portland	Project:	Multiple Projects	Sampled: 10/18/99 to 10/21/99
9405 SW Nimbus Ave.	Project Number:	Multiple Project Numbers	Received: 10/20/99 to 10/22/99
Beaverton, OR 97008	Project Manager:	Deborah Griffiths	Reported: 11/12/99 11:27

Chlorinated Herbicides by EPA Method 8151A/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 9J24007	**Date Prepared: 10/24/99**					**Extraction Method: EPA 8151A**				
Blank	**9J24007-BLK1**									
Bromoxynil	11/5/99			ND	ug/l	1.00				
2,4-D	"			ND	"	1.00				
2,4-DB	"			ND	"	4.00				
2,4,5-T	"			ND	"	1.00				
2,4,5-TP (Silvex)	"			ND	"	1.00				
Dalapon	"			ND	"	10.0				
Dicamba	"			ND	"	1.00				
Dichlorprop	"			ND	"	1.00				
Dinoseb	"			ND	"	2.00				
MCPA	"			ND	"	60.0				
MCPP	"			ND	"	50.0				
Surrogate: 2,4-DCAA	"	*11.1*		*8.35*	"	*24-135*	*75.2*			
LCS	**9J24007-BS1**									
2,4-D	11/5/99	3.33		25.5	ug/l	34-136	NR			A-01
2,4,5-TP (Silvex)	"	3.33		2.88	"	34-123	86.5			
Surrogate: 2,4-DCAA	"	*11.1*		*10.2*	"	*24-135*	*91.9*			
LCS	**9J24007-BS2**									
Bromoxynil	11/5/99	1.11		1.03	ug/l	24-135	92.8			
Surrogate: 2,4-DCAA	"	*11.1*		*8.20*	"	*24-135*	*73.9*			
LCS Dup	**9J24007-BSD1**									
2,4-D	11/5/99	3.33		5.69	ug/l	34-136	171	46	127	A-01a
2,4,5-TP (Silvex)	"	3.33		2.69	"	34-123	80.8	41	6.82	
Surrogate: 2,4-DCAA	"	*11.1*		*10.2*	"	*24-135*	*91.9*			
LCS Dup	**9J24007-BSD2**									
Bromoxynil	11/5/99	1.11		1.28	ug/l	24-135	115	40	21.6	
Surrogate: 2,4-DCAA	"	*11.1*		*8.87*	"	*24-135*	*79.9*			
Matrix Spike	**9J24007-MS1**		**B9J0162-01**							
2,4-D	11/5/99	3.33	37100	18200	ug/l	34-136	NR			Q-03
2,4,5-TP (Silvex)	"	3.33	ND	ND	"	34-123				A-01c
Surrogate: 2,4-DCAA	"	*11.1*		*0*	"	*24-135*				*S-01*

North Creek Analytical - Bothell

**Refer to end of report for text of notes and definitions.*

Amar Gill, Project Manager

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SCOEPA00009470

North Creek Analytical - Portland	Project:	Multiple Projects	Sampled: 10/18/99 to 10/21/99
9405 SW Nimbus Ave.	Project Number:	Multiple Project Numbers	Received: 10/20/99 to 10/22/99
Beaverton, OR 97008	Project Manager:	Deborah Griffiths	Reported: 11/12/99 11:27

Chlorinated Herbicides by EPA Method 8151A/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike Dup	**9J24007-MSD1**		**B9J0162-01**							**S-01**
2,4-D	11/5/99	3.33	37100	15200	ug/l	34-136	NR	46	18.0	Q-03
2,4,5-TP (Silvex)	"	3.33	ND	ND	"	34-123		41		A-01b
Surrogate: 2,4-DCAA	"	*11.1*		*0*	"	*24-135*				

Notes and Definitions

#	Note
A-01	The high 2,4-D recovery may be from a sample in the batch.
A-01a	The high 2,4-D recovery may have come from a sample in the batch.
A-01b	The recovery for this compound is outside control limits due to sample dilution required from high analyte concentration and/or matrix interferences.
A-01c	The recovery for this compound is outside control limits due to the sample dilution required and/or matrix interferences.
Q-03	The percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte already present in the sample.
S-01	The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interferences.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical - Portland	Project:	Deborah Griffiths	Sampled:	10/22/99 to 10/26/99
9405 SW Nimbus Ave.	Project Number:	Multiple Project Numbers	Received:	10/26/99 to 10/28/99
Beaverton, OR 97008	Project Manager:	Deborah Griffiths	Reported:	11/12/99 12:08

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
P910480-01	B9J0260-01	Water	10/22/99
P910480-02	B9J0260-02	Water	10/22/99
P910491-01	B9J0276-01	Water	10/25/99
P910491-02	B9J0276-02	Water	10/25/99
P910537-01	B9J0314-01	Water	10/26/99
P910542-01	B9J0320-01	Water	10/25/99
P910540-01	B9J0321-01	Water	10/25/99
P910540-02	B9J0321-02	Water	10/25/99
P910538-01	B9J0322-01	Water	10/25/99

The results in this report apply to the samples analyzed in accordance with the chain of custody document.
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Amar Gill, Project Manager

SCOEPA00009473

North Creek Analytical - Portland	Project:	Deborah Griffiths	Sampled: 10/22/99 to 10/26/99
9405 SW Nimbus Ave.	Project Number:	Multiple Project Numbers	Received: 10/26/99 to 10/28/99
Beaverton, OR 97008	Project Manager:	Deborah Griffiths	Reported: 11/12/99 12:08

Chlorinated Herbicides by EPA Method 8151A
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
P910480-01			**B9J0260-01**				Water	
Bromoxynil	9J29023	10/29/99	11/6/99	EPA 8151A	1.00	ND	ug/l	
2,4-D	"	"	"	EPA 8151A	1.00	ND	"	
2,4-DB	"	"	"	EPA 8151A	4.00	ND	"	
2,4,5-T	"	"	"	EPA 8151A	1.00	ND	"	
2,4,5-TP (Silvex)	"	"	"	EPA 8151A	1.00	ND	"	
Dalapon	"	"	"	EPA 8151A	10.0	ND	"	
Dicamba	"	"	"	EPA 8151A	1.00	ND	"	
Dichlorprop	"	"	"	EPA 8151A	1.00	ND	"	
Dinoseb	"	"	"	EPA 8151A	2.00	ND	"	
MCPA	"	"	"	EPA 8151A	60.0	ND	"	
MCPP	"	"	"	EPA 8151A	50.0	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24-135*		*79.0*	%	
P910480-02			**B9J0260-02**				Water	
Bromoxynil	9J29023	10/29/99	11/6/99	EPA 8151A	1.00	ND	ug/l	
2,4-D	"	"	"	EPA 8151A	1.00	ND	"	
2,4-DB	"	"	"	EPA 8151A	4.00	ND	"	
2,4,5-T	"	"	"	EPA 8151A	1.00	ND	"	
2,4,5-TP (Silvex)	"	"	"	EPA 8151A	1.00	ND	"	
Dalapon	"	"	"	EPA 8151A	10.0	ND	"	
Dicamba	"	"	"	EPA 8151A	1.00	ND	"	
Dichlorprop	"	"	"	EPA 8151A	1.00	ND	"	
Dinoseb	"	"	"	EPA 8151A	2.00	ND	"	
MCPA	"	"	"	EPA 8151A	60.0	ND	"	
MCPP	"	"	"	EPA 8151A	50.0	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24-135*		*36.8*	%	
P910491-01			**B9J0276-01**				Water	
Bromoxynil	9J29023	10/29/99	11/6/99	EPA 8151A	1.00	ND	ug/l	
2,4-D	"	"	"	EPA 8151A	1.00	ND	"	
2,4-DB	"	"	"	EPA 8151A	4.00	ND	"	
2,4,5-T	"	"	"	EPA 8151A	1.00	ND	"	
2,4,5-TP (Silvex)	"	"	"	EPA 8151A	1.00	ND	"	
Dalapon	"	"	"	EPA 8151A	10.0	ND	"	
Dicamba	"	"	"	EPA 8151A	1.00	ND	"	
Dichlorprop	"	"	"	EPA 8151A	1.00	ND	"	
Dinoseb	"	"	"	EPA 8151A	2.00	ND	"	
MCPA	"	"	"	EPA 8151A	60.0	ND	"	

SCOEPA00009474

North Creek Analytical - Portland	Project:	Deborah Griffiths	Sampled: 10/22/99 to 10/26/99
9405 SW Nimbus Ave.	Project Number:	Multiple Project Numbers	Received: 10/26/99 to 10/28/99
Beaverton, OR 97008	Project Manager:	Deborah Griffiths	Reported: 11/12/99 12:08

Chlorinated Herbicides by EPA Method 8151A
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
P910491-01 (continued)			**B9J0276-01**				**Water**	
MCPP	9J29023	10/29/99	11/6/99	EPA 8151A	50.0	ND	ug/l	
Surrogate: 2,4-DCAA	"	"	"	*24-135*		*75.9*	*%*	
P910491-02			**B9J0276-02**				**Water**	
Bromoxynil	9J29023	10/29/99	11/6/99	EPA 8151A	1.00	ND	ug/l	
2,4-D	"	"	"	EPA 8151A	1.00	ND	"	
2,4-DB	"	"	"	EPA 8151A	4.00	ND	"	
2,4,5-T	"	"	"	EPA 8151A	1.00	ND	"	
2,4,5-TP (Silvex)	"	"	"	EPA 8151A	1.00	ND	"	
Dalapon	"	"	"	EPA 8151A	10.0	ND	"	
Dicamba	"	"	"	EPA 8151A	1.00	ND	"	
Dichlorprop	"	"	"	EPA 8151A	1.00	ND	"	
Dinoseb	"	"	"	EPA 8151A	2.00	ND	"	
MCPA	"	"	"	EPA 8151A	60.0	ND	"	
M[redacted]	"	"	"	EPA 8151A	50.0	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24-135*		*79.1*	*%*	
P910537-01			**B9J0314-01**				**Water**	
Bromoxynil	9J29023	10/29/99	11/6/99	EPA 8151A	1.00	ND	ug/l	
2,4-D	"	"	"	EPA 8151A	1.00	ND	"	
2,4-DB	"	"	"	EPA 8151A	4.00	ND	"	
2,4,5-T	"	"	"	EPA 8151A	1.00	ND	"	
2,4,5-TP (Silvex)	"	"	"	EPA 8151A	1.00	ND	"	
Dalapon	"	"	"	EPA 8151A	10.0	ND	"	
Dicamba	"	"	"	EPA 8151A	1.00	ND	"	
Dichlorprop	"	"	"	EPA 8151A	1.00	ND	"	
Dinoseb	"	"	"	EPA 8151A	2.00	ND	"	
MCPA	"	"	"	EPA 8151A	60.0	ND	"	
MCPP	"	"	"	EPA 8151A	50.0	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24-135*		*86.7*	*%*	
P910542-01			**B9J0320-01**				**Water**	
Bromoxynil	9J29023	10/29/99	11/6/99	EPA 8151A	1.00	ND	ug/l	
2,4-D	"	"	"	EPA 8151A	1.00	ND	"	
2,4-DB	"	"	"	EPA 8151A	4.00	ND	"	
2,4,5-T	"	"	"	EPA 8151A	1.00	ND	"	
2,4,5-TP (Silvex)	"	"	"	EPA 8151A	1.00	ND	"	
Dalapon	"	"	"	EPA 8151A	10.0	ND	"	

North Creek Analytical - Portland	Project:	Deborah Griffiths	Sampled: 10/22/99 to 10/26/99
9405 SW Nimbus Ave.	Project Number:	Multiple Project Numbers	Received: 10/26/99 to 10/28/99
Beaverton, OR 97008	Project Manager:	Deborah Griffiths	Reported: 11/12/99 12:08

Chlorinated Herbicides by EPA Method 8151A
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
P910542-01 (continued)			**B9J0320-01**				Water	
Dicamba	9J29023	10/29/99	11/6/99	EPA 8151A	1.00	ND	ug/l	
Dichlorprop	"	"	"	EPA 8151A	1.00	ND	"	
Dinoseb	"	"	"	EPA 8151A	2.00	ND	"	
MCPA	"	"	"	EPA 8151A	60.0	ND	"	
MCPP	"	"	"	EPA 8151A	50.0	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24-135*		*26.8*	%	
P910540-01			**B9J0321-01**				Water	
Bromoxynil	9J29023	10/29/99	11/6/99	EPA 8151A	1.00	ND	ug/l	
2,4-D	"	"	"	EPA 8151A	1.00	ND	"	
2,4-DB	"	"	"	EPA 8151A	4.00	ND	"	
2,4,5-T	"	"	"	EPA 8151A	1.00	ND	"	
2,4,5-TP (Silvex)	"	"	"	EPA 8151A	1.00	ND	"	
Dalapon	"	"	"	EPA 8151A	10.0	ND	"	
Dicamba	"	"	"	EPA 8151A	1.00	ND	"	
Dichlorprop	"	"	"	EPA 8151A	1.00	ND	"	
Dinoseb	"	"	"	EPA 8151A	2.00	ND	"	
MCPA	"	"	"	EPA 8151A	60.0	ND	"	
MCPP	"	"	"	EPA 8151A	50.0	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24-135*		*92.8*	%	
P910540-02			**B9J0321-02**				Water	
Bromoxynil	9J29023	10/30/99	11/6/99	EPA 8151A	1.00	ND	ug/l	
2,4-D	"	"	"	EPA 8151A	1.00	ND	"	
2,4-DB	"	"	"	EPA 8151A	4.00	ND	"	
2,4,5-T	"	"	"	EPA 8151A	1.00	ND	"	
2,4,5-TP (Silvex)	"	"	11/11/99	EPA 8151A	1.00	**8.98**	"	
Dalapon	"	"	11/6/99	EPA 8151A	10.0	ND	"	
Dicamba	"	"	"	EPA 8151A	1.00	ND	"	
Dichlorprop	"	"	"	EPA 8151A	1.00	**1.43**	"	
Dinoseb	"	"	"	EPA 8151A	2.00	ND	"	
MCPA	"	"	"	EPA 8151A	60.0	ND	"	
MCPP	"	"	"	EPA 8151A	50.0	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24-135*		*99.1*	%	
P910538-01			**B9J0322-01**				Water	
Bromoxynil	9J29023	10/29/99	11/6/99	EPA 8151A	1.00	ND	ug/l	
2,4-D	"	"	"	EPA 8151A	1.00	ND	"	

SCOEPA00009476

North Creek Analytical - Portland	Project:	Deborah Griffiths	Sampled: 10/22/99 to 10/26/99
9405 SW Nimbus Ave.	Project Number:	Multiple Project Numbers	Received: 10/26/99 to 10/28/99
Beaverton, OR 97008	Project Manager:	Deborah Griffiths	Reported: 11/12/99 12:08

Chlorinated Herbicides by EPA Method 8151A
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
P910538-01 (continued)			B9J0322-01				Water	
2,4-DB	9J29023	10/29/99	11/6/99	EPA 8151A	4.00	ND	ug/l	
2,4,5-T	"	"	"	EPA 8151A	1.00	ND	"	
2,4,5-TP (Silvex)	"	"	11/11/99	EPA 8151A	1.00	**5.51**	"	
Dalapon	"	"	11/6/99	EPA 8151A	10.0	ND	"	
Dicamba	"	"	"	EPA 8151A	1.00	ND	"	
Dichlorprop	"	"	"	EPA 8151A	1.00	**1.00**	"	
Dinoseb	"	"	"	EPA 8151A	2.00	ND	"	
MCPA	"	"	"	EPA 8151A	60.0	ND	"	
MCPP	"	"	"	EPA 8151A	50.0	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24-135*		*118*	*%*	

SCOEPA00009477

North Creek Analytical - Portland	Project:	Deborah Griffiths	Sampled: 10/22/99 to 10/26/99
9405 SW Nimbus Ave.	Project Number:	Multiple Project Numbers	Received: 10/26/99 to 10/28/99
Beaverton, OR 97008	Project Manager:	Deborah Griffiths	Reported: 11/12/99 12:08

Chlorinated Herbicides by EPA Method 8151A/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 9J29023	**Date Prepared: 10/29/99**					**Extraction Method: EPA 1658**				
Blank	**9J29023-BLK1**									
Bromoxynil	11/6/99			ND	ug/l	1.00				
2,4-D	"			ND	"	1.00				
2,4-DB	"			ND	"	4.00				
2,4,5-T	"			ND	"	1.00				
2,4,5-TP (Silvex)	"			ND	"	1.00				
Dalapon	"			ND	"	10.0				
Dicamba	"			ND	"	1.00				
Dichlorprop	"			ND	"	1.00				
Dinoseb	"			ND	"	2.00				
MCPA	"			ND	"	60.0				
MCPP	"			ND	"	50.0				
Surrogate: 2,4-DCAA	"	*11.1*		*8.43*	"	*24-135*	*75.9*			
LCS	**9J29023-BS1**									
2,4-D	11/6/99	3.33		3.31	ug/l	34-136	99.4			
2,4,5-TP (Silvex)	"	3.33		2.90	"	34-123	87.1			
Surrogate: 2,4-DCAA	"	*11.1*		*9.99*	"	*24-135*	*90.0*			
LCS	**9J29023-BS2**									
Bromoxynil	11/6/99	1.11		0.956	ug/l	24-135	86.1			
Surrogate: 2,4-DCAA	"	*11.1*		*8.75*	"	*24-135*	*78.8*			
LCS Dup	**9J29023-BSD1**									
2,4-D	11/6/99	3.33		3.34	ug/l	34-136	100	46	0.902	
2,4,5-TP (Silvex)	"	3.33		2.94	"	34-123	88.3	41	1.37	
Surrogate: 2,4-DCAA	"	*11.1*		*10.9*	"	*24-135*	*98.2*			
LCS Dup	**9J29023-BSD2**									
Bromoxynil	11/6/99	1.11		0.972	ug/l	24-135	87.6	40	1.66	
Matrix Spike	**9J29023-MS1**		**B9J0276-01**							
2,4-D	11/6/99	3.33	ND	3.64	ug/l	34-136	109			
2,4,5-TP (Silvex)	"	3.33	ND	2.59	"	34-123	77.8			
Surrogate: 2,4-DCAA	"	*11.1*		*9.36*	"	*24-135*	*84.3*			
Matrix Spike Dup	**9J29023-MSD1**		**B9J0276-01**							
2,4-D	11/6/99	3.33	ND	2.18	ug/l	34-136	65.5	46	50.2	Q-07

SCOEPA00009478

North Creek Analytical - Portland	Project:	Deborah Griffiths	Sampled: 10/22/99 to 10/26/99
9405 SW Nimbus Ave.	Project Number:	Multiple Project Numbers	Received: 10/26/99 to 10/28/99
Beaverton, OR 97008	Project Manager:	Deborah Griffiths	Reported: 11/12/99 12:08

Chlorinated Herbicides by EPA Method 8151A/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike Dup (continued)	**9J29023-MSD1**		**B9J0276-01**							
2,4,5-TP (Silvex)	11/6/99	3.33	ND	2.22	ug/l	34-123	66.7	41	15.4	
Surrogate: 2,4-DCAA	"	*11.1*		*8.73*	"	*24-135*	*78.6*			

Notes and Definitions

#	Note
Q-07	The RPD value for this QC sample is above the established control limit. Review of associated QC indicates the high RPD does not represent an out-of-control condition for the batch.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

SCOEPA00009480

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North Creek Analytical - Portland	Project: Deborah Griffiths	
9405 SW Nimbus Ave.	Project Number: P910560	Reported:
Beaverton OR, 97008	Project Manager: Deborah Griffiths	11/22/99 14:59

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
P910560-01	B9J0348-01	Water	10/27/99 00:00	10/29/99 09:00
P910560-02	B9J0348-02	Water	10/27/99 00:00	10/29/99 09:00
P910562-01	B9J0349-01	Water	10/27/99 00:00	10/29/99 09:00
P910561-01	B9J0352-01	Water	10/27/99 00:00	10/29/99 09:00
P910605-01	B9J0373-01	Water	10/28/99 13:00	10/30/99 10:00
P910604-01	B9J0374-01	Water	10/28/99 09:00	10/30/99 10:00
P910604-02	B9J0374-02	Water	10/28/99 11:50	10/30/99 10:00

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North Creek Analytical - Portland	Project: Deborah Griffiths	
9405 SW Nimbus Ave.	Project Number: P910604	Reported:
Beaverton OR, 97008	Project Manager: Deborah Griffiths	11/22/99 14:59

Chlorinated Herbicides by EPA Method 8151A

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
P910560-01 (B9J0348-01) Water Sampled: 10/27/99 00:00 Received: 10/29/99 09:00									
Bromoxynil	ND	1.00	ug/l	1	9K02006	11/02/99	11/09/99	EPA 8151A	
2,4-D	ND	1.00	"	"	"	"	11/10/99	"	
2,4-DB	**4.54**	4.00	"	"	"	"	"	"	
2,4,5-T	ND	1.00	"	"	"	"	"	"	
2,4,5-TP (Silvex)	**4.37**	1.00	"	"	"	"	"	"	
Dalapon	ND	10.0	"	"	"	"	"	"	
Dicamba	ND	1.00	"	"	"	"	"	"	
Dichlorprop	ND	1.00	"	"	"	"	"	"	
Dinoseb	ND	2.00	"	"	"	"	"	"	
MCPA	ND	60.0	"	"	"	"	"	"	
MCPP	ND	50.0	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*73.5 %*		*24-135*	"	"	"	"	
P910560-02 (B9J0348-02) Water Sampled: 10/27/99 00:00 Received: 10/29/99 09:00									
Bromoxynil	ND	1.00	ug/l	1	9K02006	11/02/99	11/09/99	EPA 8151A	
2,4-D	ND	1.00	"	"	"	"	11/10/99	"	
2,4-DB	ND	4.00	"	"	"	"	"	"	
2,4,5-T	ND	1.00	"	"	"	"	"	"	
2,4,5-TP (Silvex)	**4.88**	1.00	"	"	"	"	"	"	
Dalapon	ND	10.0	"	"	"	"	"	"	
Dicamba	ND	1.00	"	"	"	"	"	"	
Dichlorprop	ND	1.00	"	"	"	"	"	"	
Dinoseb	ND	2.00	"	"	"	"	"	"	
MCPA	ND	60.0	"	"	"	"	"	"	
MCPP	ND	50.0	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*71.8 %*		*24-135*	"	"	"	"	

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Amar Gill, Project Manager

North Creek Analytical, Inc.
Environmental Laboratory Network

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[illegible]05 SW Nimbus Ave.	Project Number: P910604	Reported:
Beaverton OR, 97008	Project Manager: Deborah Griffiths	11/22/99 14:59

Chlorinated Herbicides by EPA Method 8151A

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
P910562-01 (B9J0349-01) Water Sampled: 10/27/99 00:00 Received: 10/29/99 09:00									
Bromoxynil	ND	1.00	ug/l	1	9K02006	11/02/99	11/09/99	EPA 8151A	
2,4-D	ND	1.00	"	"	"	"	11/10/99	"	
2,4-DB	ND	4.00	"	"	"	"	"	"	
2,4,5-T	ND	1.00	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	1.00	"	"	"	"	"	"	
Dalapon	ND	10.0	"	"	"	"	"	"	
Dicamba	ND	1.00	"	"	"	"	"	"	
Dichlorprop	ND	1.00	"	"	"	"	"	"	
Dinoseb	ND	2.00	"	"	"	"	"	"	
MCPA	ND	60.0	"	"	"	"	"	"	
MCPP	ND	50.0	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*54.6 %*	*24-135*		"	"	"	"	
P910561-01 (B9J0352-01) Water Sampled: 10/27/99 00:00 Received: 10/29/99 09:00									
Bromoxynil	ND	1.00	ug/l	1	9K02006	11/02/99	11/09/99	EPA 8151A	
2[illegible]	ND	1.00	"	"	"	"	11/10/99	"	
[illegible]	ND	4.00	"	"	"	"	"	"	
2,4,5-T	ND	1.00	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	1.00	"	"	"	"	"	"	
Dalapon	ND	10.0	"	"	"	"	"	"	
Dicamba	ND	1.00	"	"	"	"	"	"	
Dichlorprop	ND	1.00	"	"	"	"	"	"	
Dinoseb	ND	2.00	"	"	"	"	"	"	
MCPA	ND	60.0	"	"	"	"	"	"	
MCPP	ND	50.0	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*73.9 %*	*24-135*		"	"	"	"	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

[illegible]
Amar Gill, Project Manager

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North Creek Analytical - Portland	Project: Deborah Griffiths	
9405 SW Nimbus Ave.	Project Number: P910604	Reported:
Beaverton OR, 97008	Project Manager: Deborah Griffiths	11/22/99 14:59

Chlorinated Herbicides by EPA Method 8151A

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
P910605-01 (B9J0373-01) Water Sampled: 10/28/99 13:00 Received: 10/30/99 10:00									
Bromoxynil	ND	1.00	ug/l	1	9K02006	11/02/99	11/09/99	EPA 8151A	
2,4-D	ND	1.00	"	"	"	"	11/10/99	"	
2,4-DB	ND	4.00	"	"	"	"	"	"	
2,4,5-T	ND	1.00	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	1.00	"	"	"	"	"	"	
Dalapon	ND	10.0	"	"	"	"	"	"	
Dicamba	ND	1.00	"	"	"	"	"	"	
Dichlorprop	ND	1.00	"	"	"	"	"	"	
Dinoseb	ND	2.00	"	"	"	"	"	"	
MCPA	ND	60.0	"	"	"	"	"	"	
MCPP	ND	50.0	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*21.1 %*	*24-135*		"	"	"	"	*S-03*
P910604-01 (B9J0374-01) Water Sampled: 10/28/99 09:00 Received: 10/30/99 10:00									
Bromoxynil	ND	1.00	ug/l	1	9K02006	11/02/99	11/09/99	EPA 8151A	
2,4-D	ND	1.00	"	"	"	"	11/10/99	"	
2,4-DB	ND	4.00	"	"	"	"	"	"	
2,4,5-T	ND	1.00	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	1.00	"	"	"	"	"	"	
Dalapon	ND	10.0	"	"	"	"	"	"	
Dicamba	ND	1.00	"	"	"	"	"	"	
Dichlorprop	ND	1.00	"	"	"	"	"	"	
Dinoseb	ND	2.00	"	"	"	"	"	"	
MCPA	ND	60.0	"	"	"	"	"	"	
MCPP	ND	50.0	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*41.3 %*	*24-135*		"	"	"	"	

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[redacted] Creek Analytical - Portland	Project: Deborah Griffiths	
[redacted] SW Nimbus Ave.	Project Number: P910604	Reported:
Beaverton OR, 97008	Project Manager: Deborah Griffiths	11/22/99 14:59

Chlorinated Herbicides by EPA Method 8151A

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
P910604-02 (B9J0374-02) Water	**Sampled: 10/28/99 11:50**		**Received: 10/30/99 10:00**						
Bromoxynil	ND	1.00	ug/l	1	9K02006	11/02/99	11/09/99	EPA 8151A	
2,4-D	ND	1.00	"	"	"	"	11/11/99	"	
2,4-DB	ND	4.00	"	"	"	"	"	"	
2,4,5-T	ND	1.00	"	"	"	"	"	"	
2,4,5-TP (Silvex)	ND	1.00	"	"	"	"	"	"	
Dalapon	ND	10.0	"	"	"	"	"	"	
Dicamba	ND	1.00	"	"	"	"	"	"	
Dichlorprop	ND	1.00	"	"	"	"	"	"	
Dinoseb	ND	2.00	"	"	"	"	"	"	
MCPA	ND	60.0	"	"	"	"	"	"	
MCPP	ND	50.0	"	"	"	"	"	"	
Surrogate: 2,4-DCAA		*47.2 %*		*24-135*	"	"	"	"	

[redacted]

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North Creek Analytical - Portland	Project: Deborah Griffiths	
9405 SW Nimbus Ave.	Project Number: P910604	Reported:
Beaverton OR, 97008	Project Manager: Deborah Griffiths	11/22/99 14:59

Chlorinated Herbicides by EPA Method 8151A - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 9K02006: Prepared 11/02/99 Using EPA 1658										
Blank (9K02006-BLK1)										
Bromoxynil	0		ug/l				24-135			
2,4-D	ND	1.00	"							
2,4-DB	ND	4.00	"							
2,4,5-T	ND	1.00	"							
2,4,5-TP (Silvex)	ND	1.00	"							
Dalapon	ND	10.0	"							
Dicamba	ND	1.00	"							
Dichlorprop	ND	1.00	"							
Dinoseb	ND	2.00	"							
MCPA	ND	60.0	"							
MCPP	ND	50.0	"							
Surrogate: 2,4-DCAA	*0.667*		"	*11.1*		*6.01*	*24-135*			*S-03*
LCS (9K02006-BS1)										
2,4-D	2.64	1.00	ug/l	3.33		79.3	34-136			
2,4,5-TP (Silvex)	2.26	1.00	"	3.33		67.9	34-123			
Surrogate: 2,4-DCAA	*8.33*		"	*11.1*		*75.0*	*24-135*			
LCS (9K02006-BS2)										
Bromoxynil	0.839		ug/l	1.11		75.6	24-135			
Surrogate: 2,4-DCAA	*7.67*		"	*11.1*		*69.1*	*24-135*			
LCS Dup (9K02006-BSD1)										
2,4-D	2.77	1.00	ug/l	3.33		83.2	34-136	4.81	46	
2,4,5-TP (Silvex)	2.31	1.00	"	3.33		69.4	34-123	2.19	41	
Surrogate: 2,4-DCAA	*8.31*		"	*11.1*		*74.9*	*24-135*			
LCS Dup (9K02006-BSD2)										
Bromoxynil	0.289		ug/l	1.11		26.0	24-135	97.5	40	Q-07
Surrogate: 2,4-DCAA	*0*		"	*11.1*			*24-135*			*S-03*

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Amar Gill, Project Manager

North Creek Analytical, Inc.
Environmental Laboratory Network

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Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

[redacted] Creek Analytical - Portland	Project: Deborah Griffiths	
[redacted]05 SW Nimbus Ave.	Project Number: P910604	Reported:
Beaverton OR, 97008	Project Manager: Deborah Griffiths	11/22/99 14:59

Chlorinated Herbicides by EPA Method 8151A - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 9K02006: Prepared 11/02/99 Using EPA 1658										
Matrix Spike (9K02006-MS1)					**Source: B9J0348-01**					
2,4-D	ND	1.00	ug/l	3.33	ND		34-136			Q-02
2,4,5-TP (Silvex)	5.75	1.00	"	3.33	4.37	41.4	34-123			Q-02
Surrogate: 2,4-DCAA	*7.59*		"	*11.1*		*68.4*	*24-135*			
Matrix Spike Dup (9K02006-MSD1)					**Source: B9J0348-01**					
2,4-D	ND	1.00	ug/l	3.33	ND		34-136		46	Q-02
2,4,5-TP (Silvex)	5.84	1.00	"	3.33	4.37	44.1	34-123	1.55	41	Q-02
Surrogate: 2,4-DCAA	*7.46*		"	*11.1*		*67.2*	*24-135*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Amar Gill, Project Manager

North Creek Analytical, Inc.
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North Creek Analytical - Portland	Project: Deborah Griffiths	
9405 SW Nimbus Ave.	Project Number: P910604	Reported:
Beaverton OR, 97008	Project Manager: Deborah Griffiths	11/22/99 14:59

Notes and Definitions

Q-02	The spike recovery for this QC sample is outside of NCA established control limits due to sample matrix interference.
Q-07	The RPD value for this QC sample is above the established control limit. Review of associated QC indicates the high RPD does not represent an out-of-control condition for the batch.
S-03	The surrogate recovery for this sample is outside of established control limits. Review of associated QC indicates the recovery for this surrogate does not represent an out-of-control condition.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Amar Gill, Project Manager

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Environmental Laboratory Network

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North Creek Analytical- Bothell Case Narrative: Chlorinated Herbicides in Waters by EPA Method 8151A

Client: North Creek Analytical - Portland
Project ID: Deborah Griffiths
Project No.: P910486
Laboratory ID: B9K0306-01

Summary

One water sample was analyzed for Chlorinated Herbicides by EPA Method 8151A. The sample was received outside of the recommended hold time.

Sample Receiving

The water sample was collected on 10-25-99, subcontracted and released by NCA-Portland on 11-15-99, and received by NCA-Bothell on 11-16-99. The sample was received at NCA-Bothell outside of the recommended hold-time of seven days.

The sample was received at a temperature of 8.1°C. The appropriate temperature range is 4 ± 2°C.

Sample Preparation

The sample was prepared by EPA Method 1658 in analytical batch 9K17013 on 11-17-99. The surrogate 2,4-DCAA was added to the sample and associated batch QC during sample preparation.

As a result of the sample holding time not being met at the time of receipt at NCA-Bothell, the sample was unable to be extracted within the recommended hold-time of seven days.

Initial Calibration

The Electron Capture Detector (ECD2) was initially calibrated for herbicides using a minimum five-point calibration curve. All compounds met the minimum criteria of <20% RSD or a correlation coefficient of >0.99.

A mid-point second source validation standard was not analyzed immediately following the initial calibration.

The instrument was not calibrated for Bromoxynil.

Continuing Calibration

A mid-point calibration standard was analyzed to verify the initial calibration. Continuing Calibration Verifications (CCV) were analyzed at the beginning and ending of each analytical sequence.

Analysis

The samples were analyzed in accordance with EPA Method 8151A.

The water sample was not logged-in with specific instructions indicating that it needed to be analyzed for Bromoxynil. As a result, the analytical batch did not contain Bromoxynil-spiked QC, the instrument (ECD2) was not initially calibrated for Bromoxynil, and the sample was not initially analyzed for Bromxynil.

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541.383.9310 fax 541.382.7588

It was not communicated to the analyst that the sample needed to be analyzed for Bromoxynil until during the analytical sequence, after the sample had already been analyzed. It was decided that a single Bromoxynil calibration standard be analyzed at the end of the analytical sequence. The Bromoxynil chromatogram was then overlayed on the herbicide standard as well as the sample chromatogram for a visual interpretation of Bromoxynil presence in the sample. The sample was reported as being non-detect for Bromoxynil.

Quality Assurance

Surrogates:
The surrogate 2,4-DCAA was added to the sample and associated batch QC during sample preparation. The surrogate recoveries were within the accepted recovery limits of 24.0 – 135%.

Method Blank:
The Method Blank, 9K17013-BLK1 was non-detect for all target compounds.

Laboratory Control Spikes:
The Laboratory Control Spike target analyte recoveries for 9K17013-BS1 and 9K17013-BSD1 were within established control limits and met acceptance criteria.

The RPD for 9K17013-BSD1 was outside of the RPD limit and qualified.

Matrix Spike/Matrix Spike Duplicate:
A Matrix Spike and a Matrix Spike Duplicate were not prepared nor performed with this analytical batch.

"I certify that this data package is in compliance with the Contract both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature:"

Alaina Kube 11/23/99
Prepared by: Alaina Kube, *Q.A. Associate* Date

Steve Kouri 11.24.99
Reviewed by: Steve Kouri, *Q.A. Manager* Date

SCOEPA00009490

North Creek Analytical - Portland	Project: Deborah Griffiths	
9405 SW Nimbus Ave.	Project Number: P910486	**Reported:**
Beaverton OR, 97008	Project Manager: Deborah Griffiths	11/23/99 15:36

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
P910486-01	B9K0306-01	Water	10/25/99 00:00	11/16/99 09:50

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Amar Gill, Project Manager

SCOEPA00009491

North Creek Analytical - Portland	Project: Deborah Griffiths	
9405 SW Nimbus Ave.	Project Number: P910486	**Reported:**
Beaverton OR, 97008	Project Manager: Deborah Griffiths	11/23/99 15:36

Chlorinated Herbicides by EPA Method 8151A

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
P910486-01 (B9K0306-01) Water Sampled: 10/25/99 00:00 Received: 11/16/99 09:50									
Bromoxynil	ND	1.00	ug/l	1	9K17013	11/17/99	11/22/99	EPA 8151A	A-01
2,4-D	ND	1.00	"	"	"	"	"	"	A-01
2,4-DB	ND	4.00	"	"	"	"	"	"	A-01
2,4,5-T	ND	1.00	"	"	"	"	"	"	A-01
2,4,5-TP (Silvex)	ND	1.00	"	"	"	"	"	"	A-01
Dalapon	ND	10.0	"	"	"	"	"	"	A-01
Dicamba	ND	1.00	"	"	"	"	"	"	A-01
Dichlorprop	ND	1.00	"	"	"	"	"	"	A-01
Dinoseb	ND	2.00	"	"	"	"	"	"	A-01
MCPA	ND	60.0	"	"	"	"	"	"	A-01
MCPP	ND	50.0	"	"	"	"	"	"	A-01
Surrogate: 2,4-DCAA		*71.4 %*	*24-135*		"	"	"	"	*A-01*

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Amar Gill, Project Manager

SCOEPA00009492

Chlorinated Herbicides by EPA Method 8151A - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 9K17013: Prepared 11/17/99 Using EPA 1658										
Blank (9K17013-BLK1)										
Bromoxynil	ND	1.00	ug/l							
2,4-D	ND	1.00	"							
2,4-DB	ND	4.00	"							
2,4,5-T	ND	1.00	"							
2,4,5-TP (Silvex)	ND	1.00	"							
Dalapon	ND	10.0	"							
Dicamba	ND	1.00	"							
Dichlorprop	ND	1.00	"							
Dinoseb	ND	2.00	"							
MCPA	ND	60.0	"							
MCPP	ND	50.0	"							
Surrogate: 2,4-DCAA	*7.63*		"	*11.1*		*68.7*	*24-135*			
LCS (9K17013-BS1)										
2,4-D	1.23	1.00	ug/l	3.33		36.9	34-136			
2,4,5-TP (Silvex)	1.74	1.00	"	3.33		52.3	34-123			
Surrogate: 2,4-DCAA	*3.51*		"	*11.1*		*31.6*	*24-135*			
LCS Dup (9K17013-BSD1)										
2,4-D	2.59	1.00	ug/l	3.33		77.8	34-136	71.2	46	Q-07
2,4,5-TP (Silvex)	2.88	1.00	"	3.33		86.5	34-123	49.4	41	Q-07
Surrogate: 2,4-DCAA	*7.64*		"	*11.1*		*68.8*	*24-135*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Amar Gill, Project Manager

SCOEPA00009493

FINAL

EARLY RI ACTIVITIES - CPT, GEOPROBE AND WELL INSTALLATION FIELD SAMPLING PLAN

RPAC - Portland Site

July 7, 1999

Submitted to:
Oregon Department of Environmental Quality
811 SW 6th Avenue
Portland, Oregon 97204

Prepared for:
Rhone-Poulenc AG Company
1600 Perimeter Park, Suite 400
Morrisville, North Carolina 27560

Prepared by:
URS Greiner Woodward Clyde
111 S.W. Columbia, Suite 900
Portland, Oregon 97201
(503) 222-7200
92CO804A

SCOEPA00009494

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Offices Worldwide

July 7, 1999
92C0804A/41

Eric Blischke
Environment Policy Analyst
Department of Environmental Quality
811 SW 6th Ave.
Portland, Oregon 97204

Subject: Submittal of Final Early RI Activities –
CPT, Geoprobe and Well Installation
Field Sampling Plan
RPAC, Portland Site

Dear Eric:

On behalf of Rhône-Poulenc AG Company (RPAC), URS Greiner Woodward Clyde (URS) is submitting to DEQ one unbound and four bound copies of the enclosed Final Early RI Activities – CPT, Geoprobe and Well Installation Field Sampling Plan (FSP). This document is one of three FSPs that address the Early RI activities at the RPAC Portland Site required by the DEQ. These three FSPs, combined with the Early RI Activities QAPP and URS' HASP, constitute the Early RI Activities Sampling and Analysis Plan required by DEQ.

The draft version of this document was previously submitted to DEQ on May 27, 1999. The draft FSP has been modified to address DEQ's June 16, 1999 comments letter, as well as discussions in meetings or teleconference between URS and DEQ on June 28, June 29, July 1 and July2, 1999.

DEQ's comments were scanned into this letter, shown in italics and numbered 1 through 19 by URS. The RPAC response to each comment is shown in boldface print following each numbered DEQ comment. These responses are being provided to facilitate DEQ's review and approval of the Final FSP.

1. *The Oregon Department of Environmental Quality (DEQ) has reviewed the CPT, Geoprobe and Well Installation Field Sampling Plan submitted on your behalf by URS Greiner Woodward Clyde. DEQ received this document on May 28, 1999. (**a**) In general, DEQ requests that the above referenced plan be modified to include additional information regarding the decision making process that will go into the selection of groundwater sampling points and monitoring well installations in order to facilitate making these decisions in a timely manner. (**b**) The RI work plan attached to the Consent Order provides the rationale for the selection of monitoring well locations in Section 7 and should be referenced field sampling plan. (**c**) In addition, DEQ objects to the terminology "DEQ's Rl*

SCOEPA00009495

Work Plan." This work plan is part of the Consent Order and should be referred to as such. Specific comments on the field sampling plan are provided below:

Response:

(a) This comment is addressed in subsequent responses.

(b) Agreed, the RI Work Plan has been referenced in several locations.

(c) The use of the phrase "DEQ's RI Work Plan" has been revised to "the RI Work Plan".

2. *Section 1: (a) The introduction should note that the purpose of the field activities is to select appropriate monitoring well locations and depths based on the results of CPT lithologic data, and the analytical results obtained from groundwater grab samples collected with a Geoprobe or similar sampling device. (b) The rationale for the installation of monitoring wells depends on location and should also be discussed in Section 4 the plan. (c) In addition, the FSP should include a discussion of the time frame for sampling activities and include an anticipated schedule. Phasing the proposed sampling activities appropriately will facilitate the overall project schedule. This discussion should include anticipated mobilization times and locations for the CPT, Geoprobe and monitoring well installation equipment.*

Response:

(a) Agreed, DEQ's verbiage has been substituted in Section 1.3, 1st sentence, 2nd paragraph

(b) Agreed, in Section 4.1, the end of 1st paragraph has been expanded to include: "These data will be used to meet the site specific data needs identified previously in Table 1-1". Additionally, a new table (Table 4-1) has been added. Table 4-1 summarizes the possible well locations, the data needs at each location, and the possible factors to be considered for the selection of monitoring well locations and screen intervals to meet those data needs. These factors have also been addressed in text at the end of Section 4.1.

(c) As agreed to in discussions with DEQ, RPAC will provide DEQ an early RI activities sequencing chart in a separate transmittal prior to commencement of CPT field work to address these scheduling and activities phasing issues.

3. *Section 1.2: The primary goal of the investigative activities described in the plan is to complete the site characterization. A supplementary goal is to gather the information necessary to allow the selection of a cost effective remedy for the site.*

Response:

Agreed, the first paragraph in Section 1.2 has been expanded to read "to allow site characterization and the selection of a cost effective remedy for the site."

4. *Table 1-1: It is premature to describe monitoring wells to be installed along the Willamette River as compliance wells. Compliance points will be selected once the site characterization has been completed and remedial action objectives are developed for the site.*

SCOEPA00009496

Response:

Agreed, this change has been incorporated.

5. *Figure 2-1: MW-3 is not included on Figure 2-1 and should be added.*

Response:

Agreed, this change has been incorporated.

6. *Figure 2-2: The location of the stabilized lead blocks and other treatment residuals from the Gould Superfund site should be included in Figure 2-1. This will ensure that the proposed CPT locations in the Lake Area are feasible.*

Response:

Agreed, the approximate location of the blocks has been added to Figure 2-2.

7. *Section 3: (a) The plan should include a discussion of Geoprobe soil boring procedures. (b) Soil samples should be collected for logging purposes during Geoprobe work to confirm or clarify CPT results.*

Response:

(a) Agreed, in addition to the discussion about the confirmatory Geoprobe soil borings that is already provided in Section 2.4, an additional SOP (SOP-4) has been included to discuss the procedure for completing Geoprobe soil boring activities.

(b) As agreed upon in discussions with DEQ, Section 3.1, 3rd paragraph, has been modified to state that soil samples may be collected in select locations to clarify CPT results.

8. *Section 3.1: It should be noted that, with the exception of the Geoprobe installations along the Willamette River, Geoprobe samples will be collected at each CPT location unless conditions prohibit installation. At locations along the Willamette River, the number of Geoprobe sampling locations may be modified based on data collected during the CPT investigation.*

Response:

As agreed upon in discussions with DEQ, Section 3.1, 2nd paragraph, has been modified to address reconnaissance groundwater sampling on all properties.

9. *Section 3.2: The vertical depth of groundwater sampling within the sampling device should be noted and should be consistent for all Geoprobe sampling locations.*

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Response:

Agreed, Section 3.2, 2nd paragraph, has been expanded to state that the recon sample will be collected at the middle of the screen interval, and the depth and sampling rate will be recorded in the field notebook.

10. Section 3.3: Volatile Organic Compound (VOC) analyses should be performed in the field or on a quick turn around basis. This will allow DEQ and RPAC to make timely decisions regarding the location of additional monitoring wells. Contaminants such as 1,2- and 1,4-dichlorobenzene may be used to monitor the vertical and lateral extent of contamination due to the relatively high solubility and previous downgradient detections of these compounds.

Response:

As discussed with DEQ, RPAC has scheduled the Early RI Activities in a manner that eliminates the need for quick turnaround time for any analyses of reconnaissance groundwater for making monitoring well installation decisions. Furthermore, Elf Atochem has agreed to the use of the CPT and Geoprobe field methods described in this FSP.

11. Table 3-1: (a) TPH should be added as an analyte in the Lake Area due to the use of diesel as a carrier solvent for herbicides. (b) In addition, since PCBs are typically analyzed along with chlorinated pesticides (Methods 8081 and 8082), the inclusion of PCBs with chlorinated pesticides should be considered.

Response:

(a) Agreed, this has been incorporated.

(b) As agreed upon in discussions with DEQ, RPAC will run chlorinated pesticides only, without PCB's, for the reconnaissance groundwater samples. Correspondingly, EPA Method 8082 (PCBs) has also been removed from Table 3-2.

12. Section 4.1: (a) This section should include a discussion of the purpose for potential monitoring well locations and the rationale that will be used to select locations. At locations installed for the purpose of delineating the lateral extent of groundwater contamination, monitoring wells may be installed despite the absence of "appreciable detections of potential chemicals of concern related to the Rhone-Poulenc site." At locations installed for the purpose of determining whether a basalt monitoring well is necessary, the lack of RPAC constituents may eliminate that location from consideration for a new monitoring well. (b) Table 7-2 of the RI work plan summarizes groundwater data gaps and additional characterization needs. This table should be included in the FSP and referenced.

Response:

(a) As agreed upon in discussions with DEQ, a list of points to consider when choosing a monitoring well location has been added to Section 4.1, end of the 2nd paragraph.

SCOEPA00009498

(b) As discussed with DEQ, a new table (Table 4-1) has been added to the FSP to provide a summary of data needs and groundwater reconnaissance factors to be considered in the selection of monitoring well locations and screen intervals.

13. Section 4.2.1 : (a) Based on field observations, the collection of soil samples for analytical purposes during monitoring well drilling may be required. For example, if a significant source area is encountered during drilling, it would be prudent to gather data to begin characterization of this source area. (b) In addition, DEQ recommends that the proposed screen interval be logged to ensure proper monitoring well construction.

Response:

(a) Agreed, changes have been incorporated into Section 4.2.1.

(b) Agreed, Section 4.2.1 has been edited to indicate that the stratigraphic interval where the well screen is installed will be sampled via collection of cuttings during monitoring well drilling and the soil or rock unit described.

14. Section 4.2.1: (a) The plan should elaborate on the proposed methodology for drilling into the basalt bedrock. DEQ recommends open hole coring to identify fractures, interflow zones and other features that may produce the water necessary for groundwater monitoring. (b) The 30 foot termination depth appears arbitrary. (c) *The decision to terminate basalt borings should be made only with DEQ consultation and approval.*

Response:

(a) As agreed upon with DEQ, Section 4.2.1 has been modified to state that decisions on well screen intervals in the basalt will be based on yield data collected during drilling, as well as logging chips and cuttings. This method will allow adequate determination of screen intervals, and produce a functional well in a basalt boring. Additionally, attempts will be made to sample the cemented gravel unit using a California Modified split spoon, if necessary, during drilling. Section 4.2.1 has also been modified to state that a minimum 5-foot well screen will be set at least 10 feet into the basalt to ensure isolation from the overlying alluvium.

(b) Agreed, this has been removed.

(c) Agreed, decisions regarding final screen intervals or termination of basalt borehole drilling will be made with DEQ consultation and approval.

15. Section 4.2.2: (a) The plan should discuss the factors that will be considered when selecting the screen length, slot size filter pack material during final well construction. Although 10 foot screen lengths, 0.010-inch slot sizes and filter packs composed of Colorado Silica Sand may be appropriate in many instances, alternate sizes and materials may be required based on field conditions encountered. (b) Decisions regarding final well construction should be made with DEQ consultation.

Response:

(a) Agreed, Section 4.2.2 has been modified to finalize well design based on CPT lithologic data.

(b) Agreed, Section 4.2.2 has been modified to provide for consultation with DEQ.

16. Section 4.2.3: The use of air to develop monitoring wells may result in the release of volatile organic compounds and/or may change groundwater chemistry through the addition of oxygen and should be not be used.

Response:

Agreed, this will be incorporated by stating that the development of the monitoring wells will be conducted by pumping or bailing.

17. Section 6.1: Drums should be labeled on both the sides and the lids.

Response:

Agreed, this will be incorporated.

18. Section 6.3: Additional information regarding management of IDW at off-site properties should be provided. For example, how will the waste be managed based on the results of the hazardous waste determination.

Response:

Section 6.0 of the FSP has been changed to provide more detail regarding waste disposal and handling procedures.

19. SOP 1: Appropriate measures should be taken at off site properties to ensure that contaminant migration across any confining units present does not occur during driving of the CPT apparatus (or Geoprobe). For example, if it appears that a significant silt unit is identified below a more permeable zone and the potential for free product exits, it may be appropriate to terminate the CPT installation at that depth and collect a groundwater grab sample to confirm the absence or presence of free product. This information should be used to assess whether the collection of deeper groundwater samples is warranted.

Response:

As agreed upon with DEQ in discussions on July 1 and July 2, the CPT and Geoprobe reconnaissance groundwater sampling procedures described in this FSP will be used on all properties. The discussion in SOP-1 concerning the grouting from the bottom up during all early activities has been bolstered.

SCOEPA00009500

Please note that some additional miscellaneous revisions have been made to the FSP, such as correction of typographical errors, including on Table 5-1. If you have any questions, please don't hesitate to give one of the undersigned a call at (503) 222-7200.

Sincerely,
URS GREINER WOODWARD CLYDE

Roger Gresh, P.G.
Project Manager

FOR
Mike Edwards, P.E.
Project Engineer

Enclosures

cc: R. Ferguson, RPAC (w/enclosures)
J. Benedict, CHBH&L (w/enclosures)
M. Kent, DEQ – NW Region (w/enclosures)

SCOEPA00009501

Oregon
John A. Kitzhaber, M.D., Governor

Department of Environmental Quality
811 SW Sixth Avenue
Portland, OR 97204-1390
(503) 229-5696
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JOB FILE
5292C0804A•00

July 13, 1999

Mr. Robert L. Ferguson
Rhone-Poulenc Ag Company
HS & EA Department
PO Box 12014
Research Triangle Park, NC 27709

RE: Final CPT, GeoProbe and Well Installation Field Sampling Plan – Rhone Poulenc Site

Dear Mr. Ferguson:

The Oregon Department of Environmental Quality (DEQ) has reviewed the final CPT, GeoProbe and Well Installation Field Sampling Plan (FSP) submitted on your behalf by URS Greiner Woodward Clyde (URS). DEQ received this document on July 7, 1999. The July 7, 1999 delivery date was agreed to by DEQ during a meeting with representatives of URS on June 28, 1999.

The changes made to this document adequately address DEQ comments presented in my letter dated June 16, 1999. However, DEQ approval is contingent on acceptance of the following revisions and clarifications:

- Section 1: A sequencing chart will be submitted as indicated on page 2 of the July 7, 1999 cover letter outlining Rhone Poulenc's response to DEQ comments.

- Section 2: A revised figure 2-1 will be submitted clarifying the symbols and labeling for wells W-19 and W-11 (symbols overlap and cannot be read). A revised figure 2-2 will be submitted clarifying the symbols and labeling for wells W-12, W-15, BTB4A/4B, BST5W/AL5 series, and the unlabeled well at bottom center, and depicting the location of the lead blocks in the Lake Area.

- Table 4-1: As described in the final remedial investigation work plan, if Rhone-Poulenc constituents are detected in the lowest portions of the alluvial groundwater zone on the Gould and Esco properties, basalt monitoring wells will be installed at the appropriate location. The goal of this portion of the investigation is to determine whether the basalt groundwater zone has been impacted at these locations.

- Section 6: Based on discussions with Jim Benedict, it is our understanding that all investigation derived waste (IDW) generated at off-site properties will brought back to the

DEQ-1

Rhone Poulenc facility for either storage and hazardous waste characterization (drill cuttings) or discharged to the Rhone Poulenc waste water treatment system (purge water and decontamination fluids). DEQ agrees that this approach is the most protective and secure method for managing IDW generated on off-site properties. Provided the IDW is under the control of Rhone-Poulenc and its contractor at all times during its generation, containerization and transport to the Rhone-Poulenc facility for consolidation and shipment, DEQ will consider Rhone Poulenc to have complied with 40 CFR 260.20(f). Should any spills or releases occur during transport, Rhone Poulenc must comply with 40 CFR 263.30 and 263.31.

As long as Rhone Poulenc is agrees to the above revisions and clarifications, no revision of the final FSP is necessary and the document should be considered approved. It is our understanding that access to the Elf Atochem property has been granted contingent on review of the final FSP. Any modifications necessary to gain access to the Elf Atochem property may be addressed in an addendum to the FSP.

It is our understanding the site work will begin at the Rhone Poulenc site on July 15, 1999. If you have any questions regarding this matter, please feel free to contact me at (503) 229-5648.

Sincerely,

Eric L. Blischke
Project Manager
Waste Management and Cleanup Division

CC: Paul Slyman, DEQ/WMCD
Dave St. Louis, DEQ/NWR
Mavis Kent, DEQ/NWR
Roger Gresh, URS Greiner Woodward Clyde
Jim Benedict, Cable, Huston, Benedict and Haagensen

URS Greiner Woodward Clyde
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Offices Worldwide

July 14, 1999

Eric L. Blischke
Oregon Department of Environmental Quality
811 SW Sixth Avenue
Portland, Oregon 97204-1390

Re: Final CPT, Geoprobe and Well Installation
Field Sampling Plan
RPAC Site, Portland, Oregon

Dear Eric:

On behalf of Rhone-Poulenc AG Company (RPAC), we accept the revisions and clarifications to the Final CPT, Geoprobe and Well Installation FSP stated in your approval letter dated July 13, 1999. Thus, we will consider this FSP approved by DEQ as of July 13, 1999.

RPAC will submit under separate cover to DEQ the following:

- A sequencing chart for the Early RI Activities
- Revised Figures 2-1 and 2-2
- Revised Section 6 covering IDW

With regard to your July 13 letter, there are also several minor, but noteworthy, points of clarification:

- Elf Atochem has not yet executed an access agreement with RPAC.
- In your paragraph about IDW, we assume you meant to reference 40 CFR 262.20(f), rather than 40 CFR 260.20(f).

As we discussed, RPAC will begin push-probe field activities July 15, 1999. Please call if you have any questions.

Sincerely,
URS GREINER WOODWARD CLYDE

Roger Gresh. P.G.
Project Manager

FOR Mike Edwards, P.E.
Project Engineer

Cc: R. Ferguson, RPAC
J. Benedict, CHBH&L

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July 16, 1999
92C0804A/41

Eric Blischke
Oregon Department of Environmental Quality
811 SW Sixth Avenue
Portland, Oregon 97204-1390

Re: Final CPT, Geoprobe and Well Installation
Field Sampling Plan
RPAC Site, Portland, Oregon

Dear Eric:

On behalf of Rhone-Poulenc AG Company, enclosed herein are five copies of the following final revisions to the Final CPT, Geoprobe and Well Installation Field Sampling Plan (CPT FSP):

- Revised Figures 2-1 and 2-2
- Revised Section 6 (IDW)

These revisions are follow up to our letter of July 14 and in accordance with the July 13, 1999 DEQ letter by which approval was granted for the CPT FSP. This completes the submittals, revisions, and approval process for the CPT FSP.

Please call if you have any questions.

Sincerely,
URS GREINER WOODWARD CLYDE

Roger Gresh. P.G.
Project Manager

Mike Edwards, P.E.
Project Engineer

Enclosures: Revised Figures 2-1 and 2-2
Revised Section 6 – Waste Disposal and Handling Procedures

cc: R. Ferguson, RPAC
J. Benedict, CHBH&L
M. Kent, DEQ

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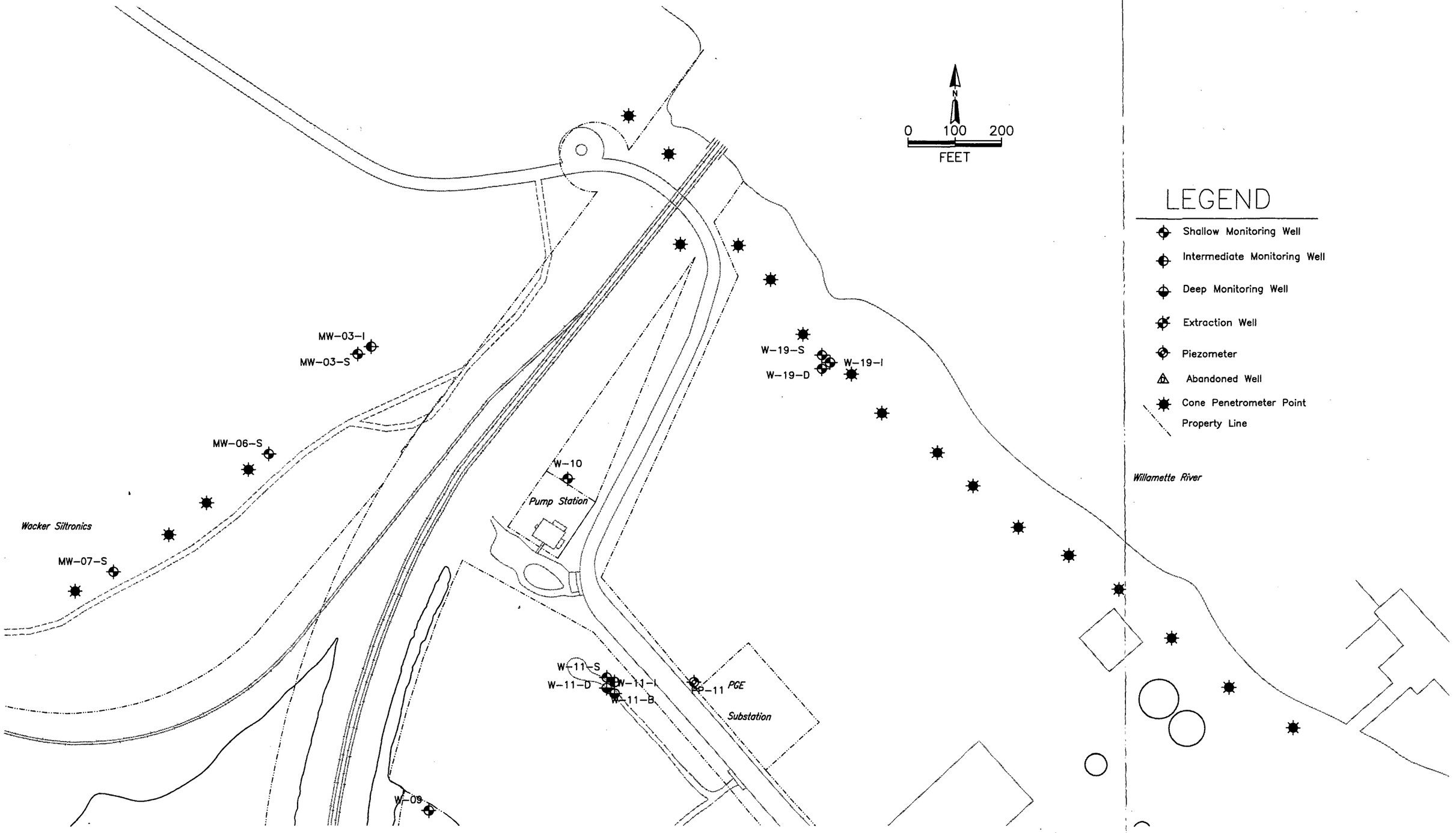

LEGEND

- Shallow Monitoring Well
- Intermediate Monitoring Well
- Deep Monitoring Well
- Extraction Well
- Piezometer
- Abandoned Well
- Cone Penetrometer Point
- Property Line

URS Greiner Woodward Clyde

TITLE:
Proposed Willamette Riverfront Area/Wacker CPT Points
Rhone-Poulenc AG Company
Portland, OR

DWN: jgdp	DES.: jgdp	PROJECT NO.: 5292C0804A
CHKD:	APPD:	FIGURE NO.: 2-1
DATE: 7/14/99	REV.: 6	

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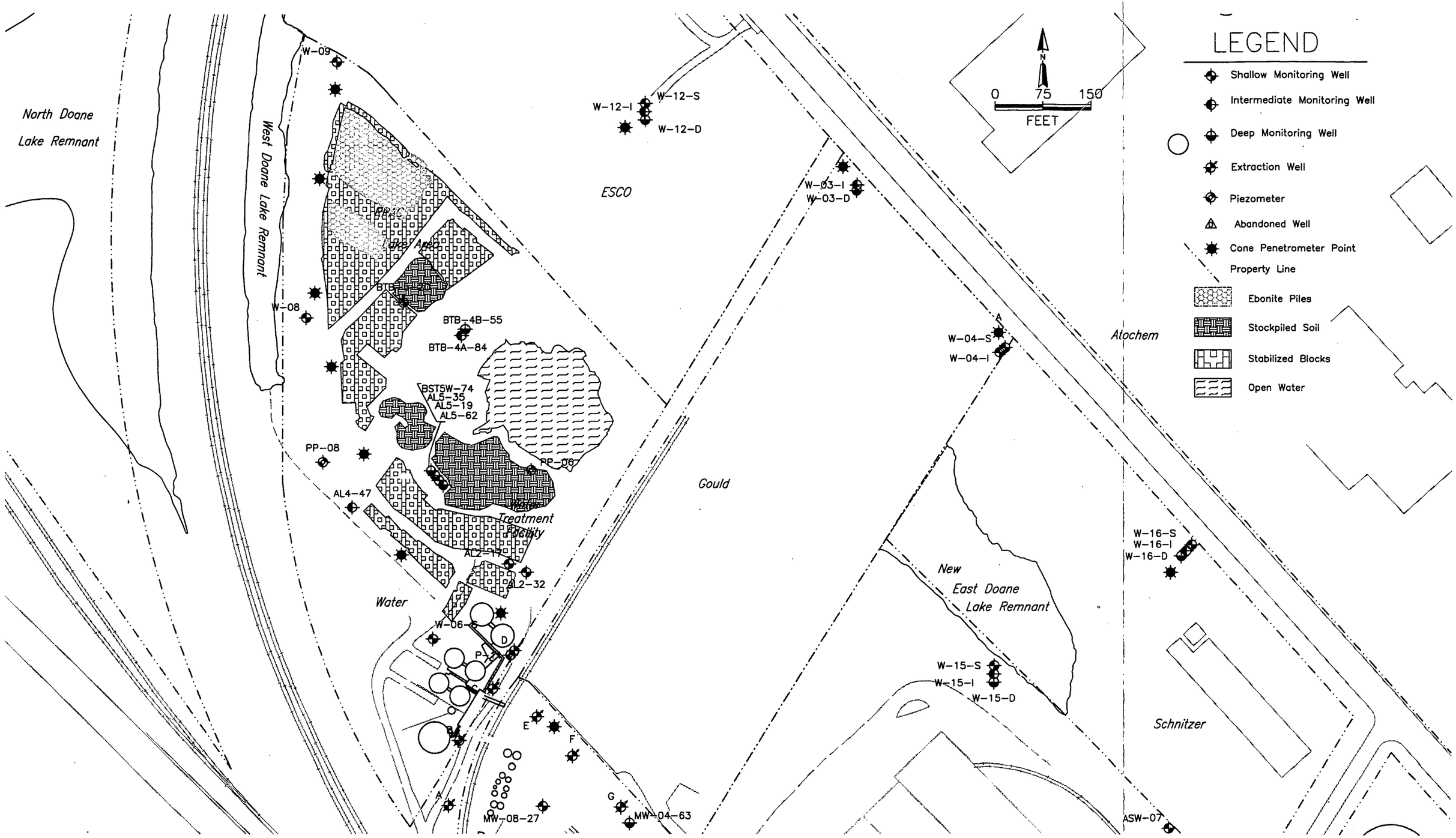

URS Greiner
Woodward Clyde

TITLE:
Proposed Remaining CPT Locations
Rhone-Poulenc AG Company
Portland, OR

DWN:	DES.:	PROJECT NO.:
jgdp	jgdp	5292C0804A
CHKD:	APPD:	FIGURE NO.:
		2-2
DATE:	REV.:	
7/14/99	5	

SCOEPA00009507

All investigative derived wastes (IDW) generated during the investigation will be handled in such a way as to prevent or minimize the potential for the spread of contamination, the creation of a sanitary hazard, or visual degradation of the site through the spread of litter. The IDW will remain under the control of RPAC and its contractor at all times during its generation, containerization and transport to the RPAC facility for consolidation and shipment.

Wastes generated during conduct of the field investigations will include drill cuttings, well development and purge water, decontamination water, personal protective equipment, and miscellaneous solid waste generated from sample collection activities.

6.1 TEMPORARY CONTAINER LABELING

All containers of waste generated during the investigation will be labeled with information appropriate for accurate tracking and identification of the containers and their contents. The labels will be waterproof markings or labels on both the sides and the lids of each 55-gallon drum or container.

Drums will be labeled with paint pens at the point of generation when material is first accumulated with the following information:

RPAC RI/FS IDW
HOLD FOR ANALYSIS
DATE FIRST ACCUMULATED (example: July 30, 1999)
STATION IDENTIFIER (example: MW-4)
TYPE OF WASTE (example: purge water)

After the waste determinations are made, these temporary markings will be removed and each container will be labeled with an appropriate hazardous or non-hazardous waste label. Each container will be assigned a unique identification number and, if required, will be logged onto the 90-Day Investigative Derived Waste Log (Appendix B).

6.2 DRILL CUTTINGS

The solid cuttings generated during drilling will be contained in DOT-approved removable head steel drums. Soil cuttings will be evaluated for visual contamination, and screened in the field using a portable organic vapor-monitoring device. In addition, samples of the cuttings will be collected periodically during drilling activities. Following drilling activities, a composite sample of the material will be submitted to the laboratory for use in waste characterization.

Drill cuttings IDW generated on the Rhone-Poulenc property or at an off-site property will be transported from the generation point to the RPAC storage area as soon as practical following generation. This will typically occur within one week of generation. If waste characterization determines the material is non-hazardous, it will be shipped off-site to a licensed non-hazardous Subtitle D waste facility. If determined to be hazardous material, it will be shipped off-site to a

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Subtitle C RCRA facility, dependent on waste classification, and according to applicable state and federal laws.

6.3 WELL DEVELOPMENT AND PURGE WATER

Water generated during well development and purging will be contained in DOT-approved tight-head steel drums with plugs or in a large capacity tank such as a Baker Tank.

Well development and purge water generated on the Rhone-Poulenc property or at an off-site property will be transported from the generation point to the RPAC storage area. This will typically occur within one week of generation. All development and purge water will be discharged to the RPAC wastewater treatment system. Since both hazardous and non-hazardous waste can be disposed of in the treatment system, no characterization of this material will be performed.

6.4 DECONTAMINATION FLUIDS

All downhole drilling equipment (e.g., drilling rods and bits, temporary casing, etc.) and sampling equipment will be cleaned of foreign matter and decontaminated prior to use and between boreholes and collection of sequential samples.

Downhole drilling equipment will be cleaned with a high-pressure, hot water spray of potable water. Potable water used for equipment decontamination will be obtained from a City of Portland potable source, following the removal of soil particles with a scrub brush.

Sampling equipment (e.g., soil and water samplers, water level meter, etc.) will be decontaminated as follows:

1. Gross potable water rinse.
2. Soap wash (dilute solution of Alconox or equivalent in potable water solution).
3. Potable water rinse.
4. Solvent rinse (methanol or similar) only if phase product is encountered.
5. Distilled\deionized water rinse. Distilled/deionized water will be obtained from a local retail store.

Well casings and screens will also be pressure-washed as above, and rinsed with distilled water prior to installation in the borehole.

If a phased product is encountered, the probe and sounding tape will be wiped with a solvent-soaked towel during retrieval from the borehole, and the equipment will be decontaminated with a solvent rinse.

Water or other fluids generated during decontamination activities will be contained in DOT-approved tight-head steel drums with plugs or in a large capacity tank such as a Baker Tank.

Decontamination fluids generated on the Rhone-Poulenc property or at an off-site property will be transported from the generation point to the RPAC storage area. This will typically occur within one week of generation. All decontamination fluids will be discharged to the RPAC

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wastewater treatment system. Since both hazardous and non-hazardous waste can be disposed of in the treatment system, no characterization of this material will be performed.

6.5 PERSONAL PROTECTIVE EQUIPMENT (PPE)

All disposable health and safety PPE (Tyvek suits, gloves, etc.) will be collected and stored in plastic refuse sacks, and DOT-approved removable head steel drums, pending disposal at an off-site location. Such PPE from off-site properties will be transported to the RPAC storage areas, typically within one week from generation.

6.6 MISCELLANEOUS SOLID WASTES

Uncontaminated wastes that may be generated during field activities include paper, food containers and wrapping, aluminum cans, bottles, plastic bags and other miscellaneous types of debris. This material will contained in plastic refuse sacks for disposal in approved waste receptacles.

6.7 WASTE IDENTIFICATION AND PROFILING

Each separate waste stream requiring characterization as described above must be characterized to determine if it is hazardous (e.g. listed or characteristic). IDW will be characterized to determine if it is hazardous by "lot" of similar media by location to minimize the amount of analytical testing yet ensure that differences in waste characteristics from different locations are identified.

Examples of individual lots to be used in waste identification include:

- Drill cuttings from monitoring wells constructed on a single property.
- PPE regardless of point of generation.

Wherever possible, testing results from analysis of environmental samples conducted as part of the RI program will be used to make waste determinations.

If no analytical soil testing is completed as part of the RI program, such as for borings completed to install new groundwater monitoring wells, composite IDW soil samples (one per lot) will be collected and analyzed to make the necessary waste determination.

To ensure that ample time is available to identify an acceptable disposal facility and arrange for off-site transportation, and that the 90-day on-site storage limit is not exceeded, waste stream profiling will be completed as soon as practical after generation. If the waste stream characterization will be made using total waste analysis, consideration will be given to ensure that analytical results will be available to make the waste determination and arrangements for off-site disposal within 90 days of generation. In some cases, supplemental analysis may need to be completed to ensure the storage limitation time is not exceeded.

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6.8 WASTE TRANSPORATION AND DISPOSAL

Any IDW that is to be disposed of at an off-site disposal or treatment facility (i.e., TSD) will be transported from the RPAC storage area to the TSD by a licensed hazardous waste transporter.

Prior to shipment, each container will be labeled with a hazardous waste label and all other markings will be removed to minimize confusion (for example, HOLD FOR ANALYSIS, and other markings made at the time of generation as outlined in Section 6.1).

For shipments of hazardous waste to a TSD facility, hazardous waste manifests, any required notifications and certifications under the Land Disposal Restrictions, and other necessary shipping papers will be prepared. In addition to a hazardous waste manifest, each shipment must be accompanied by one of the following:

- A notification that the waste is not prohibited from land disposal and is not subject to the Land Disposal Restrictions (LDR).
- A notification that the appropriate treatment standards do not meet the LDR and the proper LDR standards.
- A notification that the waste meets the applicable treatment standards and can be land disposed without further treatment.

The applicability of LDR must be determined through: (1) knowledge of the waste; (2) total waste analysis; or (3) TCLP testing of the waste. If knowledge of the waste is used to determine that the applicable treatment standard has been met at the point of generation, supporting documentation of this determination will be maintained at the facility.

As the waste is loaded, each shipment will be inventoried to ensure the inventory matches the descriptions and quantities recorded on the manifest, and ensure that the transporter uses appropriate DOT placards for the shipment.

Miscellaneous uncontaminated IDW will be disposed of at an approved RCRA Subtitle D disposal facility.

SCOEPA00009511

FINAL

EARLY RI ACTIVITIES - CPT, GEOPROBE AND WELL INSTALLATION FIELD SAMPLING PLAN

RPAC - Portland Site

July 7, 1999

Submitted to:

Oregon Department of Environmental Quality
811 SW 6th Avenue
Portland, Oregon 97204

Prepared for:

Rhone-Poulenc AG Company
1600 Perimeter Park, Suite 400
Morrisville, North Carolina 27560

Prepared by:

URS Greiner Woodward Clyde

111 S.W. Columbia, Suite 900
Portland, Oregon 97201
(503) 222-7200
92CO804A

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Log of Boring
Monitoring Well Construction Log of Boring

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Well Development Data Sheet
Chain-of-Custody Record
90-Day Investigative Derived Waste Log

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This document is one of three Field Sampling Plans (FSPs) that address the Early Remedial Investigation (RI) activities to be completed in the vicinity of the Rhone-Poulenc AG Company (RPAC) facility. The RPAC property is located at 6200 N.W. St. Helens Road in Portland, Oregon (Figure 1-1). The Early RI activities will be completed as required by the Consent Order (the Order) between the Oregon Department of Environmental Quality (DEQ) and RPAC. As required by DEQ, RPAC prepared this FSP as a stand-alone document.

This FSP describes the push-probe investigation and monitoring well installations to be completed as part of the staged approach discussed with representatives of the DEQ, outlined in the RI Work Plan for the site (E&E, 1999), and required by the Order. These activities include cone penetration testing (CPT), Geoprobe borings, and the collection of reconnaissance groundwater samples to be used in siting the new wells.

The Final FSP addressing Early RI activities related to the well inventory was submitted to DEQ under separate cover on June 10, 1999. The other FSP, which addresses Early RI activities related to the comprehensive groundwater monitoring, will be submitted to DEQ under separate cover. These three FSPs, combined with the Early RI Activities Quality Assurance Plan (QAPP) and URS' Health and Safety Plan (HASP), constitute the Early RI Activities Sampling and Analysis Plan (SAP) required by DEQ for the RPAC site.

1.1 BACKGROUND

The RPAC facility was used for the formulation and/or manufacture of pesticides from 1943 to 1991. Chemicals used at the facility were released to the environment as a result of spills, and leaks from various surface and subsurface sources. RPAC began an investigation of the soil and groundwater during the early 1980s. DEQ provided an analysis of the site's existing data in the RI Work Plan. Based on this analysis, DEQ requested that RPAC collect additional information to further evaluate the site's remedial options. These requirements are described in the RI Work Plan.

The site is underlain by layers consisting of manmade fill, Holocene-age alluvium, a cemented gravel and basalt bedrock. The thickness of the fill ranges from less than a foot to 30 feet in the Lake Area, and is comprised of highly variable materials including sand, silt, gravel, clay, and debris such as metallic slag, wood, wire, and glass. Beneath the fill, the alluvium extends 50 to 80 feet, and generally consists of an upper sandy silt layer and a lower silty sand layer. The cemented gravel layer is only locally present, but may be up to 20 feet thick. The cemented gravel layer is described as dense/vesicular basalt fragments contained in a matrix with green mineralization. Basalt underlies the alluvium, and cemented gravel, where present.

The depth to groundwater at the site typically ranges from about 9 to 20 feet below ground surface (bgs). Areas of perched groundwater have been identified in the fill in one of the former manufacturing areas, the Herbicide Area (EMCON, 1992). Generally, groundwater flow in the alluvial materials is to the north.

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1.2 SCHEDULE

RPAC plans to implement this stage of the Early RI activities in a manner that quickly obtains data that will be used to identify the need for additional monitoring wells which DEQ may require for supplemental groundwater characterization, and for use in longer term groundwater monitoring, as outlined in the Groundwater Monitoring Plan (GWMP) (E&E, 1999). As described further below, the objective of this stage of the Early RI activities is to ensure that additional monitoring wells, if required by DEQ, are properly placed to maximize the evaluation of the subsurface groundwater quality in order to allow site characterization and the selection of a cost-effective remedy for the site.

The Early RI activities will be implemented in stages such that each activity will be dependent on the results of the previous activity. The results of the CPT soil profiling will be used to select the location and number of reconnaissance groundwater samples to be collected using Geoprobe equipment. The results of the reconnaissance groundwater sampling and the monitoring well inventory will be used to select the placement and location of the screen intervals for the installation of the new groundwater monitoring wells. Figure 1-2 summarizes this staged approach for conducting the Early RI activities. To maximize the use of knowledge gained from each stage, RPAC originally proposed to complete each of these stages of the Early RI activities site-wide before proceeding to the next stage. However, in an effort to satisfy the aggressive schedule provided by DEQ in the Order, RPAC will stage these activities generally on a property-by-property basis.

RPAC will make every reasonable effort to complete the Early RI activities in accordance with the schedule presented in Attachment B – Scope of Work (SOW) from the Order. The results of each stage of the Early RI will be discussed with DEQ as the work progresses. The results also will be summarized and presented in a series of technical memoranda to be submitted to DEQ with RPAC's quarterly progress reports.

1.3 SCOPE AND OBJECTIVES

The portions of the Early RI activities covered by this FSP are:

Soil profiling using (CPT) and direct-push methods (Geoprobe)

Reconnaissance groundwater sampling and analysis using direct-push methods

Installation of groundwater monitoring wells

The purpose of this stage of the Early RI activities is to select appropriate monitoring well locations and depths based on the results of CPT lithologic data, and the analytical results obtained from reconnaissance groundwater samples collected with a Geoprobe or similar sampling device. The objective of this phase of work is to ensure that any additional monitoring wells required by DEQ are properly placed to maximize the evaluation of the subsurface groundwater quality and to facilitate selection of a cost-effective remedy for the property.

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This FSP will address the methodologies and objectives for the activities discussed above as they relate to the following RPAC areas and off-site properties:

The RPAC Herbicide Area

The RPAC Lake Area

Elf Atochem Property

Gould Electronics Property

Burlington Northern and Santa Fe Property

Wacker Siltronics Property

ESCO Inc. Property

Metro Property

Schnitzer Investment Property

Figure 1-3 shows the location of the RPAC property and the surrounding properties.

Table 1-1 summarizes the push-probe investigation covered by this FSP for each of the above areas as specified in the RI Work Plan (E&E, 1999).

1.4 FIELD TEAM

The Field Team will consist of a Field Manager and necessary field personnel to implement this FSP. The Field Manager will maintain or delegate responsibility for the logistical requirements of the sampling effort, including but not limited to:

Event scheduling, coordination between URS staff, URS subcontractors, and representatives of off-site property owners.

Delivery and shipping of sample containers and coolers.

Quality assurance checking of sampling technique, documentation and other paperwork completed by sampling crews.

Distribution and proper use of PPE as required by the URS HASP.

Sample management and handling activities occurring at the site.

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TABLE 1-1

Summary of Early RI Push-Probe Investigation
Rhone-Poulenc AG Company
Portland, Oregon

Boring Location	Number of Borings*	Sample Methods	Data Need	Media Sampled
Herbicide Area (Near MW-5)	1	CPT/Recon Groundwater	Vertical extent of DNAPL	GW
RPAC Treatment Facility	1	CPT/Recon Groundwater	Vertical extent of DNAPL	GW
Lake Area (Near W-8/W-9)	6	CPT/Recon Groundwater	Determine groundwater impact and horizontal and vertical extent of NAPLs.	GW
Gould (Near W-3)	1	CPT/Recon Groundwater	Determine groundwater impact in the intermediate & deep alluvium and basalt	GW
Gould (Near W-4)	1	CPT/Recon Groundwater	Determine groundwater impact in the intermediate & deep alluvium and basalt	GW
Esco (Near W-12)	1	CPT/Recon Groundwater	Determine groundwater impact in the deep alluvium and basalt/ define depth of basalt trough in area	GW
Atochem (Along Riverfront)	16	CPT/Recon Groundwater	Determine Willamette River impact from RPAC.	GW
Wacker (Near MW-3-i)	4	CPT/Recon Groundwater	Horizontal extent of impact at site, if lakes impacted downgradient, vertical extent in intermediate & deep alluvium and basalt.	GW
Schnitzer (Near W-16)	1	CPT/Recon Groundwater	Horizontal extent of impact at site, determine if alluvium impacts have impacted basalt, EDL impact since previous round, define depth of basalt trough in area.	GW

CPT: Cone Penetration Test

GW: Groundwater

Recon Groundwater: A reconnaissance groundwater sample collected using direct-push methods.

EDL: East Doane Lake

*Note: These quantities represent maximum number of potential borings; due to the possibility of access difficulties, there may be fewer CPT borings.

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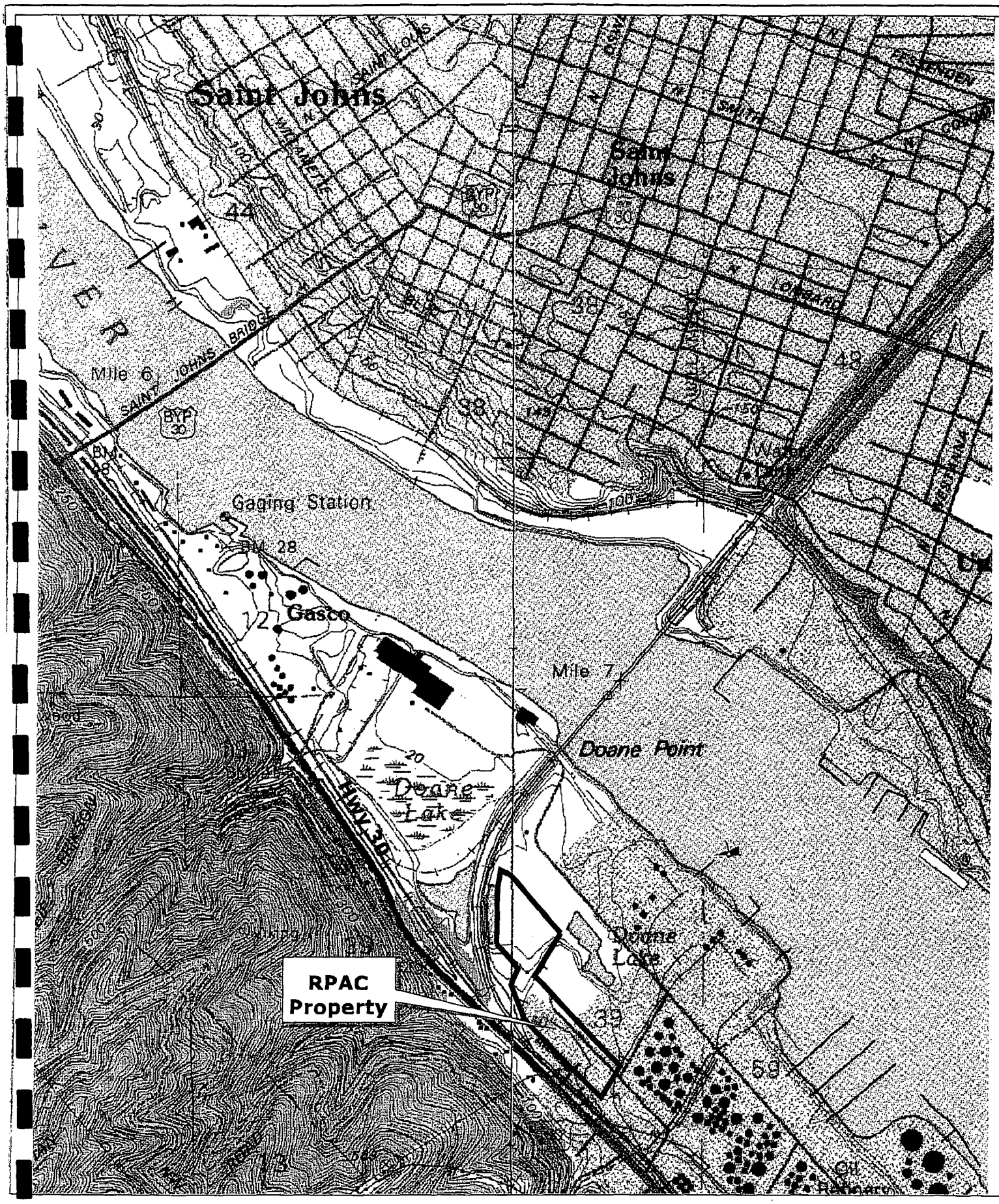

MAP SOURCE: LINNTON AND PORTLAND OREGON USGS 7.5 MIN TOPOGRAPHIC QUADRANGLE - 1990

Figure 1-1
Site Vicinity

S Greiner Woodward Clyde

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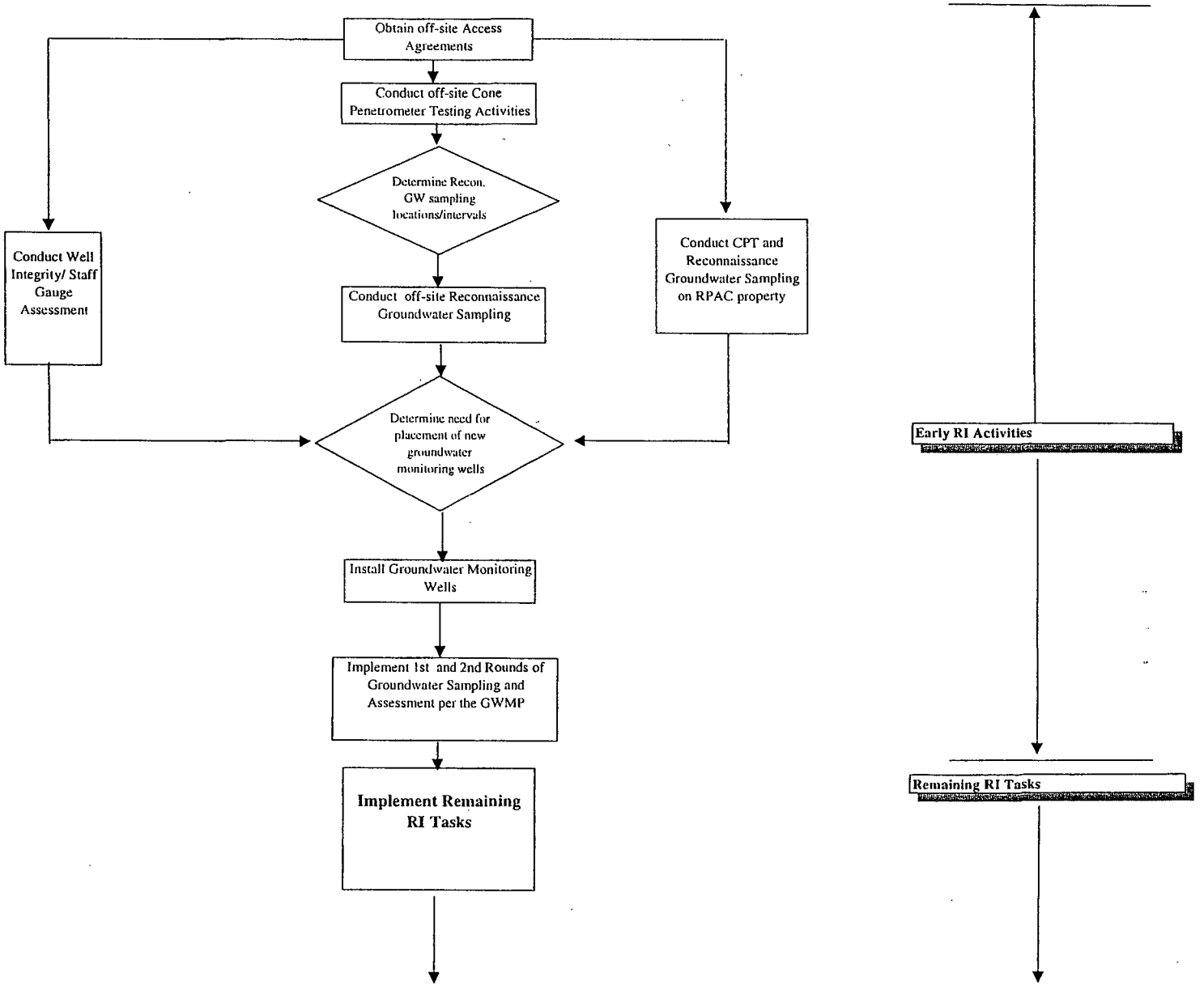
FIGURE 1-2
FLOWCHART FOR EARLY RI ACTIVITIES
Rhone-Poulenc AG Company
Portland, Oregon



S:\PROJECTS\92C0804\TASK11\C3\T_FSP\Tables\[Figures.xls]Figure 1-2

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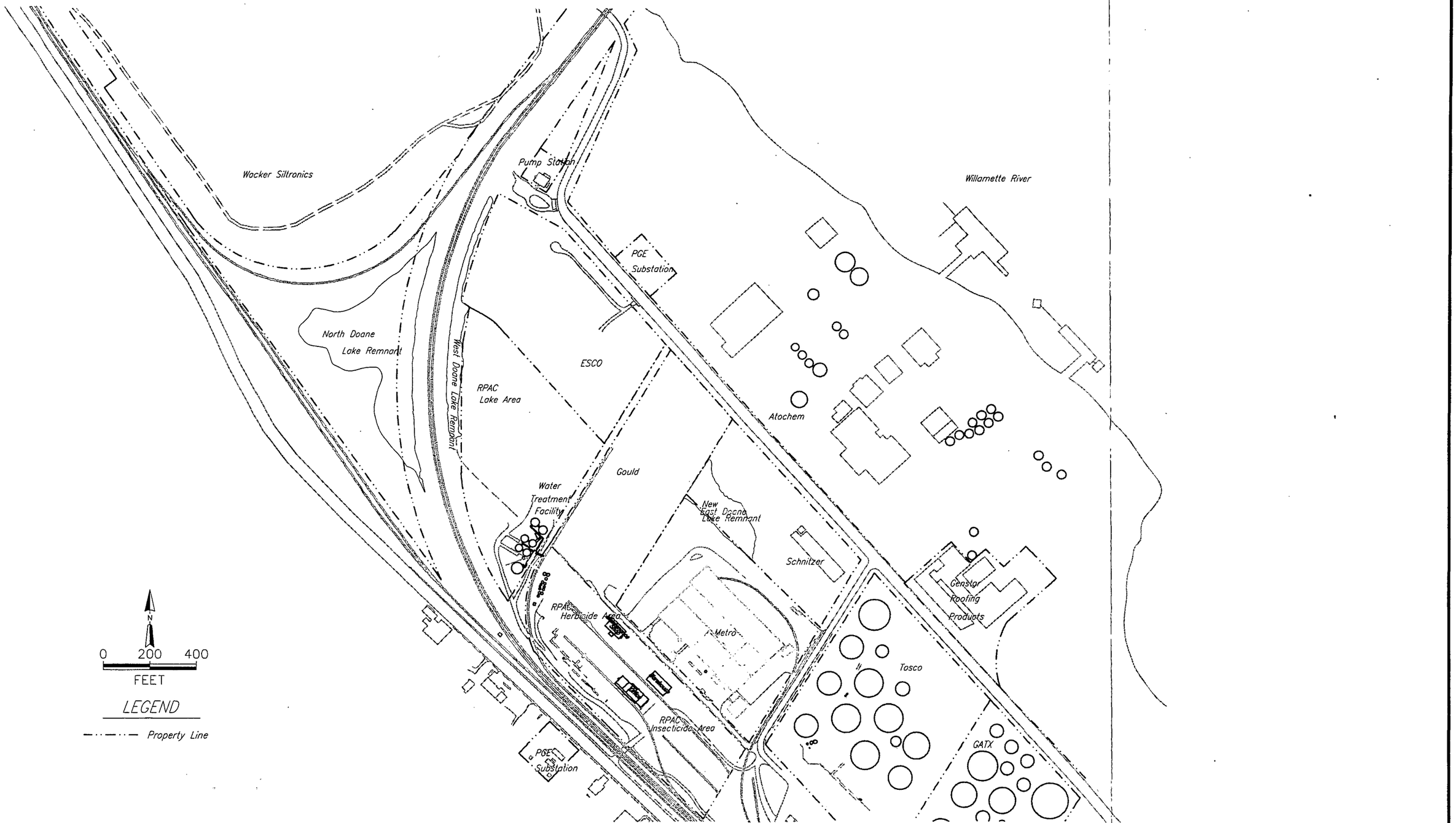

URS Greiner Woodward Clyde

TITLE:
Site Map
Rhone-Poulenc AG Company
Portland, OR

DWN: jgdp	DES.: jgdp	PROJECT NO.: 5292C0804A	
CHKD:	APPD:	FIGURE NO.: 1-3	
DATE: 5/26/99	REV.: 3		

SCOEPA00009522

2.1 LOCATIONS AND FREQUENCY

Cone penetration testing (CPT) borings will be completed to efficiently characterize the alluvial stratigraphy at numerous locations over a broad area primarily downgradient (north) of the former RPAC manufacturing area. The use of CPT borings will allow identification of potential preferential pathways (i.e., relatively higher-conductivity, sandy stratigraphic horizons) for solute phase groundwater contamination in the following areas:

The RPAC Herbicide Area

The RPAC Lake Area

Elf Atochem Property

Gould Electronics Property

Burlington Northern and Santa Fe Property

Wacker Siltronics Property

ESCO Inc. Property

Metro Property

Schnitzer Investments Property

The data from these borings will be used to identify locations and depths (i.e., target zones) for the collection of reconnaissance groundwater samples.

Figure 2-1 shows the approximate locations of the CPT borings at the Elf Atochem property and at the Wacker Siltronics Property, and Figure 2-2 shows approximate locations of the remaining CPT locations. Due to possible on-site specific physical restrictions and property owner requirements, the number and locations of these may vary from the CPT borings shown on Table 1-1 and these figures. All CPT borings will be advanced to equipment refusal, which is anticipated to occur at the top of the cemented gravel, where present, or basalt unit, estimated to occur between 50 and 110 feet below ground surface (bgs).

2.1.1 Willamette Riverfront Area

Up to sixteen CPT borings will be advanced in a line parallel to the south bank of the river, thirteen of which appear to be placed on the Elf Atochem property. The remaining three borings appear to be located on the Burlington Northern and Santa Fe property, and Wacker Siltronics property. One of the CPT borings will be advanced adjacent to the existing well cluster W-19 to compare the lithologic data inferred from the CPT measurements to the boring log prepared for this well.

2.1.2 Gould Electronics Property

One CPT boring will be advanced near each of the existing W-3 and W-4 well clusters, to equipment refusal.

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2.1.3 Wacker Siltronics Property

Up to four CPT borings will be advanced in a line trending approximately northeast to the southwest on the Wacker Siltronics property, to equipment refusal. The borings will be located to the southwest of the existing monitoring well cluster MW-3, in the vicinity of the existing MW-7-S and MW-6-S wells.

2.1.4 ESCO and Schnitzer Properties

One CPT boring will be advanced each near the W-12 well cluster on ESCO property, and one near the W-16 well cluster on Schnitzer property, to equipment refusal.

2.1.5 RPAC Herbicide Area

One CPT boring will be advanced each near the MW-5 well cluster and one near the north side of the RPAC treatment plant area, outside the secondary containment, to equipment refusal.

2.1.6 RPAC Lake Area

Up to six CPT borings will be advanced in the Lake Area south of monitoring well W-9, to equipment refusal. Due to the presence of Gould remediation wastes stored in this area, these borings will likely be sited along the driveable path, immediately east of West Doane Lake.

2.2 METHODOLOGY

CPT data will consist of continuous sleeve friction and tip resistance readings, as well as pore-water pressure, collected by the CPT operator subcontracted to URS. An additional plot will be developed based on a correlation between the resistance and friction readings to develop a general soil type classification. RPAC will review these data and use them in conjunction with historical data to determine the depth to the target zones for the Geoprobe activities. CPT borings will be advanced in accordance with the procedures in SOP-1 provided with this FSP.

All CPT boreholes will be pressure-grouted from the bottom of the boring to ground surface, during extraction of the drill stem from the hole. After grouting the borehole, the sample location will be marked for surveying. All points will be surveyed to at least the nearest 0.1 foot horizontally and vertically. CPT field equipment will be decontaminated in accordance with Section 6.4.

2.3 ANALYTICAL TESTING

No environmental samples will be collected for laboratory analysis from the CPT borings. However, for quality assurance (QA) purposes, CPT data will be compared with continuous-core data from adjacent monitoring well borings and from supplemental direct-push correlation borings.

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2.4 CORRELATION BORINGS

Three correlation borings will be drilled with direct-push (Geoprobe) methods. Continuous soil samples will be collected in each of these borings. One correlation boring will be drilled near one CPT boring in each of the Lake Area, Wacker Siltronics, and Elf Atochem properties. Additional correlations will be achieved by comparing boring logs from existing monitoring wells that are adjacent to CPT locations.

2.5 DOCUMENTATION

Documentation for the CPT field activities will include the following information:

Site ID – the name of the CPT boring, in accordance with the procedures in Section 5.5.2;

CPT date;

Time started and completed (in 24-hour format);

Current weather conditions, including approximate ambient temperature and presence/absence of precipitation;

Observing geologist;

Observations regarding setup/installation, including cone hydration, condition of equipment, etc.;

The field CPT log generated on-site.

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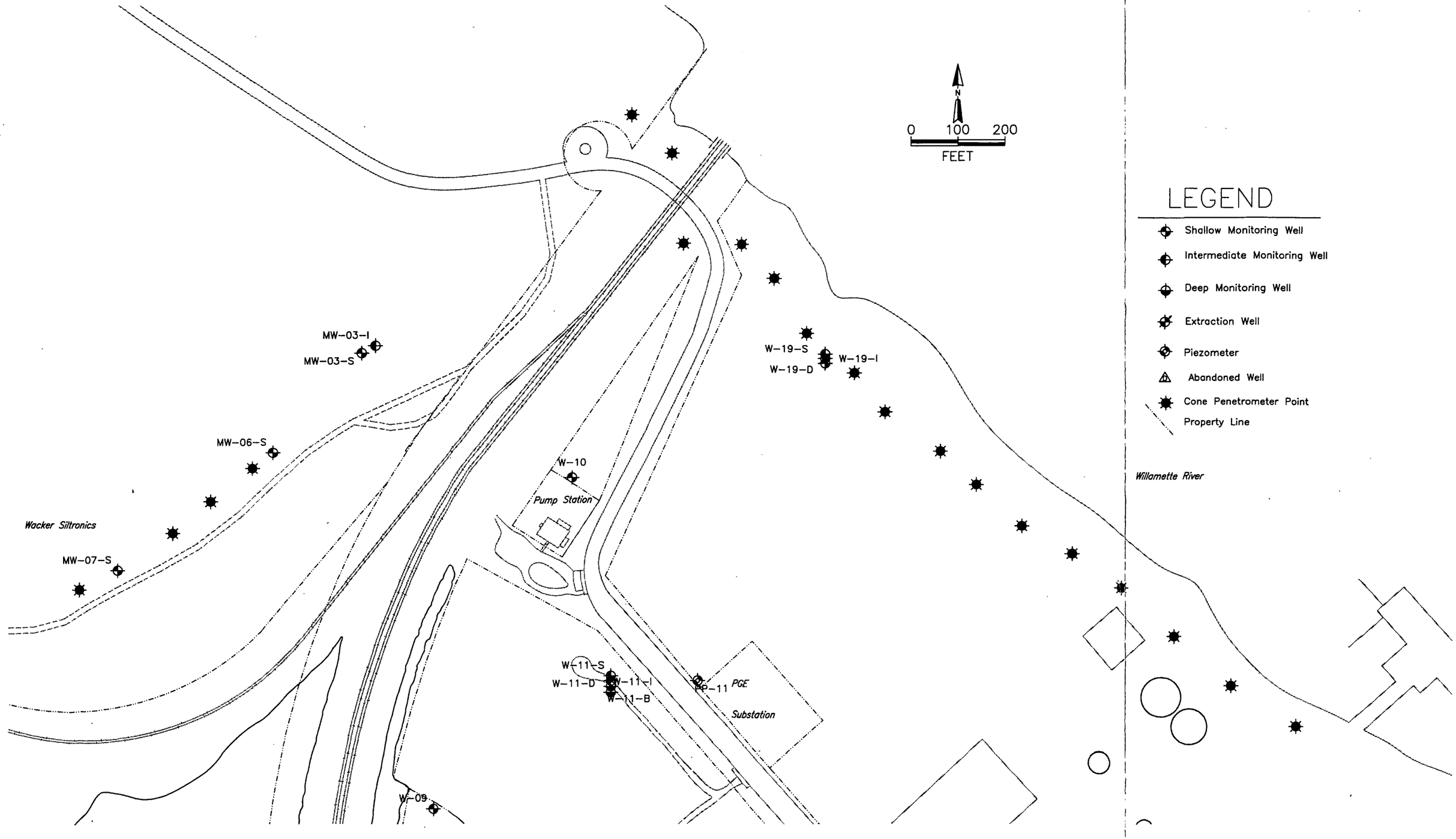

URS Greiner
Woodward Clyde

TITLE:
Proposed Willamette Riverfront Area/Wacker CPT Points
Rhone-Poulenc AG Company
Portland, OR

DWN: jgdp	DES.: jgdp	PROJECT NO.: 5292C0804A
CHKD:	APPD:	
DATE: 7/7/99	REV.: 5	FIGURE NO.: 2-1

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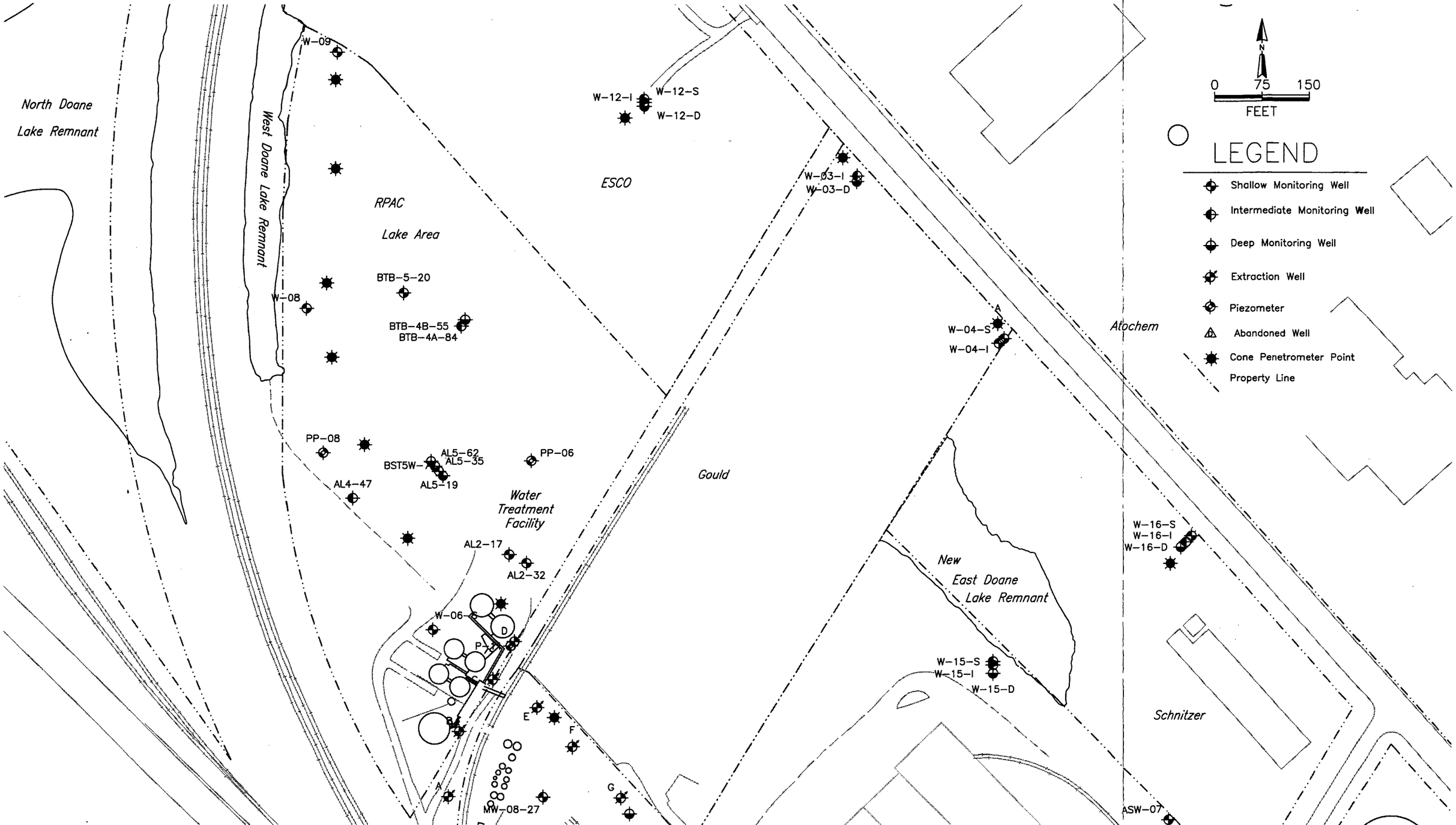

URS Greiner
Woodward Clyde

TITLE:
Proposed Remaining CPT Locations
Rhone-Poulenc AG Company
Portland, OR

DWN:	DES.:	PROJECT NO.:
jgdp	jgdp	5292C0804A
CHKD:	APPD:	FIGURE NO.:
DATE: 7/2/99	REV.: 3	2-2

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3.1 LOCATIONS

Groundwater samples will be collected from the targeted high permeability sampling intervals ("target zones") identified using stratigraphic information determined from the CPT and the Geoprobe correlation borings, as well as historical information. To aid in the selection of the locations and numbers of target zones, lithologic and hydrologic cross-sections will be prepared using available data. The locations of Geoprobe borings and subsequent reconnaissance groundwater samples will be determined after all CPT data are gathered at each property. The sample locations and depths will be approved by DEQ prior to the collection of reconnaissance groundwater samples. Geoprobe drilling locations not on RPAC property will also require approval by each property owner via modifications to the access agreements.

Due to the possibility of access difficulties or limited alluvium permeability as indicated by the CPT results, the number and location of reconnaissance groundwater samples may vary from those shown on Table 3-1. On the ESCO, Gould, and Schnitzer properties and at the Plant Area location, at least one reconnaissance groundwater sample will be collected at each CPT location. At locations along the Willamette River, the number of reconnaissance groundwater sample locations may be modified based on data collected during the CPT activities. On both the Lake Area and the Wackerproperty, reconnaissance groundwater samples will be collected at each CPT location, unless CPT data at a given location indicate that sampling at that locationis not warranted. Stratigraphic intervals that lack sufficient apparent permeability to function as significant potential groundwater contaminant migration pathways do not meet the Data Quality Objectives (DQOs) for the Early RI activities and, thus, will not be considered for reconnaissance groundwater sampling.

There may be instances during Geoprobe activities that require soil Geoprobe sampling for lithology. For example, a soil sample could be collected to clarify CPT results in some critical stratigraphic intervals. SOP-4 discusses the soil Geoprobe sampling procedures.

3.2 METHODOLOGY

Groundwater samples will be collected using direct-push technology (Geoprobe). The probe operator will advance a one-inch diameter stainless steel well point to the target depth. The screen is approximately four feet long, with a nominal slot size of about 0.010 inches. The screen will be positioned to maximize groundwater flow from the target zone. When the screen has reached the target zone, the drive rods will be pulled back, allowing groundwater to flow through the well point screen slots. If multiple target zones exist in one location, the well screen and drive rods will be extracted and decontaminated between sampling events. All borings will be grouted from the bottom up, as drilling rods are extracted from the borehole.

Groundwater will be extracted from the drilling rods, which act as a temporary well casing, using a bailer or with disposable (one-use) tubing with a bottom check valve, or other suitable method. The groundwater sample will be collected at the middle of the screen interval and be recorded for each location. The sampling rate will be determined at each location and recorded into the field notebook. For shallow sample collection (e.g. less than about 30 feet bgs) a peristaltic pump and

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dedicated tubing will be used for the collection of samples (except in the collection of volatiles). Care will be taken during groundwater sampling to prevent misrepresentation of subsurface chemical and physical conditions, due to volatilization and/or reactions with ambient air. The groundwater samples will be collected for the analytical testing in the following order:

- VOCs
- SVOCs
- Pesticides
- Metals/Inorganic Constituents/General Chemistry

Prior to filling the first VOCs vial, a volume of groundwater (approximately 100-200 ml) will be collected to measure for field parameters. Field parameters will include the following:

pH, in standard units

Specific conductance (SC), in uS/cm

Temperature in °C

Measurement of these field parameters and the collection of the groundwater samples for these field measurements will be completed in accordance with the specifications provided in SOP-2.

Groundwater samples will be collected in the laboratory-prepared containers as specified in the Early RI activities QAPP and in Section 5.2. Groundwater samples to be analyzed for metals will be filtered in the field, using disposable, 0.45-micron filters. The procedure for completing the reconnaissance groundwater sampling is summarized in SOP-3. Decontamination procedures will be followed per Section 6.4.

3.3 ANALYTICAL REQUIREMENTS

Groundwater samples will be analyzed for a variety of organic, inorganic, and physical constituents. Table 3-1 summarizes the analytical testing parameters for each property. The suite of analytes includes the following analysis; VOCs, dioxins/furans, phenols, chlorinated herbicides, insecticides, and selected metals (arsenic, cadmium, copper, chromium, lead, mercury, nickel, vanadium, and zinc). Standard EPA analytical methods will be used for all groundwater testing. Table 3-2 summarizes the methods to be used. If NAPL is present during sampling activities, and present in a sufficient amount, it will be collected for analysis. The laboratory analysis of the NAPL will be the same as the groundwater analysis on the site it was collected.

3.4 DOCUMENTATION

Samplers will be responsible for accurately completing Chain-of-Custody forms (COCs). Field sampling crews will collect the following information for each sample and document that information in the groundwater sampling log (Appendix B):

SCOEPA00009529

Site ID – the name of the well point

Sample ID – using the format described in the Section 5.5.2

Sample date

Sample time (in 24-hour format)

Weather conditions at time of sampling, including approximate ambient temperature and presence/absence of precipitation

Field testing results

Sampler's name or names

Methodology (i.e., bailer or pump)

Observations regarding water quality (e.g., color, turbidity, sheen, odor)

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TABLE 3-1
Estimated Quantities and Parameters for Reconnaissance Groundwater Sampling
Rhone-Poulenc AG Company
Portland, Oregon

Sample Location	Number of Sampling Points*	Number of Reconnaissance Groundwater Samples*	Groundwater Parameters
Herbicide Area	2	6	VOCs, H, M, D/F, TPH, PH
Lake Area	6	18	VOCs, H, M, D/F, TPH, PH
Gould	2	6	VOCs, H, M, D/F
ESCO	1	3	VOCs, H, M, D/F
Atochem	16	48	VOCs, H, M, D/F, P , PH
Wacker	4	12	VOCs, H, M, D/F, P , PH
Schnitzer	1	3	VOCs, H, M, D/F, P , PH

Notes:
PH: Phenols
H: Herbicides
M: Metals
D/F: Dioxins/Furans
TPH: Total Petroleum Hydrocarbons
P:Pesticides
* Note: These numbers are the estimated maximum quantities. Actual numbers of samples collected will vary based on CPT results.

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TABLE 3-2
EPA Analytical Methods for Reconnaissance Groundwater Samples
Rhone-Poulenc AG Company
Portland, Oregon

Analyte Group	EPA Method
Volatile Organics (Halogenated/Aromatic)	8260B
Semi-Volatile Organics	8270
Phenols	8041
Chlorinated Herbicides	8151A
Pesticides (Chlorinated/Phosphates)	8081 & 8141A
Dioxins/Furans	8290
Metals	6010/6020 & 7000
Mercury	7470/7471

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4.1 LOCATIONS AND FREQUENCY

The need for, location of, and screen intervals for new groundwater monitoring wells will be based on the analytical results of the reconnaissance groundwater sampling and the assessment of existing monitoring wells identified for inclusion in the GWMP. To assist in the determination of the locations and screen intervals, lithologic and hydrologic cross-sections will be prepared. These cross-sections or plan views will also contain information relating to the integrity results, location of possible mobile and immobile NAPL, and historical aquifer chemistry. These data will be used to meet the site specific data needs identified previously in Table 1-1.

Potential new well locations and screen intervals are identified in the RI Work Plan. These quantities represent the maximum potential number of new wells. The actual new well selection will depend on the Early RI data collection results. The construction and location of all new monitoring wells will be approved by DEQ prior to installation. Proposed drilling locations not on RPAC property possibly will require approval by the off-site property owners via modifications to the access agreements. Based on the analytical results from the push-probe activities, reconnaissance groundwater sampling locations and depth intervals that do not demonstrate appreciable detections of potential chemicals of concern related to the RPAC site may not be considered for new well installations. Some of the factors that will be considered for choosing monitoring well locations and screen intervals include; historical data at or near the selected location; groundwater flow determinations; well inventory results; CPT results, and analytical results from the reconnaissance groundwater sampling. Table 4-1 summarizes the data needs and reconnaissance groundwater factors that will be considered for the selection of monitoring well locations and screen intervals.

4.2 METHODOLOGY

4.2.1 Monitoring Well Drilling

During the Early RI activities, the monitoring well boreholes will be advanced within the alluvium and the basalt using a cable-tool drilling rig to prevent downward push of impacted soils through the borehole. The advancement of the monitoring well borings will be conducted in accordance with SOP-5.

Because the new wells will be completed at locations where the nature of the subsurface lithology will already be established, detailed continuous soil sampling during drilling will not be completed. However, based on field observations a soil sample may be collected for laboratory analysis if a significant source area is encountered during monitoring well drilling. The methods and procedures for NAPL field screening are discussed in SOP-7. If NAPL or similar material is observed, samples (soil or NAPL) of that material will be collected and sent to the laboratory for analysis.

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The following paragraphs summarize the methodology for drilling the borings:

The borehole will be advanced to the appropriate depth using a temporary steel borehole casing which will be advanced as drilling progresses. All monitoring well borings will be logged by a geologist based on examination of cuttings and drilling rig response. The stratigraphic interval proposed for the well screen will also be sampled via the collection of cuttings during monitoring well drilling to confirm or select the final screen interval. Soil classification will be conducted in accordance with SOP-6.

During borehole drilling for a basalt monitoring well, split spoon sampling will begin at the CPT refusal depth to evaluate the top of the cemented gravel/basalt unit. This unit will be continuously sampled if possible by overdriving into it with a California modified split spoon. Advancement of the temporary borehole casing during drilling will continue

If a screen interval is selected in the basalt, the borehole will be advanced into the basalt using a double casing drilling method. This technique will allow the sedimentary (e.g., alluvium and/or cemented gravel) units to be sealed off from the underlying basalt, which will reduce the potential for intraborehole downward migration of fluids. The double-casing method is described as follows:

The 8-inch temporary casing will be driven into the basalt approximately 1-2 feet. The cuttings will be removed from the casing and a bentonite slurry will be placed in the bottom of the borehole. A 6-inch diameter temporary casing with centralizers will be placed inside the 8-inch casing, lowered to the bottom of the borehole. The larger casing will then be backpulled 1-2 feet to allow the bentonite slurry to form a seal with the borehole. More bentonite slurry will be added to the annular space between the 8-inch and 6-inch casings. The bentonite slurry will be cleaned from inside the 6-inch casing.

Decisions on well screen intervals in the basalt will be based on formation yield data during drilling, as well as logging rock chips and cuttings. The adequate yield for placement of a basalt well screen interval will be considered about ¼ gallons per minute, based on a water level recovery rate inside the temporary casing. This method will allow adequate determination of screen intervals, and produce a functional well in a basalt boring. A minimum 5-foot well screen will be used in the basalt well and set at least 10 feet into the basalt to minimize hydraulic communication between the basalt and the overlying alluvium within the borehole. The decision to terminate basalt borings will be made with DEQ consultation and approval.

The 8-inch and 6-inch casings will be withdrawn during installation of the annular space seal material.

Prior to any drilling, an underground utility check will be performed by reviewing utility maps, reviewing plant photos, contacting a private utility locator, and interviewing RPAC employees. Geophysical location techniques may have been used in some areas of complex utility corridors, and in areas of uncertain locates. These surveys will also be reviewed. At some locations as determined by the field geologist, a hand auger may be used to predrill the first few feet as a check on the utility survey.

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4.2.2 Monitoring Well Construction

All procedures, designs, and materials for monitoring well installation will be in accordance with Oregon Administrative Rules, Chapter 690, Division 240.

The monitoring wells will be constructed using flush-threaded, 2-inch (2.37-inch O.D.), Schedule 40 PVC casings and screens. The well screens will consist of factory-slotted (0.010-inch slot size openings) pipe designed specifically for use in groundwater monitoring wells. The screen length will vary dependent on field conditions. Wells monitoring the upper alluvium will be screened across the water table. A threaded end cap will be attached to the bottom of each well screen and the pipe will be placed into the borehole through the inside of temporary borehole casing. No glues, chemical cements or solvents will be used to assemble the well construction materials.[1] Expansion-type well caps will be placed onto all monitoring wells.

The annular space between the well casing and the borehole wall will be at least 2 inches radially. To aid in the centering of the screen in the borehole, stainless steel casing centralizers will be installed on the well casing at each end of the screened interval, and approximately every 20 feet thereafter up to ground level.

The well casing and screen will be suspended in the borehole while a clean sand filter pack of appropriate uniform gradation (Colorado Silica Sand) will be placed into the annular space around the well screen from the bottom of the borehole to approximately two feet above the top of the screened interval.

The depth to which materials are placed will be checked with a weighted measuring line to ensure that bridging has not occurred. Dispersing agents such as phosphates or acids will not be used in well installation or development. Also, there will be no attempt to chemically disinfect the wells.

The sand pack will be placed downhole into the annular space using a tremie pipe between the riser pipe and the temporary borehole casing. To consolidate the sand pack, the well will be gently surged with a bailer or surge block. If settling occurs, additional sand will be added to the annular space to bring the sand back up to 2 feet above the top of the well screen.

A bentonite plug (1/4-inch diameter pellets) of a minimum of 3 feet in thickness will be placed above the sand pack. The borehole will be sealed with a cement-bentonite grout slurry containing no more than 4 percent bentonite by weight or a high solids bentonite grout slurry[2] that will be installed from the top of the bentonite plug to the bottom of the concrete surface seal.

The bentonite pellets will be introduced via a tremie pipe and bentonite grout slurry will be placed using a bottom-discharge tremie pipe and a positive-displacement pump. The grout slurry will be

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1 Additionally, no petroleum hydrocarbon or synthetic organic-based lubricants will be used on downhole drilling equipment during borehole advancement.

2 Water used in the preparation of the bentonite grout as well as other uses (well construction, decontamination, etc.) will be obtained from City of Portland potable source.

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prepared in accordance with the manufacturer's recommendations. A concrete surface seal of approximately 1-2 feet in thickness will be placed on top of the bentonite grout up to grade level. All pertinent well construction data will be recorded on a monitoring well construction diagram (Appendix B).

Where two sizes of temporary borehole casing are used, the inner casings will be removed as the well materials are installed during well construction, with the smaller casing being removed first. Accurate placement of all annular space materials (sand pack, bentonite plug, and bentonite grout seal) will be achieved by measurements in the borehole using the tremie pipe or a weighted tape.

Each PVC well casing will be extended approximately 3 feet above ground surface. The riser will be cut at the top using a hand-operated pipe cutter. The cut will be made evenly so that the elevation of the well lip is the same around its entire circumference. A small notch will be made in the lip as a marker from which all future water level readings will be made. To reduce the potential for unauthorized access to the wells, heavy gauge, locking metal security casings will be installed over the well casing and cemented into place.

To protect the well against vehicular damage, protective bollards and a concrete pad may be installed. The posts will be set in individual boreholes filled with concrete. The posts will not be placed in the concrete pad surrounding the protective casing. Alternatively, flush-finish protective monuments may be installed. The pad around the well will be 6 inches thick, approximately 3-feet square, sloped away from the well, and extend 3 inches above and below the ground surface.

Typical basalt and alluvium monitoring well construction designs are shown in Figures 4-1, 4-2 and 4-3, respectively. The wells will be surveyed horizontally to the nearest tenth of a foot and vertically to the nearest hundredth of a foot. Decisions regarding actual screen lengths, slot sizes, and filter pack materials for final well construction will be made with DEQ consultation and approval.

4.2.3 Monitoring Well Development

Each well will be developed after completion of construction, no sooner than 48 hours after placing the grout seal. Prior to development, the wells will be checked for the presence of NAPL using an electronic interface probe. The depth to water and total depth of the wells will be measured. The wells will be developed by a stainless steel disposable bailer, hand pump, purge pump, or equivalent. All down-hole tools will be decontaminated in accordance with Section 6.4. If a bailer is used, a new length of rope will be used for the bailer at each well. Up to 10 casing volumes will be removed during development (if the well is not bailed or pumped dry first). Specific conductance, pH, and temperature will be monitored periodically during development. During development activities, the well will be surged with a surge block. Following surging, field personnel will measure and record the total depth of the well, and evaluate whether fines are present in the bottom of the casing.

Pumping, turbidity monitoring, and surging will be repeated until the well yields clean water or until turbidity ceases to significantly improve with continued development. Development will continue until the discharge water appears reasonably free of sediment, water quality parameters

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stabilize to within 10 % of the previous sample, or turbidity ceases to significantly improve with continued development.

Well development water will be containerized and transported to the RPAC site for characterization and disposal in accordance with Section 6.0.

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TABLE 4-1
Potential Well Location Data Needs and Factors
RI/FS-Rhone-Poulenc AG Company
Portland, Oregon

Possible Well Location Areas	Data Needs	Reconnaissance Groundwater Factors to be Considered to meet Data Needs *
Gould-Near W-3	Determine groundwater impact in the deep alluvium and basalt.	If RPAC constituents have impacted the lowest portions of the alluvium -one well may be installed into the cemented gravel/basalt unit, near existing well W-3.
Gould-Near W-4	Determine groundwater impact in the deep alluvium and basalt.	If RPAC constituents have impacted the lowest portions of the alluvium -one well may be installed into the cemented gravel/basalt unit, near existing well W-3.
Esco-Near W-12	Determine groundwater impact in the deep alluvium and basalt/ define depth of basalt trough in area	If the reconnaissance groundwater analytical results indicate that RPAC constituents have impacted the lowest portions of the alluvium, one cemented gravel/basalt well may be installed near W-12.
Atochem- Along Riverfront	Determine Willamette River impact from RPAC.	One or more well clusters may be installed depending on the reconnaissance groundwater analytical results. One cemented gravel/basalt well may be installed if the reconnaissance groundwater results indicate that contamination has migrated below the total depth of the existing well W-19.
Wacker-Near MW-3-1	Horizontal extent of impact at site, if lakes impacted downgradient, vertical extent in intermediate & deep alluvium and basalt.	If reconnaissance groundwater analytical results indicate that both the intermediate and deep alluvium have been impacted, additional cemented gravel/basalt wells may need to be installed.
Schnitzer-Near W-16	Horizontal extent of impact at site, determine impacts to deepest portion of alluvium and basalt, define depth of basalt trough in area.	If the reconnaissance groundwater analytical results indicate that RPAC constituents have impacted the deepest portions of the alluvium, one cemented gravel/basalt well may be installed near W-16. Consideration will also be given to installing a shallow alluvium well that is not screened across the historic Doane Lake sediments.
Plant-Herbicide Area Near MW5	Vertical extent of DNAPL	If RPAC constituents have impacted the stratagraphic layer directly overlying the cemented gravel/basalt unit-a well may be installed into the cemented gravel/basalt unit.
Plant-Treatment Facility	Vertical extent of DNAPL	If RPAC constituents have impacted the stratagraphic layer directly overlying the cemented gravel/basalt unit-a well may be installed into the cemented gravel/basalt unit.
West Doane Lake- Near W-8 & W-9	Determine groundwater impact and horizontal and vertical extent of NAPLs.	Additional intermediate/deep alluvium wells may be installed if deep alluvium has been impacted by RPAC constituents; Installation of one cemented gravel/basalt well may be impacted if the deepest portion of alluvium is impacted by RPAC constituents.

* NOTE: Other factors that will be considered in the selection of monitoring well locations and screen intervals are provided in Section 4.1

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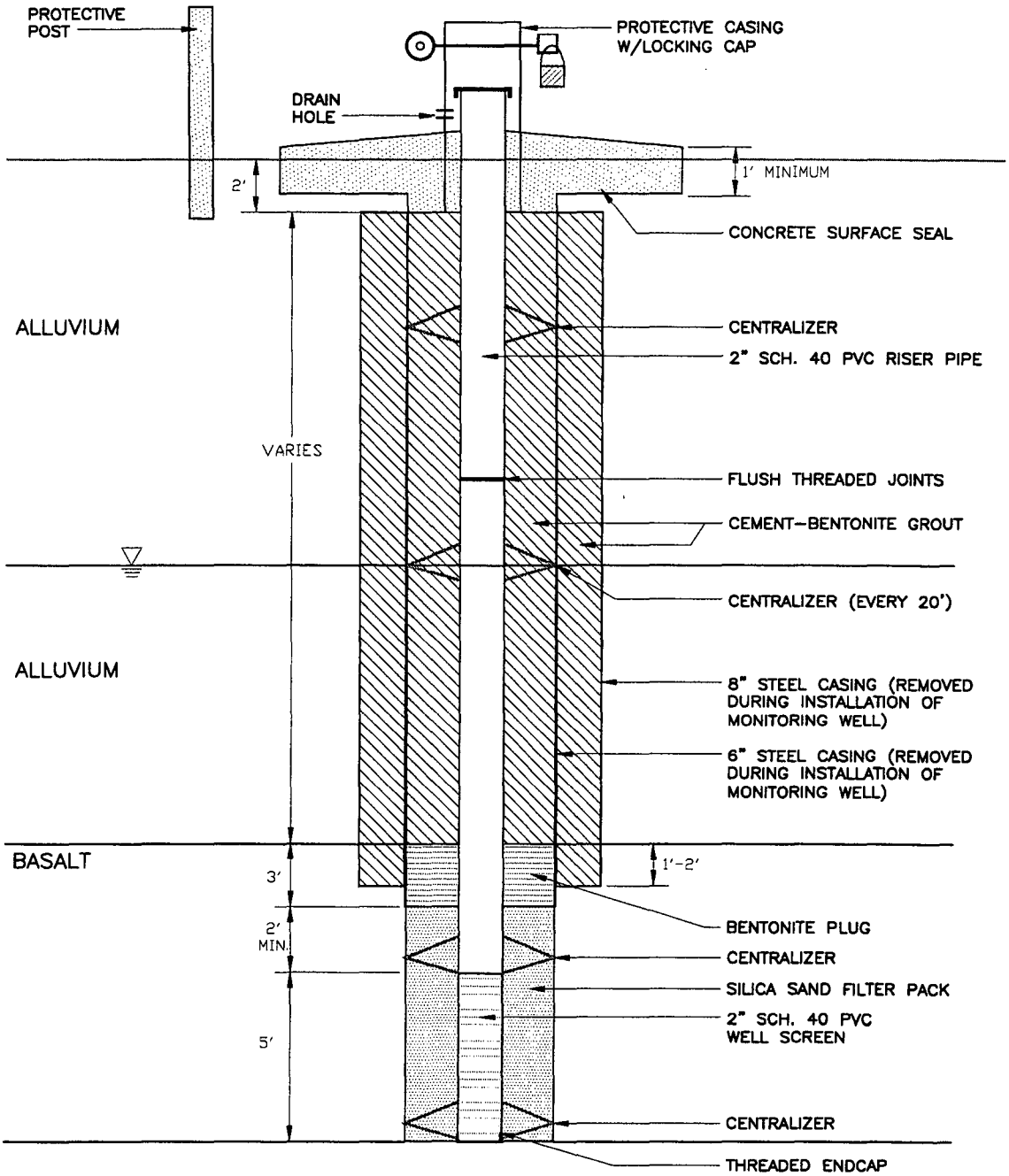
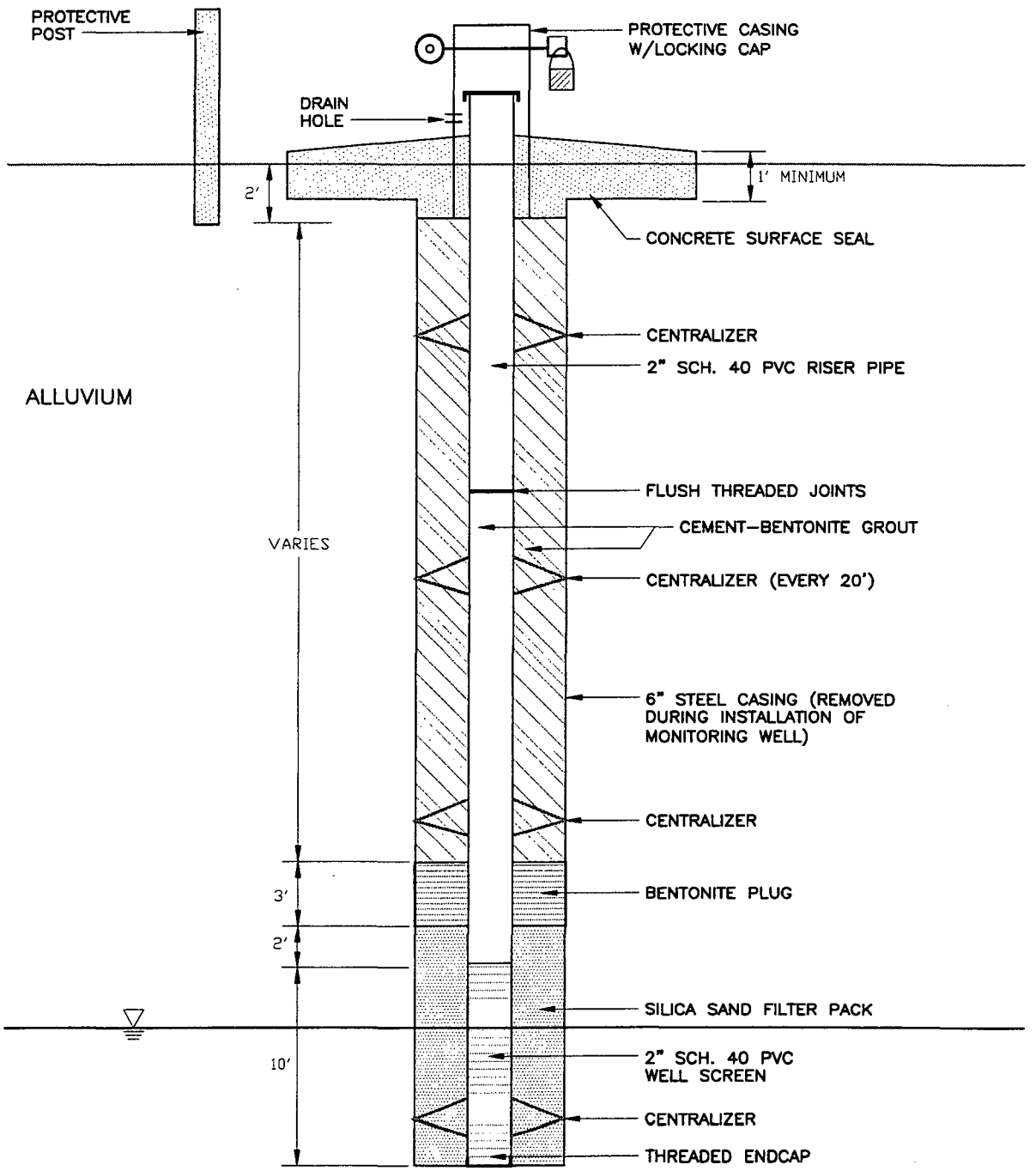


NOTE:
ALL QUANTITIES AND MATERIALS SUBJECT TO CHANGE DEPENDING ON FIELD CONDITIONS.

NOT TO SCALE

PREPARED BY:			
URS Greiner Woodward Clyde 111 SW Columbia, Suite 900 - Portland, Oregon 97201 Tel: (503) 222-7200 Fax: (503) 222-4292	RHONE POULENC AG COMPANY Portland, Oregon	SCHEMATIC BASALT WELL DESIGN	Figure 4-1

SCOEPA00009539



NOTE:

ALL QUANTITIES AND MATERIALS SUBJECT TO CHANGE DEPENDING ON FIELD CONDITIONS.

NOT TO SCALE

PREPARED BY:			
URS Greiner Woodward Clyde 111 SW Columbia, Suite 900 - Portland, Oregon 97201 Tel: (503) 222-7200 Fax: (503) 222-4292	RHONE POULENC AG COMPANY Portland, Oregon	SCHEMATIC SHALLOW ALLUVIUM WELL DESIGN	Figure 4-2

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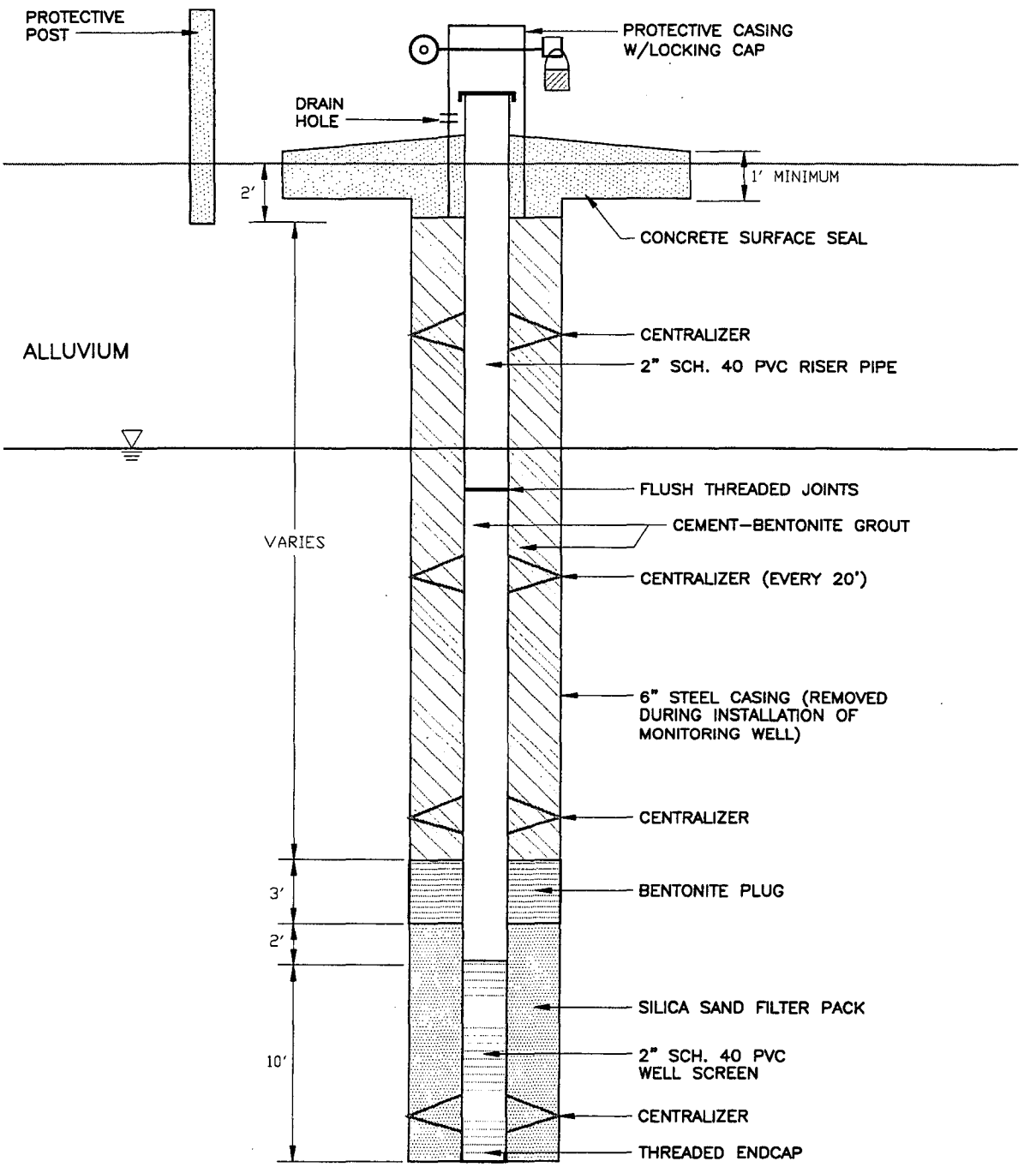

NOTE:
ALL QUANTITIES AND MATERIALS SUBJECT TO CHANGE DEPENDING ON FIELD CONDITIONS.

NOT TO SCALE

PREPARED BY:		
URS Greiner Woodward Clyde 111 SW Columbia, Suite 900 - Portland, Oregon 97201 Tel: (503) 222-7200 Fax: (503) 222-4292	RHONE POULENC AG COMPANY Portland, Oregon	SCHEMATIC DEEP ALLUVIUM WELL DESIGN

Figure **4-3**

SCOEPA00009541

This section describes the field QA/QC sample requirements, types of sample containers, holding times for the samples collected; the procedures for sample storage, packaging and shipment; sample designation and labeling; sampling documentation; and chain-of-custody procedures.

5.1 FIELD QA/QC SAMPLE REQUIREMENTS

Field QA/QC samples are intended to provide control over the collection and analysis of soil and water samples. Information from field QA/QC samples will be used during data review, interpretation, and validation of analytical data. Field QA/QC samples will be collected at the frequencies described below.

5.1.1 Equipment Rinsate Blanks

Water: Minimum of one per day, per media sampled, when non-dedicated sampling equipment is used.

5.1.2 Duplicate Samples

Water: Approximately 5 percent, or a minimum of one per sampling procedure (e.g., groundwater collection, well purging)

5.1.3 Transport Blanks (Trip Blanks)

Water: One per sample shipment, or one per two-day sampling event

5.1.4 Matrix Spike

Water: No field matrix spikes will be prepared.

5.2 SAMPLE CONTAINERS

Water samples will be collected in glass or plastic containers supplied by the contracted analytical laboratory. The containers will have screw-type lids to assure adequate sealing of the bottles. Teflon inserts will be placed inside the lids of the containers to prevent sample reaction with the lid and to improve the quality of the seal.

The containers will be pre-cleaned and certified under chain of custody. Commercially-available precleaned jars are acceptable. The containers will be certified clean bottles. The contract laboratory's bottle shipment documentation will record batch numbers for the bottles. With this documentation, bottles can be traced and bottle wash analyses can be reviewed. The bottle wash analyses will be archived by the laboratory for a period of five years.

Prior to shipment to the field, the contract laboratory will add the required preservatives to the sample bottles. The laboratory will also be requested to provide a small container of the appropriate acid(s) in case additional preservative needs to be added in the field. The laboratory will affix to the bottles water-proof labels on which the type of analysis and the type and amount of preservative has been written. Table 5-1 lists the specific container types, volumes, and number of containers required for each analysis.

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5.3 SAMPLE PRESERVATION AND HOLDING TIMES

Field personnel will verify proper preservation of a representative amount (at least 10 percent) of preserved surface water and groundwater samples using litmus paper. If the sample is found to have a deficient amount of preservative, a sufficient amount of preservative will be added as specified by the laboratory.

Sample preservation procedures are used to maintain the original character of analytes during storage and shipment. Regardless of the nature of the sample, absolute stability for all constituents cannot be achieved. Preservation techniques, such as pH control and refrigeration, may retard physiochemical and biochemical changes.

All samples will be placed in the appropriate sample container and refrigerated (on ice or ice-substitute in a cooler) immediately upon sample collection. The samples will be transferred to the contract laboratory as soon as possible. The contract laboratory will meet all specified holding times and should make every effort to prepare and analyze the samples immediately after they are received. Holding times, chemical preservation, sample container type, and temperature requirements for the analyses performed in this investigation are shown in Table 5-1.

5.4 SAMPLE STORAGE, PACKAGING, AND SHIPMENT

5.4.1 Sample Storage

Samples will be placed in secure, on-site storage, or remain in the possession of the sampling personnel following collection until transferred to the laboratory by URS or to a private courier service. Immediately after collection, during storage prior to shipment and during shipment to the laboratory, samples will be stored in coolers on ice or ice-substitute at 4°C. Any temporary sample storage areas will be locked and secured to maintain sample integrity and chain-of-custody requirements. Either ice packaged in two 1-gallon plastic storage bags or prepackaged ice-substitute will be used to maintain the temperature in the shipping containers at approximately 4°C. Ice will be replenished as necessary to assure adequate cooling of samples during storage and shipping.

5.4.2 Shipping Containers

All sample containers will be placed inside a strong shipping container, such as a metal or plastic picnic cooler with a hard plastic liner. The shipping container should be sufficient to prevent any leaks or spills of ice water or potentially broken sample containers. The drainage hole at the bottom of a cooler will be taped shut so that the contents from potential broken containers of prepackaged ice, ice substitute, or sample will not escape. The shipping container will be adequately cleaned between shipments to prevent cross-contamination.

As discussed in Section 5.5.3, a chain-of-custody form will be placed in each shipping container (Appendix B). The lids of the sample containers will be tightly closed and taped shut with strapping

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tape at two places on the sample container to prevent accidental opening of the container. Two custody seals will be affixed to each shipping container. One custody seal will be placed across the front of the lid and one seal will be placed across the back of the lid such that the container cannot be opened without breaking the seal.

5.4.3 Packaging and Shipping Samples

The procedures and material used for sample packaging must adequately protect the sample container from accidental breakage during shipping. Glass sample containers will be placed into plastic bubble wrap bags and wrapped and cushioned in inert packing material such as Styrofoam, closed-cell foam packing material, or plastic bubblewrap. Plastic sample containers do not require individual cushioning material, but should be packed well to prevent movement during transport. Caps will be screwed tightly. The plastic sample containers will be placed into 2-mil-thick plastic bags, which will then be sealed. Ice or ice-substitute shall be placed in the container in a manner to ensure adequate and equal cooling for all samples.

Samples may be shipped via next-day service by commercial common-carrier air service, vehicle, or air-cargo service to the "contract" laboratory. Samples will be shipped or delivered to the laboratory in time to allow for laboratory analysis within specified holding times.

5.5 DOCUMENTATION PROCEDURES

Detailed information, regarding the circumstances of collection and subsequent disposition of samples, results in a well-documented investigation. Accurate sample and project records, and proper chain-of-custody procedures are imperative.

The purposes of establishing documentation procedures for this remedial investigation are to:

Provide a complete record of procedures as performed in the field

Permit accurate identification of samples and tracking of their status

Facilitate chain-of-custody and traceable accountability procedures for samples

Facilitate the transfer of the data results into an electronic database system

Facilitate retention of project records

Verifiable sample custody will be an integral part of all field and laboratory operations. Sufficient documentation will be made in the field and laboratory to ensure that all samples have been properly acquired, preserved, and identified. The following sections specify the procedures to be used for field documentation.

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5.5.1 Field Logbooks

Permanently bound field books with water-proof paper shall be used as field logbooks, because of their compact size, durability, and secure page binding. The pages of the logbook should be numbered consecutively and pages should not be removed for any reason. Entries will be made in blue or black waterproof indelible ink.

Logbooks will document the procedures performed by field personnel. Each entry should be dated, legible, and contain accurate and complete documentation of the individual's activities. Documentation in the field logbook will be at a level of detail sufficient to explain and reconstruct field activities without relying on recollection by the field team members. Because the logbook is a complete documentation of field procedures, it should contain only facts and observations. Language should be objective, clear, concise, and free of personal interpretation or terminology, which might be misconstrued.

No erasures will be allowed; if an incorrect entry is made, the information will be crossed out with a single strike mark and the change initialed and dated by the team member making the change. Each page in the field logbook will be signed and dated at the bottom by all persons making entries on that page.

Field logbooks will be identified by the project name and a project-specific number (e.g., "Logbook #1 for Rhône-Poulenc, Project Number 92C0804A"), and stored in the field project files when not in use. Field logbooks will be photocopied after each period in the field, and photocopies will be stored in the project files. After field activities are completed, logbooks will be stored in the permanent project file.

Entries into the logbook for sampling events will include, but not necessarily be limited to, the following:

Project name and number.

Reasons for collecting the sample (i.e., quarterly sampling, resampling to confirm previous analysis, initial site assessment).

Date and time of sampling, including the date and time of well purging for ground water samples.

Sample numbers.

Cross-reference of numbers for duplicate and blank samples.

Number of aliquots.

Media sampled.

Geographical location of the sampling point in reference to site facilities.

Physical location of the sampling point, such as depth below ground surface or water surface.

Field observations of the sample area, including type of vegetation, any wildlife, and general topography.

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Method of sampling, including procedures, equipment, and any departure from the procedures specified in the FSP.

Rationale for changes in Work Plan procedures, and documentation of related approvals/communications.

Results of field measurements (i.e., Portable Organic Vapor Monitoring Device, conductivity, temperature, Eh and pH).

Sample preservation.

Type and quantity of container used for each sample.

Weather conditions at the time of sampling and previous events which may influence the representative nature of a sample such as heavy rains prior to sampling surface waters. At a minimum, include temperature, approximate wind speed and direction, and sky cover.

Photographic information. Briefly describe what was photographed and why, the date and time, the compass direction of the picture, number of the frame on the roll, and roll number.

Sketches, when appropriate, with reference points tied to existing structures in the area (i.e., trees, fence posts, buildings, roads).

Analyses requested.

Disposition of the sample (i.e., where it is being shipped).

Airbill number of sample shipment when applicable.

Other pertinent observations, such as the presence of other persons on the site (those associated with the job or members of the press, special interest groups, or passersby), and actions by others that may affect performance of site tasks.

Type of health and safety clothing/equipment used.

Name(s) of sampling personnel.

Additional field information relevant to quality control will be recorded in the logbook and on the appropriate field forms. Such information might include sampling difficulties or discrepancies, unexpected conditions, or abnormal sampling procedures. The Field Program Coordinator will review these notes and, when appropriate, adjust field procedures and/or prepare a written memorandum to be submitted to the Quality Assurance Officer.

5.5.2 Sample Designation and Labeling

In order to provide a sample tracking mechanism, each sample collected will be given a sample identification number using the numbering system described here. The sample identification number will include the area designation, the method sampled, the matrix sampled, a sequential per area sample number, and a QA/QC designation, and a QA/QC designation.

Each sample ID will have a three-digit number, and will be in sequence with the previous sample obtained. Two letters, as described below will designate the method and the Sample Matrix:

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Subsurface soil from a Geoprobe boring – GS

Groundwater from a Geoprobe well - GW

Groundwater from a monitoring well – WW

Data from CPT location - C

The QA/QC designation for each identification number is described below:

#-1 indicates a primary sample,

#-2 indicates a duplicate sample, and,

#-3 indicates a rinsate sample

No indication that the sample is a duplicate or blank will be provided on the sample label or the chain-of-custody form.

Two example sample identification numbers are provided below.

A primary subsurface soil sample from a Geoprobe boring at the Lake Area. This sample would be labeled LGS 01-01. A duplicate for this sample would be labeled LGS 01-02.

A primary groundwater sample from a Geoprobe well at the Lake Area. This sample would be labeled LGW 01-01. A duplicate for this sample would be labeled LGW 01-02.

A cross-reference of sample numbers for duplicates and blanks will be clearly recorded in the field logbook, and on the water sampling form or borehole log.

Sample labels, whether blank or preprinted, will contain an abbreviated summary of the logbook entry for the sample.

The following information should be placed on sample container labels:

Project number

Sample identification number

Date and time of sampling

Name(s) of sampling personnel

Type of sample preservatives added

Analyses to be performed

5.5.3 Chain-of-Custody Procedures

Verifiable sample custody is an integral part of all field and laboratory operations associated with this site investigation. The primary purpose of the chain-of-custody procedures is to document the possession of the samples from collection through storage and analysis to reporting. Chain-of-custody forms will become the permanent records of sample handling and shipment.

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Field sampling personnel are responsible for the care and security of samples from the time the samples are collected until they have been turned over to the shipping agent. A sample is considered to be in one's custody if it is in plain view at all times, in the physical possession of the sampler, or stored in a locked place where tampering is prevented.

A chain-of-custody form will accompany each cooler containing samples sent to the analytical laboratory. An example form is shown in Appendix B. Each chain-of-custody form will contain the following information:

Sample identification number and location of sampling point

Date and time of sampling

Type of sample and number of sample containers associated with each sampling point

Indication of preservatives used

List of analyses requested

Names and signatures of sampling personnel

Shipping air bill number, when applicable

Spaces for transfer of custody acknowledgement

When the form is completed or when all samples have been collected that will fit in a single cooler, the field team members will cross-check the form for possible errors and sign the chain-of-custody record. Any corrections will be made to the record with a single strike mark that is dated and initialed.

The chain-of-custody form will be signed and dated by a URS representative. Prior to sealing the container for shipment, the time of transfer to the shipping agent or laboratory will be entered (estimated if necessary), the form sealed in a plastic bag and taped to the inside of the lid of the shipping container. Samples will be packaged for shipment and dispatched or transported to the analytical laboratory with a separate chain-of-custody form accompanying each cooler. After the chain-of-custody form has been completed and sealed in the cooler, the transferring personnel will affix two signed and dated chain-of-custody seals to the cooler so that if it were opened the seals would be broken.

Upon receipt by the laboratory, custody seals will be inspected and the chain-of-custody form signed and dated by laboratory personnel. Laboratory personnel will verify sample number and conditions. Shipping manifests and chain-of-custody forms signed and dated by laboratory personnel will be considered sufficient documentation of sample custody transfer from the sampler, through the shipping agent, to the analyst in the contracted analytical laboratory.

A copy of each chain-of-custody form will be retained by the sampling team for the project file and the original will be sent with the samples. Bills of lading will also be retained as part of the documentation for the chain-of-custody records. In conjunction with data reporting, the analytical laboratory will return the original or a photocopy of the original chain-of-custody forms to the Project Manager for inclusion into the central project file.

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5.5.4 Photographs

Representative photographs will be taken during the field investigation activities for several reasons: (1) to help identify and locate monitoring wells; (2) to document a sample location's appearance and proximity to site facilities; (3) to identify topographic features; and (4) to document field activities or field observations. Information about each photograph will be entered into the logbook immediately after the photograph has been taken. Once the film has been developed, each slide or photographic print will be labeled with the name of the photographer, the time and date of the photograph, site location, frame, and roll number. If available, a camera with date back capabilities will be used to automatically imprint the photograph with the time and date. If video tape is used, the storage container and the video tape cartridge will be appropriately labeled.

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TABLE 5-1
Fixed Laboratory Container, Preservation, and Holding Times
Rhone-Poulenc AG Company
Portland, Oregon

METHOD	ANALYSIS	CONTAINER	PRESERVATION	HOLDING TIME
8041	Phenols	1 liter Amber Glass Bottle	4°C	7/40 days[1]
8081	Organochlorinated Pesticides	1 liter Amber Glass Bottle	4°C	7/40 days[1]
8141A	Organophosphorous Pesticides	1 liter Amber Glass Bottle	4°C	7/40 days[1]
8151A	Chlorinated Herbicides	1 liter Amber Glass Bottle	4°C	7/40 days[1]
8290	Dioxins/Furans	2 - 1 liter Amber Glass Bottle	4°C	7/45 days[1]
8260B	Volatile Organic Compounds (VOC)	3 – 40 mL glass vial	4°C, HCl to pH < 2	14 days
8270	Semi-Volatile Organic Compounds (sVOC)	1 liter Amber Glass Bottle	4°C	7/40 days[1]
6010/7000/ 200.7	Metals or Major Cations	1liter HDPE[2]	4°C, HNO3 to pH < 2	180 days
7470/7471	Mercury	250 mL HDPE[2] or glass	4°C, HNO3 to pH < 2	28 days
NWTPH - Dx	Total Petroleum Hydrocarbons – Diesel Range Organics	1 liter Amber Glass Bottle	4°C	7 days

[1]Number of days from time of collection until extraction, then number of day from time of extraction until analysis
[2]HDPE – High Density Polyethylene Bottles.

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All investigative derived wastes (IDW) generated during the investigation will be handled in such a way as to prevent or minimize the potential for the spread of contamination, the creation of a sanitary hazard, or visual degradation of the site through the spread of litter.

Wastes generated during conduct of the field investigations will include drill cuttings, well development and purge water, decontamination water, personal protective equipment, and miscellaneous solid waste generated from sample collection activities.

6.1 TEMPORARY CONTAINER LABELING

All containers of waste generated during the investigation will be labeled with information appropriate for accurate tracking and identification of the containers and their contents. The labels will be waterproof markings or labels on both the sides and the lids of each 55-gallon drum or container.

Drums will be labeled with paint pens at the point of generation when material is first accumulated with the following information:

RPAC RI/FS IDW
HOLD FOR ANALYSIS
DATE FIRST ACCUMULATED (example: July 30, 1999)
STATION IDENTIFIER (example: MW-4)
TYPE OF WASTE (example: purge water)

After the waste determinations are made, these temporary markings will be removed and each container will be labeled with an appropriate hazardous or non-hazardous waste label. Each container will be assigned a unique identification number and, if required, will be logged onto the 90-Day Investigative Derived Waste Log (Appendix B).

6.2 DRILL CUTTINGS

The solid cuttings generated during drilling will be contained in DOT-approved removable head steel drums. Soil cuttings will be evaluated for visual contamination, and screened in the field using a portable organic vapor monitoring device. In addition, samples of the cuttings will be collected periodically during drilling activities. Following drilling activities, a composite sample of the material will be submitted to the laboratory for use in waste characterization. IDW generated on-site will be transported from the generation point to the RPAC storage area as soon as practical, typically within one week of generation.

Drill cuttings IDW generated on the Rhone-Poulenc property or at an off-site property contiguous to the RPAC property, in which RPAC has control of the IDW through Access Agreement and where transport to the RPAC property can occur without traveling along a public roadway (referred to as "AOC property"), will be transported from the generation point to the RPAC storage area as soon as practical following generation. This will typically occur within two day of generation. If waste characterization determines the material is non-hazardous, it

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will be shipped off-site to a licensed non-hazardous Subtitle D waste facility. If determined to be hazardous material, it will be shipped off-site to a Subtitle C RCRA facility, dependent on waste classification, and according to applicable state and federal laws.

All drill cuttings IDW generated at an off-site property either not contiguous to the RPAC property or on contiguous property that does not allow transport to the RPAC property without traveling along a public roadway will be stored in drums or other DOT approved containers at their generation point until waste characterization is complete. If waste characterization determines the material is non-hazardous, it will be transported to the RPAC facility for consolidation and subsequent off-site disposal to a licensed non-hazardous Subtitle D waste facility. If determined to be hazardous material, it will be shipped directly off-site to a Subtitle C TSD facility, dependent on waste classification, and according to applicable state and federal laws.

6.3 WELL DEVELOPMENT AND PURGE WATER

Water generated during well development and purging will be contained in DOT-approved tight-head steel drums with plugs or in a large capacity tank such as a Baker Tank.

Well development and purge water generated on-site will be discharged to the RPAC wastewater treatment facility soon after generation, typically within one week of generation. Since both hazardous and non-hazardous waste can be disposed in the treatment system, no characterization of this material will be performed.

Well development and purge water generated at an off-site property contiguous to the RPAC property, in which transport to the RPAC property can occur without traveling along a public roadways, will be transported from the generation point to the RPAC site as soon as practical following generation. This will typically occur within one or two days of generation. Since both hazardous and non-hazardous waste can be disposed in the treatment system, no characterization of this material will be performed.

Well development and purge water generated at an off-site property either not contiguous to the RPAC property or on contiguous property that does not allow transport to the RPAC property without traveling along a public roadway will be stored in drums or other DOT approved containers at their generation point until waste characterization is complete. If waste characterization determines the material is non-hazardous, it will be transported to the RPAC facility for subsequent discharge in the RPAC wastewater treatment system. If determined to be hazardous, this material will be transported to the RPAC property with a manifest and subsequently discharged to the RPAC wastewater treatment system.

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6.4 DECONTAMINATION FLUIDS

All downhole drilling equipment (e.g., drilling rods and bits, temporary casing, etc.) and sampling equipment will be cleaned of foreign matter and decontaminated prior to use and between boreholes and collection of sequential samples.

Downhole drilling equipment will be cleaned with a high-pressure, hot water spray of potable water. Potable water used for equipment decontamination will be obtained from a City of Portland potable source, following the removal of soil particles with a scrub brush.

Sampling equipment (e.g., soil and water samplers, water level meter, etc.) will be decontaminated as follows:

1. Gross potable water rinse.
2. Soap wash (dilute solution of Alconox or equivalent in potable water solution).
3. Potable water rinse.
4. Solvent rinse (methanol or similar) only if phase product is encountered.
5. Distilled\deionized water rinse. Distilled/deionized water will be obtained from a local retail store.

Well casings and screens will also be pressure-washed as above, and rinsed with distilled water prior to installation in the borehole.

If a phased product is encountered, the probe and sounding tape will be wiped with a solvent-soaked towel, during retrieval from the borehole, and the equipment will be decontaminated with a solvent rinse.

Water or other fluids generated during decontamination activities will be contained in DOT approved tight-head steel drums with plugs or in a large capacity tank such as a Baker Tank. The decontamination water will be contained separately from purge and development waters.

Decontamination water generated on-site will be discharged to the RPAC wastewater treatment facility soon after generation, typically within one week of generation. Since both hazardous and non-hazardous waste can be disposed in the treatment system, no characterization of this material will be performed.

Decontamination water generated at an off-site property contiguous to the RPAC property, in which transport to the RPAC property can occur without traveling along a public roadways, will be transported from the generation point to the RPAC site as soon as practical following generation. This will typically occur within one or two days of generation. Since both hazardous and non-hazardous waste can be disposed in the treatment system, no characterization of this material will be performed.

Decontamination water generated at an off-site property either not contiguous to the RPAC property or on contiguous property that does not allow transport to the RPAC property without traveling along a public roadway will be stored in drums or other DOT approved containers at their generation point until waste characterization is complete. If waste characterization

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determines the material is non-hazardous, it will be transported to the RPAC facility for subsequent discharge in the RPAC wastewater treatment system. If determined to be hazardous, this material will be transported to the RPAC property with a manifest and subsequently discharged to the RPAC wastewater treatment system.

6.5 PERSONAL PROTECTIVE EQUIPMENT

Disposable health and safety equipment (Tyvek suits, gloves, etc.) will be collected and stored in plastic refuse sacks, and DOT approved removable head steel drums.

6.6 MISCELLANEOUS SOLID WASTES

Uncontaminated wastes that may be generated during field activities include paper, food containers and wrapping, aluminum cans, bottles, plastic bags and other miscellaneous types of debris. This material will contained in plastic refuse sacks for disposal in approved waste receptacles.

6.7 WASTE IDENTIFICATION AND PROFILING

Each separate waste stream requiring characterization as described above must be characterized to determine if it is hazardous (e.g. listed or characteristic). IDW will be characterized to determine if it is hazardous by "lot" of similar media by location to minimize the amount of analytical testing yet ensure that differences in waste characteristics from different locations are identified.

Examples of individual lots to be used in waste identification include:

- Drill cuttings from monitoring wells constructed on a single property.
- PPE regardless of point of generation.
- Monitoring well development and/or purge water from wells at the same location.

Wherever possible, testing results from analysis of environmental samples (i.e., groundwater testing results) conducted as part of the RI program will be used to make waste determinations.

If no analytical soil testing is planned as part of the RI program, such as for borings completed to install new groundwater monitoring wells, composite IDW soil samples (one per lot) will be collected and analyzed to make the necessary waste determination.

To ensure that ample time is available to identify an acceptable disposal facility and arrange for off-site transportation, and that the 90 day on-site storage limit is not exceeded, waste stream profiling should be completed no more than 60 days after generation. If the waste stream characterization will be made using total waste analysis such as for monitoring well purge water, consideration should be given to ensure that analytical results will be available to make the waste determination and arrangements for off-site disposal within 90 days of generation. In some

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cases, supplemental analysis may need to be completed to ensure the storage limitation time is not exceeded.

6.8 WASTE TRANSPORATION AND DISPOSAL

Any IDW that is to be disposed of in an off-site disposal or treatment facility (i.e., TSD) and any wastewater IDW that must be manifested to the Rhone-Poulenc wastewater treatment unit will be transported to the TSD by a licensed hazardous waste transporter.

Prior to shipment, each container will be labeled with a hazardous waste label (Appendix B) and all other markings will be removed to minimize confusion (for example, HOLD FOR ANALYSIS, and other markings made at the time of generation as outlined in Section 6.1).

For shipments of hazardous waste to a TSD facility, hazardous waste manifests, any required notifications and certifications under the Land Disposal Restrictions, and other necessary shipping papers will be prepared. In addition to a hazardous waste manifest, each shipment must be accompanied by one of the following:

- A notification that the waste is not prohibited from land disposal and is not subject to the Land Disposal Restrictions.
- A notification that the appropriate treatment standards do not meet the Land Disposal Restrictions and the proper LDR standards.
- A notification that the waste meets the applicable treatment standards and can be land disposed without further treatment.

The applicability of Land Disposal Restrictions must be determined through: (1) knowledge of the waste; (2) total waste analysis; or (3) TCLP testing of the waste. If knowledge of the waste is used to determine that the applicable treatment standard has been met at the point of generation, supporting documentation of this determination will be maintained at the facility.

As the waste is loaded, each shipment will be inventoried to ensure the inventory matches the descriptions and quantities recorded on the manifest, and ensure that the transporter uses appropriate DOT placards for the shipment.

Miscellaneous uncontaminated IDW will be disposed of with other solid waste generated at the RPAC site at an approved solid waste disposal facility.

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Ecology and Environment, Inc., April, 1999; Remedial Investigation Work Plan, Rhone Poulenc AG Company, Portland, Oregon.

EMCON Northwest Inc., June 10, 1992, Rhone-Poulenc AG Company Phase II Scoping Document, Draft Report.

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The Cone Penetration Test (CPT) consists of pushing a probe (the cone) on the end of a series of rods into the ground at a constant rate, and measuring the frictional and end resistance of the soil to the cone. Piezocones also measure the pore water pressure of the soils encountered.

EQUIPMENT AND SUPPLIES

The following is a general list of supplies and equipment that will be required when conducting CPTs:

- Health and Safety Plan
- Field Sampling and Analysis Plan
- Personal protective equipment (e.g., gloves, rain gear or Tyvex suits, steel toe boots, safety glasses)
- First aid kit
- Stop watch
- Calculator
- Measuring tape
- Log book and indelible ink pen
- Decontamination equipment (e.g., tap and distilled water, non-phosphate soap such as Liquinox, buckets, sponges, brushes, decon sprayer containing distilled water)
- Camera and film
- Tool box
- Paper towels and/or rags
- Plastic sheeting (Visqueen)
- Scissors and/or razor knife
- Trash bags

The results of the test will be present real-time in the field and are produced in graphical form. The following three plots will be produced during the field activities:

1. The corrected total cone end resistance (Qt) verses depth.
2. The pore water pressure (PWP) verses depth.
3. The friction ratio (Fr) verses depth, which is the ratio between the friction resistance and the corrected total cone end resistance.

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A correlation between the cone-end resistance and the friction ratio will be used to characterize the soil type (e.g., USCS) penetrated and develop a log for the CPT boring. This general classification will be compared to the soils logged in the nearest drilled/sampled borehole.

The cone-end resistance will be calibrated and normalized for unequal and end area effects by the subcontractor.

Prior to conducting the test, the cone and drill rod will be suspended from the rig and a zero load reading will be collected. Zero load readings will also be collected after each test, and will be recorded into the project log book.

Following the completion of each test, the borehole will be grouted using a bentonite grout slurry and a positive displacement pump as the drilling rods are removed from the borehole. The volume of the borehole will be calculated and compared to the volume of the grout slurry placed , to ensure a continuous seal. The location of the borehole will be marked to facilitate surveying.

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PH MEASUREMENT

Field measurements of hydrogen-ion activity will be made with a portable, battery-powered instrument, such as the Orion Model 250A equipped with a Triode™ pH electrode or equivalent. Sample pH will be measured and recorded using standard units. This meter includes is an automatic temperature compensation feature, using a thermistor is built into the electrode.

Field measurement of pH should be completed within approximately 5 minutes of sample collection.

Measurement

Measurements of groundwater pH will be completed on reconnaissance groundwater samples, during well development, and during post-development groundwater sample collection as outlined in the SAP.

Summary of procedures for pH measurement:

1. Turn on instrument. If battery indicator stays on, replace battery. Start self-test (automatic instrument checkout procedure) which performs electronic and hardware diagnostic tests. Any problems found during self-test will be indicated on LCD display; if problems indicated, refer to trouble-shooting section of instruction manual.
2. Remove electrode fill hole cover.
3. Use a calibrated instrument (see below).
4. Rinse out a clean 500-ml beaker or 8-ounce jar with distilled water and then with sample. Discard sample.
5. Fill beaker with fresh sample.
6. Rinse electrode with distilled water and then with sample.
7. Slide vent cover to expose probe vent.
8. Place electrode into sample.
9. Record the pH (main field) to the nearest 0.1 unit, and sample temperature to the nearest 1° C (lower field).

Instrument Calibration

Calibration will be completed in accordance with manufacturer's instructions. Procedures for instrument calibration and use are described in the Orion Model 250A Instruction Manual.

Summary of key elements of pH meter calibration:

1. At a minimum, calibration should be completed:

Prior to beginning use each day (two buffers)

Every two hours (one buffer)

After 10 measurements (two buffers)

2. Instrument calibration will be completed using fresh commercial buffer solutions, which are no more than 3 pH units apart, and that bracket the expected sample pH. Solutions of pH 4, 7, and 10 will be available in the field.
3. The electrode should be rinsed first with distilled water and then with the buffer solution prior to placement in the buffer for calibration.
4. Slope calculation should be between 92 and 102 percent (slope is determined by instrument).
5. As a check on instrument accuracy, a standard solution will be measured at the beginning of each day of use, after instrument calibration. Procedure for measurement will be similar to that for a typical sample. The accuracy check measurement will be recorded in the field log book.

Electrode Storage and Maintenance

For temporary storage, place the electrode in the into the electrode storage compartment. Keep storage solution cap moist with pH electrode storage solution. For short-term storage (less than one week), store electrode in pH electrode solution. For long-term storage (more than one week), fill reference chamber with pH electrode solution, and cover fill hole, cover sensing element. Prepare as new electrode prior to next use (refer to Triode™ Instruction Manual).

Inspect electrode weekly for damage or salt crystal build-up. Maintenance will be performed be the manufacturer, as deemed necessary.

SPECIFIC CONDUCTANCE

Conductance refers to the ability of materials to carry an electorial current. Specific electrical conductance (conductivity) is a measure of conductance under defined measurement conditions. Conductivity is defined as the reciprocal of resistance as measured in ohms (1/ohm=1 mho) per centimeter. The units of conductivity are commonly expressed in mmhos or µmhos (1 mho=1,000 mmhos=1,000,000 µmho)[3]. Because conductivity varies with temperature, temperature of the sample must be known.

Field measurement of conductivity will be made with a portable, battery-powered, direct-reading instrument such as the Orion Model 120 Conductivity Meter or equivalent. This instrument compensates for temperature variation automatically using a fixed temperature coefficient of 2.1

[3] S.I. units of conductivity may be used in place of mhos; 1 mho=1 Siemen (S).

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percent per °C. The sample temperature is obtained using a standard National Institute of Standards and Technology (NIST) -calibrated thermometer or from another instrument. The temperature is input via an adjustable dial on the conductivity meter.

The Orion Model 120 Conductivity Meter has a reported accuracy to 5 percent, with a range of 0-19,990 µmhos/cm. The conductivity cell is constructed of unbreakable plastic and has a fixed cell constant of 1.0 cm^{-1}. The cell does not age and does not require special handling, but should be stored with water in its end cap.

Measurement

Measurements of groundwater conductivity will be completed on reconnaissance groundwater samples, during well development, and during post-development groundwater sample collection as outlined in the SAP.

Conductivity measurement should be made within approximately 5 minutes of sample collection.

Summary of procedures for conductivity measurement:

1. Rinse out a clean 500-ml beaker or 8-ounce jar with distilled water and then with sample. Discard sample.
2. Measure temperature with the pH meter or with a thermometer. Record temperature in the log book or on the field data sheet. Adjust temperature input control to sample temperature.
3. Fill beaker with fresh sample.
4. Turn on instrument.
5. Immerse conductivity cell into the sample. Move probe around to displace air bubbles.
6. Adjust conductivity range control to select optimum conductivity range for the sample (typically use µmhos/cm). Record the sample conductivity to nearest 1 µmhos/cm.
7. Turn instrument off when not in use.

Maintenance, Storage, and Accuracy Check

The electrode should be rinsed with distilled water following each use. A soft brush may be used if necessary. At the end of each day the conductivity meter will be placed into its storage case. Maintenance will be performed be the manufacturer, as deemed necessary.

As a check on instrument accuracy, a standard solution will be measured at the beginning of each day of use. Procedure for measurement will be similar to that for a typical sample. Accuracy check measurements will be recorded in the field log book.

No special storage or handling requirements apply.

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WATER TEMPERATURE

Measurements of water temperature will be completed on reconnaissance groundwater samples, during well development, and during groundwater sample collection as outlined in the SAP.

Water temperature measurement should be made within approximately 5 minutes of sample collection.

Summary of procedures for temperature measurement:

1. Fill beaker with fresh sample.
2. Place thermometer in sample. Do not allow thermometer bulb to touch sides of beaker. Allow to equilibrate (about 1 minute).
3. Measure temperature with the pH meter or with a National Institute of Standards and Technology-calibrated thermometer. Record temperature, to the nearest 1°C, in log book or on field data sheet.

Storage and Accuracy Check

On a weekly basis, check temperature measurement devises accuracy against a NIST-calibrated thermometer. Agreement should be within 0.5 °C. Procedure for accuracy check measurements should be similar to that for a typical sample. Accuracy check measurements will be recorded in the field log book.

Store thermometers in a case or other safe place.

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The technical procedures outlined below augment field protocols presented in the project Health and Safety Plan. A new pair of disposable sample gloves will be worn during the collection of each sample. Groundwater samples will be field checked with litmus paper for proper preservation at a frequency of at least 10 percent. Sample containers that are field checked with litmus paper will be discarded and not submitted to the lab. The rods and screen will be decontaminated and new tubing will be used prior to sampling at each sampling depth. The decontamination procedures are described in Section 6.4.

After the sampling is complete at each location, the hole will be backfilled with a bentonite slurry.

EQUIPMENT AND SUPPLIES

The following is a general list of supplies and equipment that will be required when sampling drive points.

Health and Safety Plan

Field Sampling and Analysis Plan

Investigation-Derived Waste Plan

Personal protective equipment (e.g., gloves, rain gear or Tyvex suits, steel toe boots, safety glasses)

First aid kit

Purge and sample equipment (e.g., peristaltic pump and disposable polyethylene 3/8" ID tubing)

Flow-through cell and ancillary equipment (e.g., T-valve with connectors, tubing)

Meters, probes and standards for field measurements (e.g., pH, temperature, conductance, turbidity, dissolved oxygen (DO), redox potential (Eh), water level, interface probe, PID, calibration gas)

Pyrex measuring cup

Graduated beaker

Stop watch

Calculator

Temperature and trip blanks, as specified in the SAP

Sample containers provided by laboratory

Ice chest coolers for sample storage and shipment

Cold packs or ice for sample preservation in coolers

Plastic freezer bags to contain ice and package samples

Packing material to prevent sample containers from breakage during shipment

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Packaging tape

Chain-of-custody labels, record forms, custody seals, and ground water purging and sampling log sheets (Appendix C of Field Sampling Plan)

Measuring tape

Log book and indelible ink pen

Decontamination equipment (e.g., tap and distilled water, non-phosphate soap such as Liquinox, buckets, sponges, brushes, decon sprayer containing distilled water)

Camera and film

Tool box

Generator

DOT-approved gasoline storage container for generator

Paper towels and/or rags

Plastic sheeting (Visqueen)

Scissors and/or razor knife

Trash bags

Extra batteries and/or battery packs

Express mail air bills

The following sequential steps are to be completed during reconnaissance groundwater sample collection:

1. At the selected sampling interval, the sampler sheath of the probe will be removed exposing the screen. The screen will consist of an approximately 1- inch O.D., and about 41-inch length, and will be of stainless steel construction with a slot interval of approximately 0.010 inches.

2. After deploying the screen, allow the aquifer materials around the screen to re-equilibrate for approximately 15 minutes prior to initiating groundwater sampling.

3. After the temporary well has equilibrated with the aquifer, a depth to water surface, as measured from the ground surface will be gauged. This will be accomplished using a narrow water level probe, or with a manometer.

4. Groundwater purging and sampling will be conducted using a length of polyethylene or Teflon tubing, equipped with a tubing bottom check valve. The tubing will slowly be lowered into the well, without the check ball. Once the tubing has been lowered to the bottom of the screen point, the check ball will be dropped into the tubing, and will seat into the check valve. This method will reduce the loss of volatiles, and mixing of the separate groundwater layers. The length of tubing will then be removed from the well for visual

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inspection.

5. Upon removal of the first length of tubing, visually examine it for color, background odor, evidence of NAPL product sheen or droplets, etc.

6. The depth of the end of the tube as measured below ground surface will be measured and recorded into the field logbook.

7. Place the groundwater into a clean glass beaker, and obtain the water quality parameters pH, temperature, conductivity, redox and dissolved oxygen.

8. Before collecting samples, sampling personnel will don clean nitrile gloves. Samples will be collected at the surface by placing the tubing into the temporary point and moving the tubing in an up and down motion. The sampling rate will be calculated and recorded into the field notebook. Samples that are to be analyzed for metals will be placed into a pre-cleaned glass beaker, and subsequently pumped from the beaker, through a field filter, using a peristaltic pump. Samples that are to be analyzed for volatiles, will be sampled by removing the tubing and gently pouring the water into the selected sample bottles. The number and type of the bottles to be collected are discussed in the Field Sampling Plan-Section 5.2.

9. All the sample bottles will be properly labeled as discussed in the FSP-Section 5.5.2, and placed in a cooler and stored at 4 degrees C until sample bottles can be properly decontaminated and packed for transport to the laboratory. Samples will be shipped to the laboratory within 24 hours of collection.

10. All field observations made and data generated in conjunction with the sample collection will be entered on a well-specific "Groundwater Sampling Form," dated and signed by the field personnel. General observations will also be concurrently entered into the field log book. A copy of the groundwater sampling form is included in Appendix B.

11. Once a groundwater sample has been collected, grouting through the probe casing will be conducted while the casing is being removed from the borehole. The grout will consist of a bentonite grout slurry and will be placed using a positive-displacement pump. The volume of the borehole will be calculated and compared to the volume of the grout slurry placed , to ensure a continuous seal.

12. The top of the borehole will be marked using a wooden lathe and flagging to facilitate surveying activities.

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EQUIPMENT AND SUPPLIES:

The following is a general list of supplies and equipment that will be required when sampling drive points.

Health and Safety Plan

Field Sampling Plan

Investigation-Derived Waste Plan

Personal protective equipment (e.g., gloves, rain gear or Tyvex suits, steel toe boots, safety glasses)

First aid kit

Munsell Color chart

Boring Logs

DRILLING PROCEDURE

For correlation purposes, three continuous-core Geoprobe borings will be advanced at locations adjacent to three of the CPT borings. Specific technical requirements include:

- A Geoprobe DT21 dual-tube soil sampling system or equivalent will be used. This method allows retrieval of the sample through the drill stem, thereby allowing the borehole to remain open during drilling activities. If heaving sands are encountered during drilling, and the sampler encounters refusal, the borehole will be terminated and abandoned.
- A continuous soil core will be collected from the surface to the sampler refusal. The on-site geologist will log the soils in accordance with SOP-6. Other observations, such as field screening data, visual evidence of contamination or lack thereof, the presence of debris or seepage horizons will also be noted.
- Soil samples retrieved will be screened for evidence of volatile organic compounds using a portable photoionization detector (PID) or flame ionization detector (FID). Prior to use, the instrument will be calibrated to known concentrations of calibration gas, in accordance with the manufacturer's specifications.
- The Geoprobe borehole will be advanced in a manner and with the proper tools such that the borehole can be grouted from the bottom up as the drill rod is extracted.
- All downhole rods and reusable tools will be decontaminated before and between all locations in accordance with the FSP.
- A clear acrylic, PETG, polybutyric, or equivalent, sample liner will be used for the continuous soil sample collection. The length of the liners will be four feet. Each four-foot core will be capped or sealed at both ends by the contractor immediately after withdrawal from the borehole.

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- Following completion or refusal, the borehole will be abandoned by grouting through the probe casing while the casing is being removed from the borehole. The grout will consist of a bentonite grout slurry and will be placed using a positive-displacement pump. The volume of the borehole will be calculated and compared to the volume of the grout slurry placed, to ensure a continuous seal.
- The top of the borehole will be marked using a wooden lathe and flagging to facilitate surveying activities

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DRILLING PROCEDURE

All borings shall be drilled using cable-tool drilling techniques. This technique has the ability to drive protective casing through unconsolidated material by the percussive action of an aboveground pile hammer. Drilling and sampling rates will be determined by the on-site geologist and/or sampling personnel. Details of drilling and sampling procedures are described below.

Toxic and/or contaminating substances will not be introduced into the boring or applied to any portion of the drill string. The use of petroleum lubrication materials on drill string joints will not be permitted. Ideally, no lubricants will be used. If necessary, only non-petroleum lubricants specially formulated for environmental work will be allowed. Lubrication of tool joints will be conducted in such a manner as to avoid excessive application. The manufacturers' name and lubricant type will be noted in the project field notebook.

Upon reaching the required depth the monitoring well will be constructed within the protective casing. The casing will be removed partially during filling the annulus of the well to prevent the collapse of the borehole.

ABANDONMENT PROCEDURES

If downhole problems prevent completion of the boring into a monitoring well (Section 4.2), the boring will be abandoned in accordance with the Oregon Administrative Rules, Chapter 690, Division 240. If the height of standing water in the hole is less than 25 feet, abandonment will proceed by placing bentonite chips into the boring at a pour rate of three minutes or slower per standard sack. A sounding tape will be run in the boring to measure fill-up rate and to ensure that bridging does not occur. If bridging occurs, the bridge will be broken up prior to pouring additional chips. If the height of water in a boring is greater than 25 feet, a cement-bentonite grout will be pumped into the hole via a tremie pipe. Abandonment will be deemed complete when the level of grout has stabilized at ground surface. Abandoned borings will be inspected for two or three days after completion to ensure that the grout level has not dropped. If the grout has subsided, additional grout will be added to the hole.

SOIL SAMPLE COLLECTION

The on-site geologist will direct the drilling crew and rig to each drilling location. Samples will be obtained by inserting the sampler and string of drive pipe to the bottom of the boring. Sampling will be attempted using a split spoon sampler. Driven soil samples will be collected as determined by the field geologist for stratigraphic logging purposes only.

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Using visual examination techniques, the soil samples will be described in the field in general accordance with the Unified Soil Classification System (Figure A-1). A summary sheet outlining the soils classification terminology is shown in Table A-1.

Specific sample criteria to be noted includes:

Soil Name

USCS Group Symbol

Color (Munsell Soil Color Charts, revised 1992)

Grain size and distribution

Soil particle lithology

Gradation

Plasticity

Bedding or sedimentary structures

Chemical precipitates

Organic material

Moisture content

Background odor

Other observations, such as field screening data, visual evidence of contamination or lack thereof, the presence of debris or seepage horizons will also be noted. Observations will be recorded on a Soil Boring Log form for future reference. An example Soil Boring Log form is presented in Appendix B. Other information to be noted on the Soil Boring Logs include:

Project name and location

Project number

Geologist's name

Drilling rig and sampling method

Date of drilling start and completion

Boring number

Boring location

Sample collection intervals and identification numbers

Water level measurement (date and time)

Soil sampling will be completed using a driven sample collection system, consisting of a lined piston-type core sampler. The liner is removed from the core barrel and split with a knife. The requisite sample jars will be filled using a decontaminated stainless-steel teaspoon or tablespoon.

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Jars for will be completely filled with no headspace to prevent misrepresentation of subsurface conditions due to volatilization artifacts. If the sample is saturated, care will be taken to minimize free liquid in the sample jar.

Activities of the Observing Geologist During Drilling

1. Record the name of the drilling contractor, the driller, driller's helper(s).
2. Record the type and make of the drill rig used.
3. Note the weather or any special external conditions which influence the drilling.
4. Be certain that the drillers are informed about the nature of the daily records which they shall keep.
5. Check the driller's daily records to verify their accuracy.
6. Make preliminary logs as the core is drilled and describe any subsurface situation encountered during drilling which could relate to the hydrogeologic character of the subsurface.
7. Note date and time of all activities associated with the drilling.
8. Make certain that the drillers follow required procedures, both for drilling and labeling of core boxes.
9. Be sure to verify that well construction materials conform to specifications.
10. The geologist's daily record shall include, but may not be limited to, the following items:
    (a) Date and depth of hole at start and end of working day or shift.
    (b) Depth of start and finish of each core run.
    (c) Depth and size of any casing at start and end of each core run.
    (d) Core diameter and changes in core size.
    (e) Type and condition of bit.
    (f) Time required to drill each foot of core.
    (g) Gain or loss of water, mud or air flush; type of cuttings.
    (h) Standing water-level at start and end of each working period.
    (i) Simplified description of strata.
    (j) Total core recovery with information as to possible location of core losses.
    (k) Location of samples.
    (l) Details of delays and breakdowns.
    (m) Details of in-situ tests and instrumentation installed.
    (n) Backfilling and grouting.

This list excludes any special items which may be required for contractual record purposes or for special hydrogeologic tests.

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TABLE A-1

SOIL CLASSIFICATION TERMINOLOGY

Order of Soil Descriptions

1) Minor Constituents, Major Constituents
2) Color
3) Moisture
4) Any Additional Information

Constituents (Refer to Practice Memorandum)

Cohesionless Soils		Cohesive Soils	
Sand	50%	silt, trace clay	slightly plastic (PI = 1-5)
(-y, -ly)	35 - 50%	clayey silt	low to medium plasticity (PI = 5-20)
sandy, silty			thread test - 1/8 to 1/16" diameter
gravelly		silty clay/clay	high plasticity (PI > 20)
Some	20 - 35%		thread test - < 1/16" diameter before
Little	10 - 20%		breaking
Trace	1 - 10%		

For cohesionless soils, also use "fine", "medium", and "coarse" to describe the constituents. (Or a combination of these descriptors).

When more than 50% of a sample would be retained on a No. 200 sieve, the major constituent is the largest portion of the material that would have been retained on a No. 200 sieve.

Color (Refer to Practice Memorandum)

Moisture

dry - Little perceptible moisture
damp - Some perceptible moisture, probably below optimum
moist - Probably near optimum moisture content
wet - Much perceptible moisture, probably above optimum

Examples
a. soft sandy clay w/ trace of fine gravel, moist, brown
(35-50% sand, > 50% clay, 1-10% gravel)
b. soft silty clay w/ little fine to medium sand, dry, gray
(high plasticity, 10-20% sand)
c. loose to medium dense fine to medium sand and fine gravel, wet, brown
(50% sand, 50% gravel)
d. dense medium to coarse sand w/ trace clay, light brown, moist
(> 50% sand, 1-10% clay)

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UNIFIED SOIL CLASSIFICATION SYSTEM

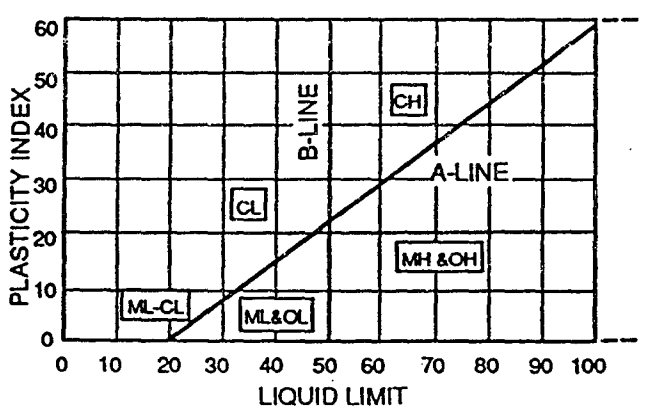
Figure A-1

SYMBOL	LETTER	DESCRIPTION	MAJOR DIVISIONS		
	GW	WELL-GRADED GRAVELS OR GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	CLEAN GRAVELS (LITTLE OR NO FINES)	GRAVELS MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO.4 SIEVE SIZE	COARSE-GRAINED SOILS MORE THAN HALF OF MATERIAL IS LARGER THAN NO.200 SIEVE SIZE
	GP	POORLY-GRADED GRAVELS OR GRAVEL-SAND MIXTURES, LITTLE OR NO FINES			
	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		
	GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES			
	SW	WELL-GRADED SAND OR GRAVELLY SANDS, LITTLE OR NO FINES	CLEAN SANDS (LITTLE OR NO FINES)	SANDS MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO.4 SIEVE SIZE	
	SP	POORLY-GRADED SANDS OR GRAVELLY SANDS, LITTLE OR NO FINES			
	SM	SILTY SANDS, SAND-SILT MIXTURES	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		
	SC	CLAYEY SANDS, SAND-CLAY MIXTURES			
	ML	INORGANIC SILTS, VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	SILTS & CLAYS LIQUID LIMIT LESS THAN 50		FINE-GRAINED SOILS MORE THAN HALF OF MATERIAL IS SMALLER THAN NO.200 SIEVE SIZE
	CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS			
	OL	ORGANIC SILTS AND ORGANIC SILT-CLAYS OF LOW PLASTICITY			
	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS	SILTS & CLAYS LIQUID LIMIT GREATER THAN 50		
	CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS			
	OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS			
	PT	PEAT AND OTHER HIGHLY ORGANIC SOILS	HIGHLY ORGANIC SOILS		

FOR VISUAL CLASSIFICATION, THE 1/4" SIZE MAY BE USED AS EQUIVALENT TO THE NO.4 SIEVE SIZE

THE NO.200 U.S. STANDARD SIEVE IS ABOUT THE SMALLEST PARTICLE VISIBLE TO THE NAKED EYE

PLASTICITY CHART



KEY TO SAMPLES

- INDICATES UNDISTURBED SAMPLE
- INDICATES DISTURBED SAMPLE
- INDICATES NO RECOVERY
- INDICATES DEPTH OF STANDARD PENETRATION TEST

TYPES OF SOIL SAMPLERS

U - DAMES & MOORE TYPE "U" SAMPLER

SS - SPLIT SPOON SAMPLER

SOIL CLASSIFICATION CHART AND KEY TO TEST DATA

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While advancing soil borings, field screening will be conducted to assess the presence of Non Aqueous Phase Liquid (NAPL). The objectives of the program are to investigate for the presence of NAPL using field methods.

The borings will be advanced using Geoprobe and cable tool drilling rigs. Continuous soil samples will be collected for soil classification, visual examination for the presence of Light Non Aqueous Phase Liquid (LNAPL) or Dense Non Aqueous Phase Liquid (DNAPL), and field screening. During the soil boring program, URS will use established methods to screen for LNAPL and DNAPL in the field. Field screening methods to be used include visual identification, headspace screening, and, UV fluorescence.

URS's site support vehicle (SSV) will be used as the field laboratory where all of the field screening tests will be performed. Plastic sheeting will be placed on the floor to minimize the risk of contaminating the vehicle. The field screening tests will be conducted in an "assembly-line" fashion to expedite the time required to conduct all of the screening tests. The rear door can be closed to achieve the dark room effect that is needed for the fluorescence testing. The SSV has an internal light in the bay, so the back door could possibly remain closed at all times as long as organic vapors are monitored in the work area.

The following paragraphs describe the methods and procedures for conducting the field screening tests on the soil samples. The field screening tests should be conducted in the same order as they are discussed here. All observations should be recorded on the data sheets.

Initial Sample Preparation. Immediately following the opening of the split-spoon, Check the nosepiece of sampler with PID/FID for possible volatiles, then place a 2 to 3 inch section of the soil collected into the inner of two sealable polyethylene bags. Label the outer bag with the boring number, sample interval, and date. Seal the bags to enclose a bagful of air.

Headspace Screening. Let the sample stand for 2 to 3 minutes to warm to ambient temperature then shake the sample for 15 to 30 seconds. Insert the probe of an organic vapor meter into an opened corner of the bag. After recording the vapor concentrations into the field notebook, reseal both bags.

Visual Examination. Visually inspect the sample through the double bags for NAPL presence. Record your observations into the field notebook.

UV Fluorescence. Examine the sample in a dark area by scanning the sample bag with the UV light (Raytech Industries' Versalume Model – 4 Watt Broad-spectrum Lamp). To enhance the detection, squeeze fluid against the bag beneath the lamp. The visible fluorescence emitted from chlorobenzene, a primary constituent of this NAPL, is expected to be milky white. The addition of 10 mL of water to the samples may also enhance the ability to detect NAPL fluorescence. Record your observations into the field notebook.

Waste Disposal. The wastes generated during the field screening test will be disposed of in the following manners:

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Place the contents of the tubes in a 5-gallon bucket to be transferred to a thirty gallon drum (containing soil cuttings) at the end of each day.

Rinse the tubes of obvious contamination.

Place the tubes in a trash bag to be included with the PPE that will be discarded in the residual waste containers on site.

Keep the parent samples in a sealed container until all of the testing has been completed. This will allow for retesting, if necessary, without having to collect another sample.

Once the testing is completed, place the contents of the polypropylene bags into a five gallon bucket to be transferred to a thirty gallon drum (containing soil cuttings).

Place the polypropylene bags in a plastic trash bag to be disposed along with any used PPE in a plant residual waste container.

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GROUNDWATER SAMPLING DATA SHEET

Well Number: _____ Sample Number: _____ Date: _____

Project: _____ Project Number: _____ Task: _____

Weather Conditions: _____ Observations/Comments: _____

_____ _____

PID/FID Backgd: ____/____ ppm In-pipe____ / _____ ppm

% LEL / % O_2 Backgd: ____/____% In-pipe____ / ___ %

P.I.D/FID Calibration Standard: _____

P.I.D./FID Calibration Date :_____

Well Depth: _____feet BTOC or bgs

Water Depth: _____ feet BTOC or bgs

Feet of Water: _____ feet

Gallons per Foot: _____ gallons/feet

Well Volume: _____gallons

Purge Volume: _____gallons

Observation for sheen or LNAPL: _____

Observation for DNAPL: _____

Observation and condition of the well: poor satisfactory new

If poor, note deficiencies:_____

Pump hoses and/or bailer ropes were new, cleaned or dedicated?

_____

_____

Measuring Point (MP): _____ TOC gs; PVC or stainless

Elevation of MP: _____ feet

Elevation of Water: _____ feet

Well Diameter: _____inches

Well Diameter	Gallons per casing foot
2 inches	0.16
3 inches	0.367
4 inches	0.65

pH meter #: _____ Calibration date: _____

Conductivity meter # _____ Calibration date: _____

QA/QC samples: _____

Purge Method: _____

Sample Method: _____

Water Disposal: _____

Sampler(s): _____

General Comments: _____

_____

Field Parameters	Before Purging	Volume 1	Volume 2	Volume 3	Volume 4	Volume 5	Sample
Volume (gallons)							
24- hour Time							
pH							
Conductivity ( )							
Temp. °C or °F							
Turbidity/color							
Diss. Oxy. (mg/L)							
Eh ( )							

Analyses	Method	Bottle Type	Preservative	Number	Number MS/MSD

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Project: Project Location: Project Number:	**Log of Boring ___** Sheet 1 of ___

Date(s) Drilled			Logged By			Checked By
Drilling Method			Drill Bit Size/Type			Approx. Surface Elevation (feet)
Drill Rig Type			Drilling Company			Total Depth Drilled (feet)
Diameter of Hole (inches)	Diameter of Well (inches)		Number of Samples	Disturbed:	Undisturbed:	Sampler Type
Type of Sand Pack			Type of Well Casing			Screen Perforation

WATER LEVEL READINGS						Type/Thickness of Seal(s)
Water Level Depth, ft						
Time						Comments/ Boring Location
Date						
Casing/Auger Depth, ft						

Depth, feet	SAMPLES Type	SAMPLES Number	Blows/foot	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm) Headspace	PID (ppm) Background	Drilling Rate (time)
0					SURFACE CONDITIONS:				
2									
4									
6									
8									
10									
12									
14									

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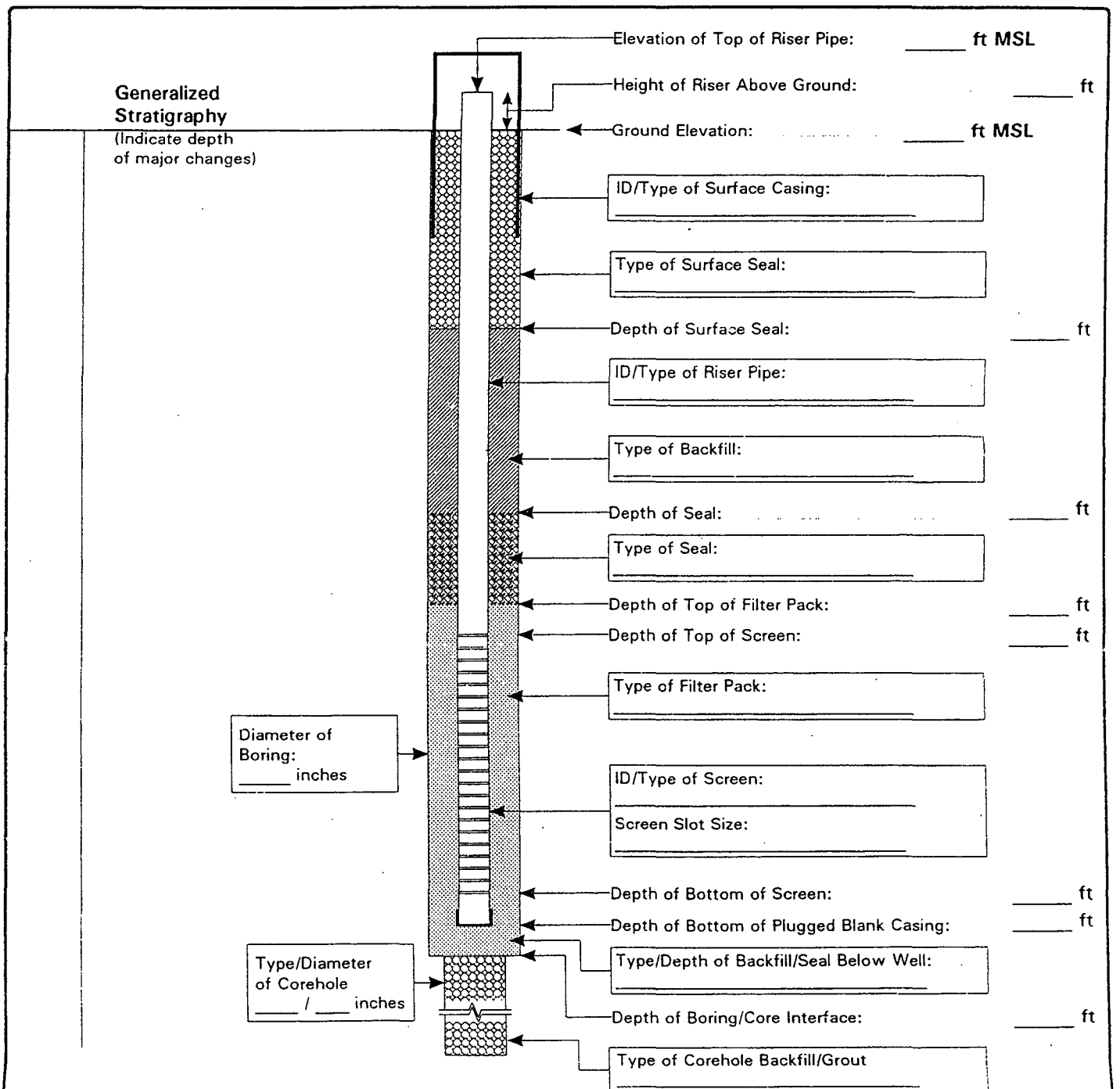
Project: Project Location:	MONITORING WELL CONSTRUCTION LOG FOR BORING _____

Well Location		Date(s) Installed	Time
Installed By	Observed By		Total Depth (ft)
Method of Installation			
Screened Interval	Completion Zone - Aquifer		
Remarks			



NOTE: DIAGRAM IS NOT TO SCALE

WELL DEVELOPMENT DATA SHEET

Well Number: _____ Sample Number: _____ Date: _____

Project: _____ Project Number: _____ Task: _____

Weather Conditions: _____ Well Developer's Name: _____

Date, Time Start: _____ Date, Time Finish _____ Well Development Co.: _____

PID/FID Backgd: ____/____ ppm In-pipe____ / _____ ppm

% LEL / % O_2 Backgd: ____/____% In-pipe____ / ___ %

P.I.D. Standard Calibration Used: _____

P.I.D./FID Calibration Date : _____

Well Depth: _____ feet BTOC or bgs

Water Depth: _____ feet BTOC or bgs

Feet of Water: _____ feet

Gallons per Foot: _____ gallons/feet

Well Volume: _____ gallons

Purge Volume: _____ gallons

Observation for sheen or LNAPL: _____

Observation for DNAPL: _____

Observation and condition of the well: poor satisfactory new

If poor, note deficiencies: _____

Pump hoses and/or bailer ropes were new, cleaned or dedicated?

_____

Approx Pump Rate: _____

Measuring Point (MP): _____ TOC gs; PVC or stainless

Elevation of MP: _____ feet

Elevation of Water: _____ feet

Well Diameter: _____ inches

Well Diameter	Gallons per casing foot
2 inches	0.16
3 inches	0.367
4 inches	0.65

pH meter: _____

Conductivity meter: _____

Calibration Date: _____

# of Purge Volumes Reqired: _____

# of Purge Volumes Removed: _____

Purge Method: _____

Sample Method: _____

Water Disposal: _____

Sampler(s): _____

General Comments: _____

Field Parameters	Before Purging	Volume 1	Volume 2	Volume 3	Volume 4	Volume 5	Volume 6
Volume (gallons)							
24- hour Time							
pH							
Conductivity ( )							
Temp. °C or °F							
Color							
Turbidity							
Diss. Oxy. (mg/L)							

Field Parameters	Volume 7	Volume 8	Volume 9	Volume 10	Volume 11	Volume 12	
Volume (gallons)							
24- hour Time							
pH							
Conductivity ( )							
Temp. °C or °F							
Color							
Turbidity							
Diss. Oxy. (mg/L)							

SCOEPA00009580

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508 (206) 481-9200 FAX 485-2992
East 11115 Montgomery, Suite B, Spokane, WA 99206-4779 (509) 924-9200 FAX 924-9290
9405 S.W. Nimbus Avenue, Beaverton, OR 97009-7132 (503) 643-9200 FAX 644-2202

CHAIN OF CUSTODY REPORT

Work Order #

REPORT TO:	INVOICE TO:	TURNAROUND REQUEST in Business Days*
ATTENTION:	ATTENTION:	Organic and Inorganic Analyses: 10 (Standard) 7 5 4 3 2 1 Same Day
ADDRESS:	ADDRESS:	Fuels and Hydrocarbon Analyses: 10 (Standard) 3-4 2 1 Same Day
PHONE: FAX:	P.O. NUMBER: NCA QUOTE #:	OTHER Specify:
PROJECT NAME:	Analysis Request:	*Turnaround Requests less than standard may incur Rush Charges.
PROJECT NUMBER:		
SAMPLED BY:		

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						

RELINQUISHED BY (Signature): DATE:	RECEIVED BY (Signature): DATE:
PRINT NAME: FIRM: TIME:	PRINT NAME: FIRM: TIME:
RELINQUISHED BY (Signature): DATE:	RECEIVED BY (Signature): DATE:
PRINT NAME: FIRM: TIME:	PRINT NAME: FIRM: TIME:

ADDITIONAL REMARKS:

PAGE OF

COC Rev. 9, 1997

SCOEPA00009581

90-DAY INVESTIGATIVE DERIVED WASTE LOG

RI/FS

Rhone Poulenc AG Company

Portland, Oregon

Lot #	Date 1st Accumulated	90-Day Limit (Day 1st accumulated +90 days)	Station ID	Type of Waste	How Generated	Samples Collected during activity for Lab Analysis ?	Approximate Amount (Give Units of Measure)
						Y/N	
						Y/N	
						Y/N	
						Y/N	
						Y/N	
						Y/N	
						Y/N	
						Y/N	
						Y/N	
						Y/N	
						Y/N	
						Y/N	
						Y/N	
						Y/N	

S:\PROJECTS\92C0804A\TASK41\CPT_FSP\EarlyRI.xls\90daylog

QUARTERLY PROGRESS REPORT FOR RI/FS
RPAC - Portland Site
FIRST QUARTER 2000 - JANUARY 1, 2000 THROUGH MARCH 31, 2000
April 10, 2000

SCOEPA0000583

QUARTERLY PROGRESS REPORT FOR RI/FS RPAC - Portland Site

FIRST QUARTER 2000

JANUARY 1, 2000 - MARCH 31, 2000

April 10, 2000

Submitted to:
Oregon Department of Environmental Quality
Northwest Region
2020 S.W. 4th Avenue, Suite 400
Portland, Oregon 97201

Prepared for:
Rhone-Poulenc AG Company
1600 Perimeter Park, Suite 400
Morrisville, North Carolina 27560

Prepared by:
URS Corporation
111 S.W. Columbia, Suite 900
Portland, Oregon 97201
(503) 222-7200
92CO804A/45

SCOEPA00009584

URS Greiner Woodward Clyde
A Division of URS Corporation

TRANSMITTAL

To: Cathryn Young

Company: Wacker Siltronic Corp.

Address: P.O. Box 83180
Portland, OR 97283

Project No. 52-92C0804A.00
Task No. 00015

We are sending you: **Attached via:** U.S. Postal Service
Under separate cover via:

Number	Item
1	Quarterly Progress Report for RI/FS
	RPAC – Portland Site
	Fourth Quarter 1999
	October 1, 1999 – December 31, 1999

Transmittal is as noted below:

[ ]	For approval	[ ]	Approved as submitted	[ ]	Resubmit ___ copies for approval
[X]	For your use	[ ]	Approved as noted	[ ]	Submit ___ copies for distribution
[ ]	As requested	[ ]	Returned for corrections	[ ]	Return ___ corrected prints
[ ]	For review & comment	[ ]	Other		

Remarks:

From: Roger Gresh **Date:** 1-11-00

URS Corporation

TRANSMITTAL

To: Cathryn Young

Company: Wacker Siltronic Corp

Address: P.O. Box 83180
Portland, OR 97283

Project No. 52-92C0804A.00
Task No. 00045

We are sending you: **Attached via:** U.S. Postal Service

Under separate cover via:

Number	Item
1	Copy of the First Quarter 2000 – Progress Report, RPAC Portland Site Complete Report through Appendix G

Transmittal is as noted below:

☐	For approval	☐	Approved as submitted	☐	Resubmit ___ copies for approval
☒	For your use	☐	Approved as noted	☐	Submit ___ copies for distribution
☐	As requested	☐	Returned for corrections	☐	Return ___ corrected prints
☐	For review & comment	☐	Other		

Remarks:

From: L. Hamilton for Roger Gresh **Date:** 4-11-00

URS Corporation

The integrated resources of
URS Greiner Woodward Clyde
Dames & Moore
BRW
Radian
O'Brien-Kreitzberg
and associated firms

111 SW Columbia, Suite 900
Portland, OR 97201-5814
Tel: 503.222.7200
Fax: 503.222.4292
Offices Worldwide

April 10, 2000
92C0804A/15

Eric Blischke
Oregon Department of Environmental Quality
Northwest Region, Suite 400
2020 SW 4th Avenue
Portland, Oregon 97201-4987

Subject: First Quarter, 2000 - Progress Report
RPAC, Portland Site

Dear Eric:

On behalf of Rhône-Poulenc AG Company (RPAC), URS Greiner Woodward Clyde (URS) is submitting five copies of the enclosed First Quarter, 2000 - Progress Report as follows:

1. Two copies in three-ring binders complete with analytical data sheets (Appendix G).
2. Three copies comb-bound without Appendix G.

All copies include "Detection Only Tables." One of the three-ring binder copies is being sent directly to Mavis Kent.

This progress report being submitted by RPAC in accordance with the July 8, 1999 Consent Order. If you have any questions, please call (503) 222-7200.

Sincerely,
URS CORPORATION

FOR Roger Gresh, P.G.
Project Manager

Mike Edwards, P.E.
Project Engineer

Enclosures: First Quarter 2000 – Progress Report for RI/FS, RPAC – Portland Site, March 10, 2000

cc: R. Ferguson, RPAC
J. Benedict, CHBH&L
M. Kent, DEQ – NW Region

SCOEPA00009587

QUARTERLY PROGRESS REPORT FOR RI/FS RPAC - Portland Site

FIRST QUARTER 2000

JANUARY 1, 2000 - MARCH 31, 2000

April 10, 2000

Submitted to:

Oregon Department of Environmental Quality
Northwest Region
2020 S.W. 4th Avenue, Suite 400
Portland, Oregon 97201

Prepared for:

Rhone-Poulenc AG Company
1600 Perimeter Park, Suite 400
Morrisville, North Carolina 27560

Prepared by:

URS Corporation
111 S.W. Columbia, Suite 900
Portland, Oregon 97201
(503) 222-7200
92CO804A/45

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Appendix B Monitoring Well Completion Diagrams
Appendix C QA Data Validation Report
Appendix D Detections Only Tables
Appendix E Well Development Field Data Sheets
Appendix F Reconnaissance Groundwater Sampling Data Sheets
Appendix G Laboratory Analytical Results

SCOEPA00009589

On behalf of Rhône-Poulenc AG Company (RPAC), URS Greiner Woodward Clyde (URS) has prepared this Quarterly Progress Report for Remedial Investigation/Feasibility Study (RI/FS) activities associated with RPAC's Portland facility. This report covers activities conducted during the first quarter of 2000 (January 1, 2000 through March 31, 2000).

The submittal of quarterly progress reports is specified under the Consent Order (No. WMCSR-NWR-99-07) executed between RPAC and the Oregon Department of Environmental Quality (DEQ) on July 8, 1999.

SCOEPA00009590

2.1 MONITORING WELL INSTALLATION ACTIVITIES

During the months of January and February, 2000, groundwater monitoring wells were installed on the RPAC (Lake and Herbicide Areas), BNSF, Atochem, Wacker, and Schnitzer properties. One piezometer was installed on March 15, 2000 on City of Portland property. Table 2-1 summarizes the relevant data for each monitoring well and piezometer installed this quarter. Figure 2-1 identifies the location of new piezometer and monitoring wells. The new piezometer and all new monitoring wells were constructed and placed at locations approved by DEQ.

With a few exceptions, all proposed monitoring wells were installed as planned with only minor variations in screen intervals based on field conditions. At W-09-116, the depth to bedrock was anticipated to be approximately 125 feet below ground surface (bgs). During drilling, bedrock was encountered at 115 feet bgs. Per DEQ approval, the well screen was set at this depth, and the depth of W-09-86 screen interval was shortened from 100 to 86 feet bgs. This was the most significant variation encountered during drilling operations. Other screen interval variations greater then 5 feet were approved by DEQ as they occurred. Screen intervals were pre-determined based on boring logs from CPT and Geoprobe borings conducted during the last reporting period.

Monitoring wells RP-04-16, RP-05-16 and piezometer RP-02-40 were installed using hollow stem augers. The remaining wells were installed using air rotary drilling techniques. Four monitoring wells (W-08-74, MW-05-70, RP-02-66, and RP-01-63) were installed as basalt monitoring wells. Basalt wells were installed using a double casing system to ensure an adequate seal between the basalt and overlying alluvium. Per DEQ request, URS collected a sample of the alluvium/basalt interface material was collected in each basalt monitoring well in an attempt to locate a gravel layer reported in earlier borings. A gravel layer was identified from 48 to 49 feet bgs in boring MW-05-70. No gravel layers were identified in any other basalt borings. The piezometer and all wells were installed in accordance with the procedures outlined in the Field Sampling Plan (FSP) prepared by URS and dated July 7, 1999 and any subsequent modifications approved by DEQ.

The boring logs and monitoring well construction diagrams for all piezometer and well installation activities conducted between January 13 and March 15, 2000 are included in Appendix A and B, respectively.

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2.1.1 Investigative Derived Waste

Soil

During well installation activities, approximately 22 cubic yards of soil cuttings were generated. Soil cuttings were containerized in DOT approved 55-gallon steel drums and transported to the RPAC warehouse for storage and characterization before disposal off-site. All drums were labeled on the side and lid according to source with the following information.

RPAC RI/FS IDW

Hold For Analysis

Date

Location (e.g. RP-01-51)

Media (e.g. Soil Cuttings)

Water

Approximately 2,625 gallons of water were generated during well installation activities. Sources included groundwater removed during drilling and decontamination water. All water was transported to the RPAC site for immediate disposal to the groundwater treatment facility. Another 646 gallons of water were generated during well development activities and disposed of in the same manner.

2.2 SOIL SAMPLING ACTIVITES

During drilling operations, soil samples were collected from two boring locations. On January 13, 2000, a composite soil sample LWS-01-01 was collected from a depth of 11-16 feet bgs at the RP-04-16 boring on BNSF property near West Doane Lake. At this location, fill and/or alluvial material with some NAPL was encountered between 11.5 feet and 16 feet below ground surface (bgs). Soil sample LWS-01-01 was submitted to the laboratory for the following EPA methods analysis: 8260, 8270, 8151, 8081/8082, 8041, 8141, Total Metals, 8290, and NWTPH-Dx.

On February 17, 2000 soil samples WWS-01-01 and WWS-02-01 were collected from the RP-03-26 boring on Wacker Siltronics property. WWS-01-01 was a composite sample collected from between 20 – 25 feet bgs, while sample WWS-02-01 was collected via split spoon sampler from 25 – 25.5 feet bgs. A NAPL sheen was observed at this interval. Soil samples WWS-01-01 and WWS-02-01 were submitted to the laboratory for the following EPA methods analysis: 8260, 8270, 8151, 8081/8082, 8041, and 8290. Soil samples from the Wacker property were not

SCOEPA00009592

submitted for pesticides analysis. The analytical results for all soil samples were validated in accordance with RPAC's DEQ-approved QAPP that RPAC submitted on May 23, 1999.

The QA data validation report is included in Appendix C. Detections only tables for soil samples are included in Appendix D, and laboratory analytical reports are included in Appendix G. Soil samples were collected in accordance with the DEQ-approved FSP prepared by URS, and dated July 7, 1999.

2.3 RECONNAISSANCE GROUNDWATER SAMPLING ACTIVITIES

Reconnaissance groundwater sampling activities were conducted at the Atochem property, on January 17, 2000. Geoprobe direct-push technology was used to advance a boring (GGW-019) for the collection of groundwater samples from two intervals (33-35 ft bgs and 44-47 ft bgs). A reconnaissance groundwater sampling data sheet was completed for each sample interval. Copies of the field sampling sheets are included in Appendix F. Groundwater samples were submitted to the laboratory for the following EPA methods analyses: 8260, 8151, 8041, 8081/8082, 8141, Dissolved Metals, and 8290. The analytical results were validated in accordance with the approved QAPP. The validation report is included in Appendix C. Detections only tables for reconnaissance groundwater samples are included in Appendix D. Figure 2-1 depicts the sampling location.

2.4 STAFF GAUGE INSTALATION ACTIVITIES

On February 28, 2000, staff gauges SGWDL and SGNDL were installed in West and North Doane Lakes, respectively. The staff gauges will be used in conjunction with existing wells to monitor water levels. SGWDL was installed near the former staff gauge along the east shore of West Doane Lake. SGNDL was installed along the western shore of North Doane Lake. Figure 2-1 shows the locations of the staff gauges.

2.5 MONITORING WELL DEVELOPMENT

With the exception of PZ-02-40, all newly installed monitoring wells were developed by URS personnel between February 24 and March 1, 2000. During development, purge water was monitored for pH, conductivity, and temperature. Water clarity was also noted. Piezometer PZ-02-40 was developed on March 15, 2000 prior to the installation of the well seal. Well development was conducted in accordance with the Field Sampling Plan dated July 7, 1999. A well development field data sheet was prepared for each monitoring well. Copies of the data sheets are included in Appendix E.

SCOEPA00009593

2.6 SURVEYING ACTIVITIES

All monitoring wells scheduled for the Spring 2000 groundwater sampling event and staff gauges were surveyed between March 8, and March 21, 2000 by W&H Pacific. Survey parameters included top of casing and ground surface elevations relative to the City of Portland Datum and horizontal positioning relative to the state plane coordinate system. Survey data are being compiled and will be provided in the next quarterly report.

2.7 WATER LEVEL MEASURING ACTIVITIES

On March 15 and 16, the depth to water was measured in all monitoring wells included in the scheduled Spring 2000 groundwater sampling event. Water level measurements were collected using an electronic water level meter capable of measuring to an accuracy of 0.01 feet. Depth to water measurements were recorded on a field data sheet and are summarized in Table 2-2. Water levels were also measured at the West Doane Lake and North Doane Lake staff gauges.

2.8 GROUNDWATER SAMPLING ACTIVITIES

The Spring 2000 comprehensive groundwater sampling round began on March 20, 2000. Groundwater samples will be collected from a total of 104 monitoring wells. Because groundwater sampling will not be completed during this reporting period, the Spring 2000 sampling activities will be addressed in the next quarterly report.

SCOEPA00009594

Table 2-1
Monitoring Well Installation Summary
Rhone Poulenc AG Company
Portland, OR

First Quarter 2000

Well ID	Date Installed	Drilling Method	Property	Screen Interval (ft bgs)	Total Depth (ft bgs)
RP-05-16	1/13/00	Hollow Stem Auger	RPAC	15 - 5'	16'
W-08-26	1/18/00	Air Rotary	RPAC	25 - 20'	26'
W-08-74	1/19/00	Air Rotary	RPAC	73 - 68'	74'
W-09-116	1/21/00	Air Rotary	RPAC	115.5 - 110.5'	116.5'
W-09-86	1/25/00	Air Rotary	RPAC	85 - 80'	86'
MW-05-70	2/1/00	Air Rotary	RPAC	70 - 65'	70.5'
W-04-89	1/26/00	Air Rotary	Gould	88 - 83'	89'
RP-02-66	2/2/00	Air Rotary	Atochem	65 - 60'	66'
RP-02-49	2/3/00	Air Rotary	Atochem	48 - 43'	49'
RP-02-31	2/3/00	Air Rotary	Atochem	30 - 25'	31'
RP-04-16	1/13/00	Hollow Stem Auger	BNSF	15 - 5'	16'
RP-04-41	2/22/00	Air Rotary	BNSF	40 - 35'	41'
RP-06-87	2/7/00	Air Rotary	BNSF	86 - 81'	87'
RP-06-31	2/8/00	Air Rotary	BNSF	29.5 - 24.5'	30.5'
RP-01-65	2/8/00	Air Rotary	BNSF	64 - 59'	65'
RP-01-51	2/9/00	Air Rotary	BNSF	50 - 45'	51'
RP-01-31	2/10/00	Air Rotary	BNSF	30 - 25'	31'
W-16-31	2/11/00	Air Rotary	Schnitzer	30 - 25'	31'
MW-03-81	2/16/00	Air Rotary	Wacker	80 - 75'	81'
RP-03-63	2/17/00	Air Rotary	Wacker	62.5 - 57.5'	63.5'
RP-03-26	2/17/00	Air Rotary	Wacker	25 - 20'	26'
PZ-02-40	3/15/00	Hollow Stem Auger	City Of Portland	39 - 29'	40'

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Table 2-2
Depth to Water Summary
Rhone Poulenc AG Company
Portland, OR
3/15/00 - 3/29/00

Site ID	Type	Location / Property	Depth to Water (feet)	Time	Date	Measuring Point	NAPL Thickness (inches)
AL2-17	Well	LAKE AREA	11.25	14:46	3/15/00	41.77	None
AL2-32	Well	LAKE AREA	13.01	14:44	3/15/00	41.41	None
AL2-46	Well	LAKE AREA	13.3	14:48	3/15/00	41.77	None
AL4-47	Well	LAKE AREA	11.67	15:02	3/15/00	40.26	None
AL5-19	Well	LAKE AREA	10.09	14:58	3/15/00	40.07	None
AL5-35	Well	LAKE AREA	11.61	14.58	3/15/00	39.54	None
AL5-62	Well	LAKE AREA	11.68	14:59	3/15/00	39.59	None
AL6-96	Well	LAKE AREA	14.12	15:29	3/15/00	38.73	None
ASW-01A	Well	METRO	NM	NA	3/15/00	NA	None
ASW-03	Well	METRO	8.97	13:41	3/15/00	[1]	None
ASW-04	Well	METRO	5.83	13:30	3/15/00	[1]	None
ASW-05	Well	METRO	6.56	14:15	3/15/00	[1]	None
ASW-06	Well	METRO	5.43	13:34	3/15/00	[1]	None
ASW-07	Well	METRO	NM	NA	NA	NA	NA
ASW-08	Well	METRO	NM	NA	NA	NA	NA
BST2W-61	Well	LAKE AREA	12.89	14:45	3/15/00	41.18	None
BST5W-74	Well	LAKE AREA	12.17	15:00	3/15/00	39.87	None
BTB-4A-84	Well	LAKE AREA	13.76	15:26	3/15/00	39.44	None
BTB-4B-25	Well	LAKE AREA	7.64	15:25	3/15/00	39.54	None
BTB-4B-55	Well	LAKE AREA	14.11	15:25	3/15/00	39.81	None
MW-01-26	Well	HERBICIDE AREA	9.26	12:13	3/15/00	49.89	None
MW-01-41	Well	HERBICIDE AREA	11.58	12:14	3/15/00	49.53	None
MW-01-56	Well	HERBICIDE AREA	11.83	12:15	3/15/00	49.7	None
MW-01-76	Well	HERBICIDE AREA	14.5	12:13	3/15/00	47.7	None
MW-02-26	Well	HERBICIDE AREA	10.47	13:11	3/15/00	48.09	None
MW-02-46	Well	HERBICIDE AREA	10.24	13:13	3/15/00	47.91	None
MW-02-62	Well	HERBICIDE AREA	9.83	13:14	3/15/00	48	None
MW-03-27	Well	HERBICIDE AREA	11.25	12:47	3/15/00	48.32	None
MW-03-49	Well	HERBICIDE AREA	11.18	12:46	3/15/00	48.28	None
MW-03-68	Well	HERBICIDE AREA	11.09	12:46	3/15/00	48.25	None
MW-03-85	Well	WACKER	17.36	16:44	3/15/00	[1]	None
MW-03-I	Well	WACKER	17.92	16:43	3/15/00	[1]	None
MW-03-S	Well	WACKER	12	16:44	3/15/00	[1]	None
MW-04-27	Well	HERBICIDE AREA	14.41	12:51	3/15/00	47.53	None
MW-04-47	Well	HERBICIDE AREA	13.65	12:54	3/15/00	47.65	None
MW-04-63	Well	HERBICIDE AREA	13.62	12:53	3/15/00	48	None
MW-05-24	Well	HERBICIDE AREA	7.5	13:01	3/15/00	37.83	None
MW-05-52	Well	HERBICIDE AREA	9.23	13:02	3/15/00	37.7	None
MW-05-70	Well	HERBICIDE AREA	10.06	13:01	3/15/00	[1]	None
MW-06-S	Well	WACKER	11.58	16:47	3/15/00	[1]	None
MW-07-S	Well	WACKER	12.79	16:52	3/15/00	[1]	None
MW-08-27	Well	HERBICIDE AREA	12.88	12:57	3/15/00	48.23	None
MW-08-46	Well	HERBICIDE AREA	15.36	12:56	3/15/00	48.11	None
MW-08-64	Well	HERBICIDE AREA	15.15	12:56	3/15/00	47.97	None
MW-09-23	Well	HERBICIDE AREA	11.42	12:41	3/15/00	47.03	None
MW-09-42	Well	HERBICIDE AREA	12.15	12:42	3/15/00	47.64	None
MW-09-58	Well	HERBICIDE AREA	11.1	12:43	3/15/00	46.21	None
MW-09-80	Well	HERBICIDE AREA	11.44	12:41	3/15/00	46.67	None
MW-10-24	Well	INSECTICIDE AREA	10.43	12:29	3/15/00	46.21	None
MW-10-44	Well	INSECTICIDE AREA	10.81	12:30	3/15/00	46.54	None
MW-10-57	Well	INSECTICIDE AREA	10.74	12:31	3/15/00	46.66	None
MW-11-24	Well	INSECTICIDE AREA	7.97	12:25	3/15/00	44.01	None
MW-11-37	Well	INSECTICIDE AREA	7.89	12:24	3/15/00	43.8	None

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Table 2-2
Depth to Water Summary
Rhone Poulenc AG Company
Portland, OR
3/15/00 - 3/29/00

Site ID	Type	Location / Property	Depth to Water (feet)	Time	Date	Measuring Point	NAPL Thickness (inches)
MW-11-56	Well	INSECTICIDE AREA	7.37	12:24	3/15/00	43.63	None
MW-11-79	Well	INSECTICIDE AREA	7.25	12:25	3/15/00	44.14	None
MW-12-27	Well	INSECTICIDE AREA	11.25	12:03	3/15/00	50.22	None
MW-12-41	Well	INSECTICIDE AREA	11.19	12:02	3/15/00	50.08	None
MW-12-59	Well	INSECTICIDE AREA	10.74	12:04	3/15/00	49.58	None
MW-12-79	Well	INSECTICIDE AREA	11.48	12:03	3/15/00	50.08	None
NDL-SG	Staff Gauge	BNSF	2.76	11:46	3/16/00	25.64	None
P-11	Piezometer	HERBICIDE AREA	8.13	14:51	3/15/00	39.3	None
PP-08	Piezometer	LAKE AREA	9.38	15:05	3/15/00	37.72	None
PP-11	Piezometer	ATOCHEM	13.06	16:38	3/15/00	31.63	None
PZ-02-40	Piezometer	City of Portland	39.37	12:52	3/16/00	[1]	None
PZ-1-11	Piezometer	INSECTICIDE AREA	3.65	11:57	3/15/00	[1]	None
RP-01-31	Well	BNSF	23.77	17:06	3/15/00	[1]	None
RP-01-51	Well	BNSF	23.89	17:05	3/15/00	[1]	None
RP-01-65	Well	BNSF	23.71	17:04	3/15/00	[1]	None
RP-02-31	Well	ATOCHEM	29.18	16:23	3/15/00	[1]	None
RP-02-49	Well	ATOCHEM	29.03	16:22	3/15/00	[1]	None
RP-02-66	Well	ATOCHEM	29.29	16:21	3/15/00	[1]	None
RP-03-26	Well	WACKER	14.74	16:51	3/15/00	[1]	None
RP-03-63	Well	WACKER	14.85	16:50	3/15/00	[1]	None
RP-04-16	Piezometer	BNSF	6.74	15:09	3/15/00	[1]	None
RP-04-41	Well	BNSF	6.43	15:09	3/15/00	[1]	None
RP-05-16	Piezometer	BNSF	10.9	14:42	3/15/00	[1]	None
RP-06-30	Well	BNSF	17.04	16:59	3/15/00	[1]	None
RP-06-87	Well	BNSF	24.32	16:58	3/15/00	[1]	None
RPW-02	Well	INSECTICIDE AREA	8.37	12:36	3/15/00	47.07	None
RPW-03	Well	INSECTICIDE AREA	7.85	12:27	3/15/00	43.94	None
RPW-05	Well	INSECTICIDE AREA	14.84	14:30	3/15/00	49.83	None
SG-WDL	Staff Gauge	BNSF	1.58	15:19	3/15/00	[1]	None
W-03-D	Well	GOULD	7.81	15:47	3/15/00	32.56	None
W-03-I	Well	GOULD	3.67	15:47	3/15/00	33.1	None
W-03-S	Well	GOULD	2.89	15:46	3/15/00	34.37	None
W-04-89	Well	GOULD	9.46	15:40	3/15/00	[1]	None
W-04-I	Well	GOULD	4.59	10:15	3/16/00	32.65	None
W-04-S	Well	GOULD	1.2	15:39	3/15/00	32.7	None
W-06-B	Well	LAKE AREA	11.61	14:37	3/15/00	39.96	None
W-06-D	Well	LAKE AREA	8.88	14:34	3/15/00	41.1	None
W-06-S	Well	LAKE AREA	9.16	14:37	3/15/00	39.55	None
W-08	Well	LAKE AREA	7.58	15:15	3/15/00	35.87	None
W-08-26	Well	LAKE AREA	8.64	15:15	3/15/00	[1]	None
W-08-74	Well	LAKE AREA	11.86	15:16	3/15/00	[1]	None
W-09	Well	LAKE AREA	7.6	15:19	3/15/00	34.88	None
W-09-116	Well	LAKE AREA	16.29	15:18	3/15/00	[1]	None
W-09-86	Well	LAKE AREA	16.64	15:17	3/15/00	[1]	None
W-10	Well	PUMP STATION	17.25	17:11	3/15/00	31.99	None
W-11-B	Well	ESCO	23.82	10:06	3/15/00	41.33	None
W-11-D	Well	ESCO	24.27	10:10	3/15/00	40.2	None
W-11-I	Well	ESCO	24.58	10:09	3/15/00	40.22	None
W-11-S	Well	ESCO	9.01	10:14	3/15/00	40.89	None
W-12-D	Well	ESCO	19.53	11:24	3/15/00	41.68	None
W-12-I	Well	ESCO	19.35	11:26	3/15/00	41.7	None

SCOEPA00009597

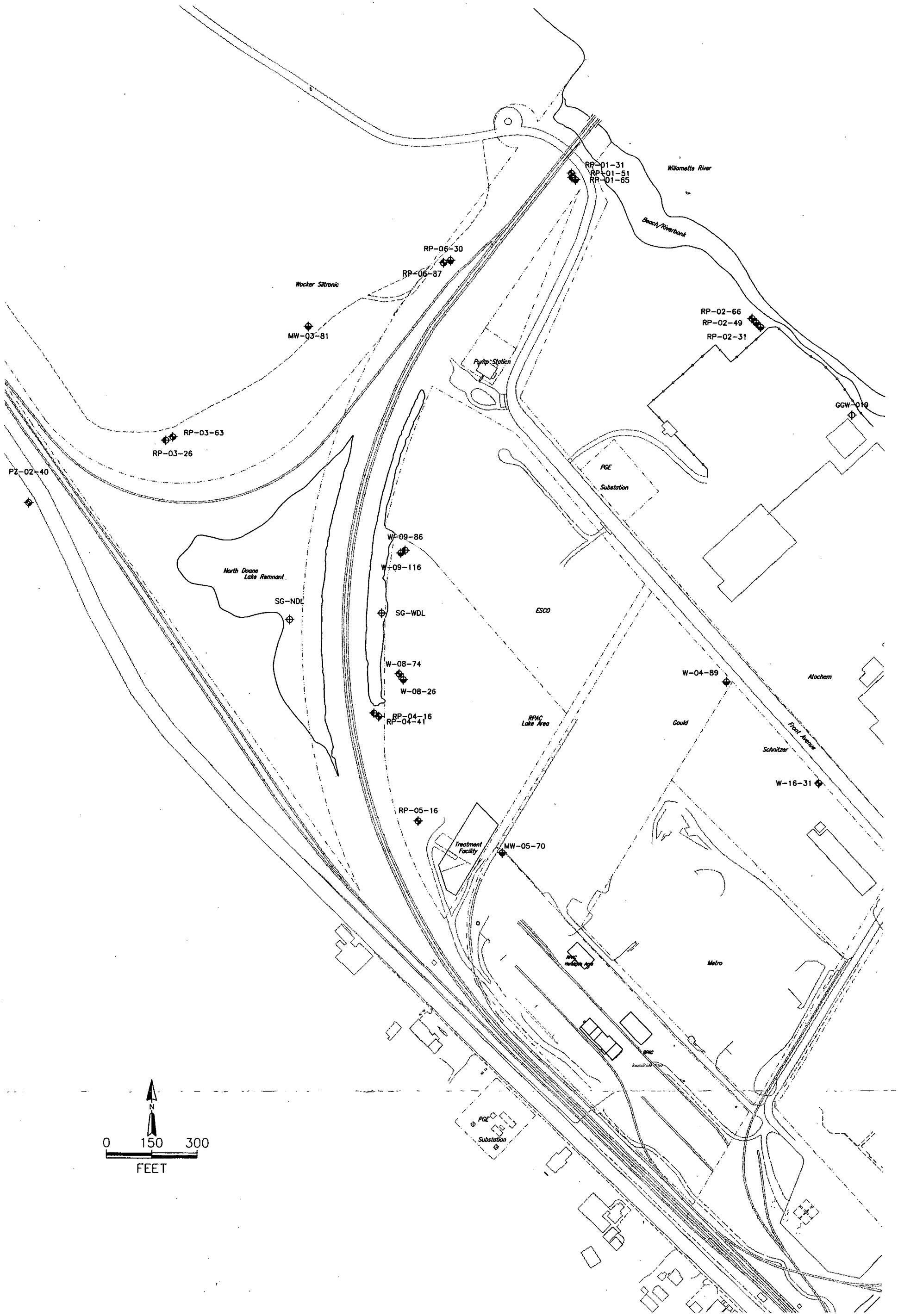
Table 2-2
Depth to Water Summary
Rhone Poulenc AG Company
Portland, OR
3/15/00 - 3/29/00

Site ID	Type	Location / Property	Depth to Water (feet)	Time	Date	Measuring Point	NAPL Thickness (inches)
W-12-S	Well	ESCO	10.14	11:21	3/15/00	41.42	None
W-15-D	Well	METRO	9.15	13:45	3/15/00	42.58	None
W-15-I	Well	METRO	10.32	13:45	3/15/00	42.53	None
W-15-S	Well	METRO	9.22	13:44	3/15/00	42.08	None
W-16-31	Well	SCHNITZER	5.82	15:54	3/15/00	1	None
W-16-D	Well	SCHNITZER	9.09	15:55	3/15/00	35.46	None
W-16-I	Well	SCHNITZER	8.99	15:55	3/15/00	35.44	None
W-18-D	Well	PGE	17.12	11:43	3/15/00	55.74	None
W-18-I	Well	PGE	15.87	11:41	3/15/00	55.25	None
W-18-S	Well	PGE	14.72	11:40	3/15/00	54.77	None
W-19-D	Well	ATOCHEM	23.2	16:30	3/15/00	1	None
W-19-I	Well	ATOCHEM	25.53	16:29	3/15/00	1	None
W-19-S	Well	ATOCHEM	23.2	16:29	3/15/00	1	None
W-2	Well	KINDER MORGAN	23.02	12:36	3/16/00	1	None
W-5	Well	KINDER MORGAN	23.03	12:31	3/16/00	1	None
A	Well	HERBICIDE AREA	20.11	NR	3/29/00	1	None
B	Well	HERBICIDE AREA	17.65	NR	3/29/00	1	None
C	Well	HERBICIDE AREA	17.83	NR	3/29/00	1	1.67
D	Well	HERBICIDE AREA	7.84	NR	3/29/00	1	None
E	Well	HERBICIDE AREA	18.65	NR	3/29/00	1	5.3
F	Well	HERBICIDE AREA	19.83	NR	3/29/00	1	None
G	Well	HERBICIDE AREA	22.59	NR	3/29/00	1	None
H	Well	HERBICIDE AREA	20.67	NR	3/29/00	1	None
P-07	Well	HERBICIDE AREA	17.36	NR	3/29/00	1	3.83
MW-05-34	Well	HERBICIDE AREA	8.02	NR	3/29/00	1	1.31

Notes:

NM = Not Measured
NA = Not Applicable
NR = Not Recorded (water levels from these wells will not be used for groundwater modeling)
1 = Survey data not available at this time
* = in feet above COP (City of Portland) datum

SCOEPA00009598



URS Corporation	TITLE: New Wells, Staff Gauges, Geoprobe RPAC and Surrounding Properties (First Quarter – 2000) Portland, OR	DWN: jgdp	DES.:	PROJECT NO.: 5292C0804A
		CHKD:	APPD:	FIGURE NO.: 2-1
		DATE: 3/22/00	REV.: 1	

The only significant problem encountered during monitoring well installation activities was damage to underground utilities at the MW-05-70 boring location. Prior to drilling, a private locator surveyed the area. However, the utilities in the area were non-metallic (e.g. PVC or clay). During drilling a clay storm sewer pipe was broken while casing was being advanced. No water from the storm sewer entered the borehole as it was cased during drilling. After the well was set and grouted through the casing, the line was repaired by a contractor.

No other significant problems were encountered during field activities conducted this quarter.

SCOEPA00009600

4.1 BORING LOGS / MONITORING WELL COMPLETION DIAGRAMS

The boring logs generated during this reporting period are included in Appendix A. Monitoring well completion diagrams are included in Appendix B.

4.2 SOIL SAMPLING ACTIVITIES

The QA Data Validation Report for soil samples is included in Appendix C. The Detections Only Tables for the soil samples are included in Appendix D. The Laboratory Analytical Reports for soil samples are included in Appendix G.

4.3 RECONNAISSANCE GROUNDWATER SAMPLING ACTIVITIES

The QA Data Validation Report for reconnaissance groundwater samples is included in Appendix C. The Detections Only Tables for the reconnaissance groundwater samples are included in Appendix D. The reconnaissance groundwater sampling data sheets for the reconnaissance groundwater sampling are included in Appendix F. The Laboratory Analytical Reports for reconnaissance groundwater samples are included in Appendix G.

SCOEPA00009601

The activities planned for the next quarterly reporting period include the following:

- Completion of the Spring 2000 comprehensive groundwater sampling event.
- Characterization/disposal of soil IDW.
- Submittal of the Source Area Scoping Document

SCOEPA00009602

[redacted]

SCOEPA00009603

SCOEPA00009604

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Key to Log of Boring

Sheet 1 of 1

Elevation feet	Depth, feet	SAMPLES: Type	SAMPLES: Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
1	2	3	4	5	6	7	8	9	10	11	12

COLUMN DESCRIPTIONS

1 **Elevation:** Elevation in feet referenced to mean sea level (MSL) or site datum.

2 **Depth:** Depth in feet below the ground surface.

3 **Sample Type:** Type of soil sample collected at depth interval shown; sampler symbols are explained below.

4 **Sample Number:** Sample identification number.

5 **Sampling Resistance:** Number of blows to advance driven sampler each 6-inch drive interval, or distance noted, using a 140-lb hammer with a 30-inch drop; "NA" indicates data not recorded.

6 **Recovery:** Length in inches of sample actually recovered in driven or pushed sampler; "NA" indicates data not recorded.

7 **Headspace OVA:** Organic vapor analyzer sample headspace reading, in parts per million; "NA" indicates no reading.

8 **Graphic Log:** Graphic depiction of subsurface material encountered; typical symbols are explained below.

9 **USCS Code:** Unified Soil Classification System (USCS) group symbol code for associated soil strata.

10 **Material Description:** Description of material encountered; may include color, moisture, grain size, and density/consistency.

11 **Well Completion Schematic:** Schematic of piezometer or well installation; materials are listed in header block and alongside well schematic; graphic symbols are explained below.

12 **Field Notes and Well Details:** Comments and observations regarding drilling or sampling made by driller or field personnel. Well construction materials and installation details are also listed in this column.

TYPICAL SOIL GRAPHIC SYMBOLS

- SAND (SP)
- CLAY (CL)
- SILT (ML)
- GRAVEL (GP/GW)
- SAND (SW)
- Plastic CLAY (CH)
- Plastic SILT (MH)
- Silty SAND (SM)
- SAND with silt (SP-SM)
- Silty CLAY (CL/ML)
- Clayey SILT (ML/CL)
- Clayey SAND (SC)

TYPICAL WELL GRAPHIC SYMBOLS

- Blank well casing in outer steel casing
- Blank well casing in concrete
- Blank well casing in Aquaguard bentonite grout
- Blank well casing in bentonite chips
- Blank well casing in 20-40 fine filter sand
- Slotted well casing in 20-40 filter sand
- Slotted well casing in prepacked 20-40 sand, 10-20 sand outside
- Natural backfill or slough

TYPICAL SAMPLER GRAPHIC SYMBOLS

- 2-inch-OD split spoon sampler (SPT)
- Piston-driven split spoon sampler
- Grab sample from cuttings

OTHER GRAPHIC SYMBOLS

- First water encountered at time of drilling (ATD)
- Water level measured in well on specified date
- *Change in material properties within a stratum*
- Inferred contact or gradational change in soil type

GENERAL NOTES

1. Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive; actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
2. Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

Report: ENV_12_PORTLAND_W/USCS_KEY; File: RPACRI45.GPJ; 4/5/2000 keyrpac

URS Greiner Woodward Clyde

SCOEPA00009605

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring RP-05-16

Sheet 1 of 1

Date(s) Drilled and Installed	1/13/00	Geologist	G. Lukert	Reviewer	
Drilling Method	Hollow-Stem Auger (CME 850)	Drilling Contractor	Cascade Drilling, Inc.	Total Depth of Borehole	16.5 feet
Sampling Method	SPT split spoon	Hammer Data	140 lbs / 30-inch drop	Top of Casing Elevation	Not available
Size and Type of Well Casing	2-inch-dia. Schedule 40 PVC	Screen Perforation	0.010-inch slot (5-15 feet)	Approximete Surface Elevation	Not available
Seal or Backfill	Bentonite chips 1-3 feet	Groundwater Level(s)	7.5 feet bgs on 1/13/00 ATD; water equilibrium at 10.90 feet below TOC on 3/15/00		

Elevation feet	Depth, feet	SAMPLES Type	SAMPLES Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	0					0.0		ML	Surface Conditions: brush SILT; yellowish brown (10YR 5/4), medium plasticity, wet		Concrete (0-1 ft) 6-inch-dia. steel protective casing Bentonite chips (1-3 ft)
	5		01	2-2-3	18	0.0			Becomes brown (10YR 5/3), loose, with rootlets, slight phenol odor		2-in.-dia. Sch. 40 PVC riser (to 5 ft) 10-1/4-in.-dia. borehole
	10		02	1-1-1	18	0.0		SM	Silty SAND; grayish brown (10YR 5/2), fine, ~30% low to medium plasticity fines, slightly micaceous, very loose, saturated, no odor		20-40 silica sand (3-16.5 ft) 2-in. dia. 0.010-in. slot Sch. 40 PVC screen (5-15 ft)
	15		03	2-1-3	8	0.0			Becomes brown (10YR 5/3), medium plasticity fines, wet		Sump (15-16 ft)
	20								**Bottom of boring at 16.5 feet.**		
	25										
	30										

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 RP-05-16

URS Greiner Woodward Clyde

SCOEPA00009606

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring W-08-25

Sheet 1 of 1

Date(s) Drilled and Installed	1/17/00 (drilled) to 1/18/00 (installed)	Geologist	G. Lukert	Reviewer	
Drilling Method	Air Rotary	Drilling Contractor	Cascade Drilling, Inc.	Total Depth of Borehole	26.5 feet
Sampling Method	Grab from cuttings, SPT split spoon	Hammer Data	140 lbs / 30-inch drop	Top of Casing Elevation	Not available
Size and Type of Well Casing	2-inch-dia. Schedule 40 PVC	Screen Perforation	0.010-inch slot (20-25 feet)	Approximete Surface Elevation	Not available
Seal or Backfill	Bentonite chips 2-18 feet	Groundwater Level(s)	22.3 feet bgs on 1/17/00 ATD; water equilibrium at 18.1 feet bgs on 1/18/00 at 1100		

Elevation feet	Depth, feet	SAMPLES Type	SAMPLES Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	0								Surface Conditions: 2 inches of crushed rock		6-inch-dia. steel protective casing; Concrete (0-2 ft)
	5		01	NA	NA	NA		SM	Silty SAND; dark brown to gray, dry, no odor [FILL]		7-3/8-in.-dia. borehole; 2-in.-dia. Sch. 40 PVC riser (to 20 ft)
	10							GC	Clayey GRAVEL; dark brown, trace silt, wet, no odor		Bentonite chips (2-18 ft)
	15							ML	Sandy SILT; dark brown to gray, medium plasticity, ~25% sand, damp, organic odor		
								SM	Silty SAND; dark gray, fine, ~30% low to medium plasticity fines, damp		20-40 silica sand (18-20 ft)
	20		02	1-2-3	NA	137		ML	Sandy SILT; dark gray, medium plasticity, ~25% sand, loose, damp		Prepacked well screen, 20-40 silica sand (20-25 ft); 2-in. dia. 0.010-in. slot Sch. 40 PVC screen (20-25 ft)
	25		03	1-2-4	NA	20			Becomes gray, damp to wet		10-20 silica sand outside prepack (20-26.5 ft); Sump (25-26 ft)
									Bottom of boring at 26.5 feet.		
	30										

Report: ENV_12...VELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 W-08-25

URS Greiner Woodward Clyde

SCOEPA00009607

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring W-08-74

Sheet 1 of 3

Date(s) Drilled and Installed	**1/18/00 (drilled) to 1/20/00 (installed)**	Geologist	**G. Lukert**	Reviewer	
Drilling Method	**Air Rotary**	Drilling Contractor	**Cascade Drilling, Inc.**	Total Depth of Borehole	**74.5 feet**
Sampling Method	**Grab from cuttings, SPT split spoon**	Hammer Data	**140 lbs / 30-inch drop**	Top of Casing Elevation	**Not available**
Size and Type of Well Casing	**7-3/8-inch-dia. steel casing to 63 feet, 2-inch-dia. Schedule 40 PVC**	Screen Perforation	**0.010-inch slot (68-73 feet)**	Approximete Surface Elevation	**Not available**
Seal or Backfill	**Aquaguard bentonite grout 2-63 feet, bentonite chips 63-66 feet**	Groundwater Level(s)	**40 feet bgs on 1/18/00 ATD; water equilibrium at 8.87 feet bgs on 1/20/00 at 1014**		

Elevation feet	Depth, feet	SAMPLES Type	SAMPLES Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	0								Surface Conditions: 2 inches of rock underlain by grass		6-inch-dia. steel protective casing Concrete (0-2 ft)
	5		01	NA	NA	0.0		ML	SILT; very dark gray (10YR 3/1), medium plasticity, trace fine sand, damp [FILL]		9-5/8-in.-dia. steel outer casing (to 62 ft)
	10		02	NA	NA	0.0			Becomes dark gray (2.5Y 4/1), wet, with debris (brick, wire, glass), no odor		7-3/8-in.-dia. steel inner casing (to 63 ft) 2-in.-dia. Sch. 40 PVC riser (to 68 ft)
	15		03	NA	NA	0.0		GC	Clayey GRAVEL; dark gray (2.5Y 4/1), ~30% fines, debris (brick), wet, no odor [FILL]		Aquaguard bentonite grout (2-63 ft)
	20		04	NA	NA	0.0		GM/ML	Silty GRAVEL; dark gray (2.5Y 4/1), ~50% rounded gravel, ~50% fines, small brick fragments, wet, no odor [FILL]		
	25										Centralizers at 20-ft spacing to top of screen
	30										

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 W-08-74

URS Greiner Woodward Clyde

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring W-08-74

Elevation feet	Depth, feet	SAMPLES: Type Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	30									9-5/8-in.-dia. steel outer casing (to 62 ft)
	35	05	NA	NA	0.0		ML	SILT; dark gray (2.5Y 4/1), medium plasticity, soft, saturated		7-3/8-in.-dia. steel inner casing (to 63 ft)
	40	06	NA	NA	0.0			With ~10% fine sand	▽	2-in.-dia. Sch. 40 PVC riser (to 68 ft)
	45	07	NA	NA	0.0			Increasing sand content to ~30%		Aquaguard bentonite grout (2-63 ft)
	50	08	NA	NA	0.0			Decreasing sand content to ~10%; wood fragments in cuttings		
	55	09	NA	NA	0.0					
	60	10	17-50/5"	13	0.0		ML	Sandy SILT; brown (10YR 4/3), occasional clay lenses and fine sand lenses, damp to wet		
								2-inch basalt fragment in end of spoon		
								BASALT		Bentonite chips (63-66 ft)
	65									6-inch-dia. borehole

Report: ENV_12_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 W-08-74

URS Greiner Woodward Clyde

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring W-08-74

Sheet 3 of 3

Elevation feet / Depth, feet	SAMPLES: Type Number	SAMPLES: Sampling Resistance, blows / 6 in.	SAMPLES: Recovery, inches	SAMPLES: Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
65							BASALT (continued)		Bentonite chips (63-66 ft)
							Fractures (indicated by drilling rate)		Centralizer at top of screen
70							Fractures (indicated by drilling rate); color change to dark brown		10-20 silica sand (66-74.5 ft)
									2-in. dia. 0.010-in. slot Sch. 40 PVC screen (68-73 ft)
									Sump (73-74 ft)
75							**Boring terminated at 74.5 feet.**		
80									
85									
90									
95									
100									

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 W-08-74

URS Greiner Woodward Clyde

SCOEPA00009610

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring W-09-116

Sheet 1 of 4

Date(s) Drilled and Installed	1/20/00 and 1/21/00	Geologist	G. Lukert	Reviewer	
Drilling Method	Air Rotary	Drilling Contractor	Cascade Drilling, Inc.	Total Depth of Borehole	116.5 feet
Sampling Method	Grab from cuttings	Hammer Data	Not applicable	Top of Casing Elevation	Not available
Size and Type of Well Casing	2-inch-dia. Schedule 40 PVC	Screen Perforation	0.010-inch slot (110.5-115.5 feet)	Approximete Surface Elevation	Not available
Seal or Backfill	Aquaguard bentonite grout 2-108.5 feet	Groundwater Level(s)	Not measured ATD; water equilibrium at 14 feet bgs on 1/24/00		

Elevation feet	Depth, feet	SAMPLES Type Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	0							Surface Conditions: rock overlying grass		6-inch-dia. steel protective casing Concrete (0-2 ft)
	5	01	NA	NA	0.0		ML	SILT; very dark gray (10YR 3/1), ~20% rounded gravel, debris (wood, brick), dry, no odor [FILL]		7-3/8-in.-dia. borehole
	10	02	NA	NA	1.2		SP-SM	SAND with silt; very dark gray (10YR 3/1), medium, trace silt, some broken rock, saturated, no odor [FILL]		2-in.-dia. Sch. 40 PVC riser (to 110.5 ft) Aquaguard bentonite grout (2-108.5 ft)
	15	03	NA	NA	2.5					
	20	04	NA	NA	0.0			Slight sheen in sample, no odor		
	25									
	30									

Report: ENV_12W_ELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 W-09-116

URS Greiner Woodward Clyde

SCOEPA00009611

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring W-09-116

Elevation feet	Depth, feet	SAMPLES Type	SAMPLES Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	30		05	NA	NA	0.8		ML/MH	Sandy SILT; very dark gray (10YR 3/1), medium to high plasticity, ~30% fine sand, trace clay, saturated		7-3/8-in.-dia. borehole
	35										2-in.-dia. Sch. 40 PVC riser (to 110.5 ft)
	40										Aquaguard bentonite grout (2-108.5 ft)
	45		06	NA	NA	0.0		CL/CH	CLAY with silt; very dark gray (10YR 3/1), medium to high plasticity, trace fine sand, saturated, no odor		
	50		07	NA	NA	0.0			No sand		
	55										
	60		08	NA	NA	0.0		ML/MH	SILT; very dark gray (10YR 3/1), medium to high plasticity, trace clay, saturated, slight odor		
	65										

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 W-09-116

SCOEPA00009612

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring W-09-116

Sheet 3 of 4

Elevation feet	Depth, feet	SAMPLES: Type Number	SAMPLES: Sampling Resistance, blows / 6 in.	SAMPLES: Recovery, inches	SAMPLES: Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	65									7-3/8-in.-dia. borehole
	70	09	NA	NA	0.0		ML	SILT; light olive brown (2.5Y 5/3), trace fine sand, saturated, no odor		2-in.-dia. Sch. 40 PVC riser (to 110.5 ft)
	75									Aquaguard bentonite grout (2-108.5 ft)
	80	10	NA	NA	0.0		ML	Clayey SILT; olive brown (2.5Y 4/3), saturated, no odor		
	85							Medium to coarse, rounded sand (quartz fragments)		
	90						SM	Silty SAND; olive brown (2.5Y 4/4), very fine, saturated, no odor		
	95	11	NA	NA	0.0					
	100									

Report: ENV_12...EVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 W-09-116

URS Greiner Woodward Clyde

SCOEPA00009613

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring W-09-116

Sheet 4 of 4

Elevation feet	Depth, feet	SAMPLES Type	SAMPLES Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
			12	NA	NA	0.0		SM	Silty SAND; light olive brown (2.5Y 5/6), very fine, saturated, no odor		7-3/8-in.-dia. borehole
	105		13	NA	NA	0.0					2-in.-dia. Sch. 40 PVC riser (to 110.5 ft)
											Aquaguard bentonite grout (2-108.5 ft)
	110										20-40 silica sand (108-110.5 ft)
											Prepacked well screen, 20-40 silica (110.5-115.5 ft)
											2-in. dia. 0.010-in. slot Sch. 40 PVC (110.5-115.5 ft)
	115								Possible gravel		10-20 silica sand outside prepack (110.5-116.5 ft)
									BASALT		Sump
									Boring terminated at 116.5 feet.		
	120										
	125										
	130										
	135										

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 W-09-116

URS Greiner Woodward Clyde

SCOEPA00009614

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring W-09-86

Sheet 1 of 3

Date(s) Drilled and Installed	1/25/00	Geologist	G. Lukert	Reviewer	
Drilling Method	Air Rotary	Drilling Contractor	Cascade Drilling, Inc.	Total Depth of Borehole	86.5 feet
Sampling Method	Grab from cuttings, SPT split spoon	Hammer Data	140 lbs / 30-inch drop	Top of Casing Elevation	Not available
Size and Type of Well Casing	2-inch-dia. Schedule 40 PVC	Screen Perforation	0.010-inch slot (80-85 feet)	Approximete Surface Elevation	Not available
Seal or Backfill	Aquaguard bentonite grout 2-78 feet	Groundwater Level(s)	35 feet bgs on 1/25/00 ATD; water equilibrium at 16.64 feet below TOC on 3/15/00		

Elevation feet	Depth, feet	SAMPLES Type Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	0							Surface Conditions: crushed rock		6-inch-dia. steel protective casing Concrete (0-2 ft)
	5	01	NA	NA	0.0		GM	Silty GRAVEL; dark grayish brown (10YR 4/2), broken rock in sand and silt matrix, brick fragments, dry, slight odor [FILL]		7-3/8-in.-dia. borehole
	10	02	NA	NA	0.0		GP	Sandy GRAVEL; very dark grayish brown (2.5Y 3/2), rounded gravel and rock rock in fine to medium sand matrix, wood debris, dry, no odor [FILL] Becomes wet		2-in.-dia. Sch. 40 PVC riser (to 80 ft)
	15	03	NA	NA	0.0		SM	Silty SAND; very dark grayish brown (2.5Y 3/2), fine, ~20% low plasticity fines, saturated, no odor		Aquaguard bentonite grout (2-78 ft)
	20	04	NA	NA	0.0		GP	Sandy GRAVEL; very dark grayish brown (2.5Y 3/2), gravel and broken rock, ~20% fine sand, saturated, no odor, slight rainbow sheen in sample [FILL]		
	25	05	NA	NA	0.0		SM/ML	Silty SAND to sandy SILT; very dark grayish brown (2.5Y 3/2), saturated		
	30									

Report: ENV_12\...VELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 W-09-086

URS Greiner Woodward Clyde

SCOEPA00009615

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring W-09-86

Elevation feet	Depth, feet	SAMPLES: Type Number	SAMPLES: Sampling Resistance, blows / 6 in.	SAMPLES: Recovery, inches	SAMPLES: Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	30	06	NA	NA	0.0		CL	CLAY; very dark grayish brown (2.5Y 3/2), some silt, saturated, no odor, rainbow sheen in sample		7-3/8-in.-dia. borehole
	35	07	NA	NA	0.0					2-in.-dia. Sch. 40 PVC riser (to 80 ft)
	40	08	NA	NA	0.0		CL/ML	Silty CLAY; very dark grayish brown (2.5Y 3/2), saturated, no odor		Aquaguard bentonite grout (2-78 ft)
	45									
	50	09	NA	NA	0.0					
	55									
	60									
	65									

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 W-09-086

URS Greiner Woodward Clyde

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring W-09-86

Sheet 3 of 3

Elevation feet	Depth, feet	SAMPLES Type	SAMPLES Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	65		10	NA	NA	0.0		CL/ML	Silty CLAY; olive (5Y 5/3), saturated, no odor		7-3/8-in.-dia. borehole
	70							ML	SILT with coarse sand [logged from cuttings]		2-in.-dia. Sch. 40 PVC riser (to 80 ft)
	75										Aquaguard bentonite grout (2-78 ft)
	80		11	4-13-18	18	0.0			Pale olive (5Y 6/3), medium plasticity, sandy, wet Damp, no sand		20-40 silica sand (78-80 ft) Prepacked well screen, 20-40 silica sand (80-85 ft)
	85		12	4-6-10	18	0.0		SM	Silty SAND; pale olive (5Y 6/3), medium to coarse, subrounded to rounded weathered sand, some basalt grains, ~30% silt, medium dense to dense, damp, no odor		2-in. dia. 0.010-in. slot Sch. 40 PVC screen (80-85 ft) 10-20 silica sand outside prepack (80-86.5 ft) Sump (85-86 ft)
									Bottom of boring at 86.5 feet.		
	90										
	95										
	100										

Report: ENV_12...VELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 W-09-086

URS Greiner Woodward Clyde

SCOEPA00009617

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring MW-05-70

Sheet 1 of 3

Date(s) Drilled and Installed	1/31/00 and 2/1/00	Geologist	G. Lukert	Reviewer	
Drilling Method	Air Rotary	Drilling Contractor	Cascade Drilling, Inc.	Total Depth of Borehole	71.0 feet
Sampling Method	Grab from cuttings, piston-driven split spoon	Hammer Data	Not applicable	Top of Casing Elevation	Not available
Size and Type of Well Casing	7-3/8-inch-dia. steel casing to 52 feet; 2-inch-dia. Schedule 40 PVC	Screen Perforation	0.010-inch slot (65-70 feet)	Approximete Surface Elevation	Not available
Seal or Backfill	Aquaguard bentonite grout 2-60 feet, bentonite chips 60-63 feet	Groundwater Level(s)	Not measured ATD; water equilibrium at 7.72 feet bgs on 2/1/00 at 0730		

Elevation feet	Depth, feet	SAMPLES Type	SAMPLES Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	0								Surface Conditions: gravel		6-inch-dia. steel protective casing Concrete (0-2 ft)
	5		01	NA	NA	230		SM/ML	Silty SAND to sandy SILT; gray, some gravel, damp, some odor [OVA=5.9 and 1.2 ppm at borehole, 0.0 ppm in breathing zone]		9-5/8-in.-dia. steel outer casing (to 50 ft) 7-3/8-in.-dia. steel inner casing (to 52 ft)
	10		02	NA	NA	94		ML	SILT; dark gray (2.5Y 4/1), medium plasticity ~10% sand, damp, odor [OVA=8.2 ppm in breathing zone]		2-in.-dia. Sch. 40 PVC riser (to 65 ft)
	15		03	NA	NA	12			Becomes olive brown (2.5Y 4/3), wet, with trace sand		Aquaguard bentonite grout (2-60 ft)
	20										
	25		04	NA	NA	2.8			Becomes light olive brown (2.5Y 5/4), micaceous, no sand [OVA=149 ppm at cyclone]		Centralizers at 20-ft spacing to top of screen
	30										

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACR145.GPJ; 4/5/2000 W-05-70

URS Greiner Woodward Clyde

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring MW-05-70

Elevation feet	Depth, feet	SAMPLES: Type Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	30	05	NA	NA	10		ML	Sandy SILT; light olive brown (2.5Y 5/4), low to medium plasticity, ~25% sand, micaceous, wet [OVA=37 ppm at cyclone]		9-5/8-in.-dia. steel outer casing (to 50 ft)
							SM	Silty SAND; light olive brown (2.5Y 4/3), predominantly fine, some coarse sand, ~20% low plasticity fines, micaceous, wet		
	35	06	NA	NA	4.0			[NAPL present in cuttings drum; no visible NAPL in cuttings sample]		7-3/8-in.-dia. steel inner casing (to 52 ft)
										2-in.-dia. Sch. 40 PVC riser (to 65 ft)
	40	07	NA	NA	1.3		SP	SAND; light olive brown (2.5Y 4/3), fine, no silt, wet		Aquaguard bentonite grout (2-60 ft)
	45	08	NA	18	0.0			Becomes micaceous, NAPL globules visible in water		
		09	NA	18	0.0			Clay lens 1/2 inch thick		
	50						GP	GRAVEL with sand; dark gray (2.5Y 4/1), rounded weathered basalt clasts up to 2 inches, vesicular, visible phenocrysts, fine to medium sand [Fractured Basalt]		6-inch-dia. borehole below 52 ft
	55									
	60							BASALT		Bentonite chips (60-63 ft)
								Fractures (indicated by drilling rate)		10-20 silica sand (63-71 ft)
	65									Centralizer

Report: ENV_12_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 W-05-70

URS Greiner Woodward Clyde

SCOEPA00009619

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring MW-05-70

Sheet 3 of 3

Elevation feet / Depth, feet	SAMPLES: Type Number	SAMPLES: Sampling Resistance, blows / 6 in.	SAMPLES: Recovery, inches	SAMPLES: Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
65							BASALT (continued)		10-20 silica sand (63-71 ft)
							Fractures (indicated by drilling rate)		2-in. dia. 0.010-in. slot Sch. 40 PVC screen (65-70 ft)
70									Sump (70-70.5 ft)
							Boring terminated at 71.0 feet.		
75									
80									
85									
90									
95									
100									

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 W-05-70

URS Greiner Woodward Clyde

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring W-04-89

Sheet 1 of 3

Date(s) Drilled and Installed	1/26/00 (drilled) to 1/27/00 (installed)	Geologist	G. Lukert	Reviewer	
Drilling Method	Air Rotary	Drilling Contractor	Cascade Drilling, Inc.	Total Depth of Borehole	90.2 feet
Sampling Method	Grab from cuttings, SPT split spoon	Hammer Data	140 lbs / 30-inch drop	Top of Casing Elevation	Not available
Size and Type of Well Casing	2-inch-dia. Schedule 40 PVC	Screen Perforation	0.010-inch slot (83-88 feet)	Approximete Surface Elevation	Not available
Seal or Backfill	Aquaguard bentonite grout 2-81 feet	Groundwater Level(s)	19 feet bgs on 1/26/00 ATD; water equilibrium at 9.46 feet below TOC on 3/15/00		

Elevation feet	Depth, feet	SAMPLES: Type Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	0							Surface Conditions: 1 inch of gravel; ground surface is 3 feet lower than ground surface for W-04		6-inch-dia. steel protective casing; Concrete (0-2 ft)
	5	01	NA	NA	0.0		GW	GRAVEL; dark gray (10YR 4/1), ~10% sand, damp, no odor [FILL]		7-3/8-in.-dia. borehole
	10	02	NA	NA	0.0			Becomes wet, with metal and plastic debris		2-in.-dia. Sch. 40 PVC riser (to 83 ft)
							SM	Silty SAND; black (10YR 2/1), fine, wet, no odor [FILL]		Aquaguard bentonite grout (2-81 ft)
	15									
	20	03	NA	NA	0.0		ML	SILT; very dark gray (2.5Y 3/1), medium plasticity, some wood fragments, wet, no odor [FILL]		
								[Battery casings in cuttings from 20-25 feet]		
	25									
	30									

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 W-04-89

URS Greiner Woodward Clyde

SCOEPA00009621

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring W-04-89

Sheet 2 of 3

Elevation feet	Depth, feet	SAMPLES: Type Number	SAMPLES: Sampling Resistance, blows / 6 in.	SAMPLES: Recovery, inches	SAMPLES: Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	30	04	NA	NA	0.0		ML	SILT; very dark gray (2.5Y 3/1), medium plasticity, trace clay, wood fragments, wet, no odor [FILL] (continued)		7-3/8-in.-dia. borehole
	35	05	NA	NA	0.0			Wood debris		2-in.-dia. Sch. 40 PVC riser (to 83 ft)
	40	06	NA	NA	0.0					Aquaguard bentonite grout (2-81 ft)
	45	07	NA	NA	0.0					
	50	08	NA	NA	0.0		CL/CH	CLAY; dark gray (2.5Y 3/1), medium to high plasticity, some silt, wet, no odor		
	55									
	60	09	NA	NA	0.0		CL	CLAY; olive (2.5Y 4/4), trace sand, wet, no odor		
	65							Increasing sand content		

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 W-04-89

URS Greiner Woodward Clyde

SCOEPA00009622

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring W-04-89

Sheet 3 of 3

Elevation feet	Depth, feet	SAMPLES Type	SAMPLES Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	65		10	NA	NA	0.0		SW-SM	SAND with silt; dark gray (5Y 4/1), medium to coarse, some gravel, wet, no odor		7-3/8-in.-dia. borehole
	70		11	NA	NA	0.0		SM	Silty SAND; dark gray (5Y 4/1), some wood fragments, wet, no odor		2-in.-dia. Sch. 40 PVC riser (to 83 ft)
	75		12	NA	NA	0.0			Sand grades coarse, rounded, with ~40% fines		Aquaguard bentonite grout (2-81 ft)
	80		13	4-8-8	13	0.0			Increasing sand, predominantly fine, ~25% low plasticity silt		20-40 silica sand (81-83 ft)
								SP	SAND; dark gray (5Y 4/1), medium, no fines, dense, wet		Prepacked well screen, 20-40 silica sand (83-88 ft)
	85		14	18-25-25	18	0.0					2-in. dia. 0.010-in. slot Sch. 40 PVC screen (83-88 ft)
								ML	SILT; dark gray (5Y 4/1), dense, wet		10-20 silica sand outside prepack (83-90.2 ft)
									[Boring is making water at rate of >0.8 gallons/minute]		Sump (88-89 ft)
	90								BASALT		
									Boring terminated at 90.2 feet.		
	95										
	100										

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 W-04-89

URS Greiner Woodward Clyde

SCOEPA00009623

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring RP-02-66

Sheet 1 of 3

Date(s) Drilled and Installed	**2/1/00 and 2/2/00**	Geologist	**G. Lukert**	Reviewer	
Drilling Method	**Air Rotary**	Drilling Contractor	**Cascade Drilling, Inc.**	Total Depth of Borehole	**66.5 feet**
Sampling Method	**Grab from cuttings, piston-driven split spoon**	Hammer Data	**Not applicable**	Top of Casing Elevation	**Not available**
Size and Type of Well Casing	**7-3/8-inch-dia. steel casing to 56 feet; 2-inch-dia. Schedule 40 PVC**	Screen Perforation	**0.010-inch slot (60-65 feet)**	Approximete Surface Elevation	**Not available**
Seal or Backfill	**Aquaguard bentonite grout 2-55 feet, bentonite chips 55-58 feet**	Groundwater Level(s)	**Not measured ATD; water equilibrium at 25.80 feet bgs on 2/2/00 at 1340**		

Elevation feet	Depth, feet	SAMPLES Type	Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	0								Surface Conditions: grass		6-inch-dia. steel protective casing; Concrete (0-2 ft)
	5		01	NA	NA	0.0		SP-SM	SAND with silt; very dark gray (5Y 3/1), damp, no odor		9-5/8-in.-dia. steel outer casing (to 55 ft); 7-3/8-in.-dia. steel inner casing (to 56 ft)
	10		02	NA	NA	0.0		ML	SILT with sand; very dark gray (5Y 3/1), ~15% fine sand, wet, no odor		2-in.-dia. Sch. 40 PVC riser (to 60 ft)
	15										Aquaguard bentonite grout (2-55 ft)
	20		03	NA	NA	0.0		ML	SILT; very dark gray (5Y 3/1), medium plasticity, trace clay, wet, no odor		Centralizers at 20-ft spacing to top of screen
	25		04	NA	NA	0.0					
	30										

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 RP-02-66

URS Greiner Woodward Clyde

SCOEPA00009624

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring RP-02-66

Sheet 2 of 3

Elevation feet	Depth, feet	SAMPLES: Type Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	30	05	NA	NA	0.0		ML	SILT; very dark gray (5Y 3/1), medium plasticity, trace clay, wet, no odor (continued)		9-5/8-in.-dia. steel outer casing (to 55 ft)
	35	06	NA	NA	0.0					7-3/8-in.-dia. steel inner casing (to 56 ft)
										2-in.-dia. Sch. 40 PVC riser (to 60 ft)
	40	07	NA	NA	0.0		ML	SILT with sand; very dark gray (5Y 3/1), some fine sand, trace gravel to 1/4 inch diameter, wet, no odor		Aquaguard bentonite grout (2-55 ft)
	45	08	NA	NA	0.0		CL	CLAY; olive (5Y 4/3), trace silt, wet, no odor		
		09	NA	NA	0.0		SM	Silty SAND; olive (5Y 4/3), medium, ~20% silt, micaceous, wet, no odor		
	50	10	NA	NA	0.0		SP-SM	SAND with silt; olive brown (5Y 4/4), slightly micaceous, wet		
							ML	SILT; olive brown (5Y 4/4), dry to damp		
								BASALT, weathered, vesicular, trace sand, wet		
		11	NA	NA	0.0			Weathered to mostly angular fragments, some subrounded fragments		
	55	12	NA	NA	0.0			Becomes moderately to slightly weathered, angular fragments, some medium sand, iron oxide staining Trace silt, trace red-orange staining		Bentonite chips (55-58 ft)
								Fractures (indicated by drilling)		6-inch-dia. borehole below 56 ft
	60							Becomes slightly weathered to fresh (very little weathering)		Centralizer at top of screen
								Fractures (indicated by drilling)		10-20 silica sand (58-66.5 ft)
	65									2-in. dia. 0.010-in. slot Sch. 40 PVC screen (60-65 ft)

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 RP-02-66

URS Greiner Woodward Clyde

SCOEPA00009625

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring RP-02-66

Sheet 3 of 3

Elevation feet / Depth, feet	SAMPLES: Type Number	SAMPLES: Sampling Resistance, blows / 6 in.	SAMPLES: Recovery, inches	SAMPLES: Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
65							BASALT, slightly weathered to fresh (continued)		Sump (65-66 ft)
							Boring terminated at 66.5 feet.		
70									
75									
80									
85									
90									
95									
100									

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 RP-02-66

URS Greiner Woodward Clyde

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring RP-02-49

Sheet 1 of 2

Date(s) Drilled and Installed	2/2/00 (drilled) to 2/3/00 (installed)	Geologist	G. Lukert	Reviewer	
Drilling Method	Air Rotary	Drilling Contractor	Cascade Drilling, Inc.	Total Depth of Borehole	49.7 feet
Sampling Method	Grab from cuttings, piston-driven split spoon	Hammer Data	Not applicable	Top of Casing Elevation	Not available
Size and Type of Well Casing	2-inch-dia. Schedule 40 PVC	Screen Perforation	0.010-inch slot (43-48 feet)	Approximete Surface Elevation	Not available
Seal or Backfill	Aquaguard bentonite grout 2-41 feet	Groundwater Level(s)	36 feet bgs on 2/3/00 at 1020; water equilibrium at 29.03 feet below TOC on 3/15/00		

Elevation feet	Depth, feet	SAMPLES Type Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	0							Surface Conditions: grass		6-inch-dia. steel protective casing; Concrete (0-2 ft)
	5	01	NA	NA	0.0		SP	SAND with gravel; dark gray (2.5Y 4/1), medium, ~20% rounded gravel, damp, no odor [FILL]		7-3/8-in.-dia. borehole; 2-in.-dia. Sch. 40 PVC riser (to 43 ft)
	10	02	NA	NA	0.0		ML	SILT; very dark gray (2.5Y 3/1), medium plasticity, ~10% fine sand, damp [FILL]		Aquaguard bentonite grout (2-41 ft)
	15									
	20	03	NA	NA	0.0			Becomes dry, with rock fragments		
	25	04	NA	NA	0.0			Becomes moist, with trace clay, no sand or rock fragments		
	30									

Report: ENV_12W_ELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 RP-02-49

URS Greiner Woodward Clyde

SCOEPA00009627

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring RP-02-49

Sheet 2 of 2

Elevation feet	Depth, feet	SAMPLES: Type	SAMPLES: Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	30							ML	SILT; very dark gray (2.5Y 3/1), medium plasticity, trace clay, moist (continued)		7-3/8-in.-dia. borehole
	35		05	NA	NA	0.0			Becomes moist to wet, with trace fine sand, micaceous, no clay		2-in.-dia. Sch. 40 PVC riser (to 43 ft)
	40		06	NA	NA	0.0			Becomes light olive brown (2.5Y 5/3), wet		Aquaguard bentonite grout (2-41 ft)
	45		07	NA	10	NA		SM	SAND with silt; very dark grayish brown (10YR 3/2), fine to medium, slightly micaceous, saturated		20-40 silica sand (41-43 ft)
	50								**Boring terminated at 49.7 feet at contact with basalt.**		Prepacked well screen, 20-40 silica sand (43-48 ft)
	55										2-in. dia. 0.010-in. slot Sch. 40 PVC screen (43-48 ft)
	60										10-20 silica sand outside prepack (43-49.7 ft)
	65										Sump (48-49 ft)

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 RP-02-49

URS Greiner Woodward Clyde

SCOEPA00009628

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring RP-02-31

Sheet 1 of 2

Date(s) Drilled and Installed	**2/3/00**	Geologist	**G. Lukert**	Reviewer	
Drilling Method	**Air Rotary**	Drilling Contractor	**Cascade Drilling, Inc.**	Total Depth of Borehole	**33.0 feet**
Sampling Method	**Grab from cuttings, SPT split spoon**	Hammer Data	**140 lbs / 30-inch drop**	Top of Casing Elevation	**Not available**
Size and Type of Well Casing	**2-inch-dia. Schedule 40 PVC**	Screen Perforation	**0.010-inch slot (25-30 feet)**	Approximete Surface Elevation	**Not available**
Seal or Backfill	**Bentonite chips 2-23 feet**	Groundwater Level(s)	**25.5 feet bgs on 2/3/00 ATD; water equilibrium at 29.18 feet below TOC on 3/15/00**		

Elevation feet	Depth, feet	SAMPLES Type	SAMPLES Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	0								Surface Conditions: grass		6-inch-dia. steel protective casing; Concrete (0-2 ft)
	5		01	NA	NA	0.0		SP-SM	SAND with silt; dark brown (10YR 3/3), ~10% silt, ~10% rounded gravel, dry, no odor [FILL]		7-3/8-in.-dia. borehole; 2-in.-dia. Sch. 40 PVC riser (to 25 ft)
	10		02	NA	NA	0.0		GW	GRAVEL; dark brown (10YR 3/3), with sand matrix, debris (wood), no odor [FILL]		Bentonite chips (2-23 ft)
	15		03	NA	NA	0.0		SM	Silty SAND; dark brown (10YR 3/3), fine, low to medium plasticity fines, wet, no odor		
	20		04	NA	NA	0.0		ML	Sandy SILT; very dark gray (5Y 3/1), medium plasticity, wet, no odor		
								SM	Silty SAND; very dark gray (5Y 3/1), loose, wet		20-40 silica sand (23-25 ft)
	25		05	4-3-6	18	0.0		ML	SILT; very dark gray (5Y 3/1), loose, damp	▽	Prepacked well screen, 20-40 silica sand (25-30 ft); 2-in. dia. 0.010-in. slot Sch. 40 PVC screen (25-30 ft)
								SM	Silty SAND; very dark gray (5Y 3/1), ~25% fines, wet (water up to 25.5 feet bgs)		10-20 silica sand outside prepack (25-33 ft)
	30										

Report: ENV_12_EVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 RP-02-31

URS Greiner Woodward Clyde

SCOEPA00009629

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring RP-02-31

Sheet 2 of 2

Elevation feet / Depth, feet	SAMPLES: Type Number	SAMPLES: Sampling Resistance, blows / 6 in.	SAMPLES: Recovery, inches	SAMPLES: Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
30	06	NA	NA	0.0		SM	Silty SAND; very dark gray (5Y 3/1), wet (continued)		Sump (30-31 ft)
	07	2-3-3	18	0.0		ML	SILT; pale olive (5Y 6/3), medium plasticity, some organics, loose, dry to damp		10-20 silica sand (25-33 ft)
							Bottom of boring at 33.0 feet.		
35									
40									
45									
50									
55									
60									
65									

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 RP-02-31

URS Greiner Woodward Clyde

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring RP-04-16

Sheet 1 of 1

Date(s) Drilled and Installed	1/13/00	Geologist	G. Lukert	Reviewer	
Drilling Method	Hollow-Stem Auger (CME 850)	Drilling Contractor	Cascade Drilling, Inc.	Total Depth of Borehole	16.5 feet
Sampling Method	SPT split spoon	Hammer Data	140 lbs / 30-inch drop	Top of Casing Elevation	Not available
Size and Type of Well Casing	2-inch-dia. Schedule 40 PVC	Screen Perforation	0.010-inch slot (5-15 feet)	Approximete Surface Elevation	Not available
Seal or Backfill	Bentonite chips 1-3 feet	Groundwater Level(s)	8.5 feet bgs on 1/13/00 ATD; water equilibrium at 6.74 feet below TOC on 3/15/00		

Elevation feet	Depth, feet	SAMPLES Type Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	0							Surface Conditions: brush underlain by silty sand with gravel		Concrete (0-1 ft); 6-inch-dia. steel protective casing; Bentonite chips (1-3 ft); 2-in.-dia. Sch. 40 PVC riser (to 5 ft)
	5	01	3-2-1	8	0.0		SP-SM	SAND with silt; dark grayish brown (10YR 4/2), medium, trace silt, trace rounded gravel, very loose, wet, no odor		10-1/4-in.-dia. borehole
							ML	SILT; very dark gray (2.5Y 3/1), trace sand, wood debris, loose, wet		20-40 silica sand (3-16.5 ft)
	10	02	4-2-2	15	NA		SP	SAND with gravel; very dark gray (2.5Y 3/1), coarse, some wood debris, loose, wet, strong odor, visible sheen in sample		2-in. dia. 0.010-in. slot Sch. 40 PVC screen (5-15 ft)
	15	03	4-3-1	18	NA		SP	SAND; black (10YR 2/1), coarse, rounded, loose, wet, strong odor, NAPL globules in sample		Sump (15-16 ft)
								Bottom of boring at 16.5 feet.		
	20									
	25									
	30									

Report: ENV_12W...ELAND+/-USCS; File: RPACR145.GPJ; 4/5/2000 RP-04-16

URS Greiner Woodward Clyde

SCOEPA00009631

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring RP-04-41

Sheet 1 of 2

Date(s) Drilled and Installed	2/21/00 (drilled) to 2/22/00 (installed)	Geologist	G. Lukert	Reviewer	
Drilling Method	Air Rotary	Drilling Contractor	Cascade Drilling, Inc.	Total Depth of Borehole	42.0 feet
Sampling Method	SPT split spoon	Hammer Data	140 lbs / 30-inch drop	Top of Casing Elevation	Not available
Size and Type of Well Casing	2-inch-dia. Schedule 40 PVC	Screen Perforation	0.010-inch slot (35-40 feet)	Approximete Surface Elevation	Not available
Seal or Backfill	Bentonite chips 2-33 feet	Groundwater Level(s)	Not measured ATD; water equilibrium at 6.43 feet below TOC on 3/15/00		

Elevation feet	Depth, feet	SAMPLES Type	SAMPLES Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	0								Surface Conditions: grass and soil		6-inch-dia. steel protective casing Concrete (0-2 ft)
	5							SM	Silty SAND; dark grayish brown, medium [from RP-04 log]		7-3/8-in.-dia. borehole
	10										2-in.-dia. Sch. 40 PVC riser (to 35 ft)
	15		01	3-3-4	10	NA		SW	SAND; black (5Y 2.5/1), fine to coarse, predominantly medium to coarse, angular to subrounded, loose, wet, visible sheen with NAPL globules		Bentonite chips (2-33 ft)
	20		02	3-1-3	18	NA		ML/MH	SILT; dark gray (5Y 4/1), medium to high plasticity, trace very fine sand, organic debris, loose, moist to wet, no NAPL globules in sample		
	25		03	3-4-4	18	NA			Becomes gray mottled brown (5Y 5/1), no organic debris, strong odor, NAPL globules [OVA=12.4 ppm at borehole]		
	30		04	6-5-6	4	0.0		ML	Sandy SILT; olive gray (5Y 5/2), medium plasticity, ~40% fine sand, micaceous, medium dense, wet, visible sheen [OVA=0.0 ppm at borehole]		

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 RP-04-41

URS Greiner Woodward Clyde

SCOEPA00009632

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring RP-04-41

Sheet 2 of 2

Elevation feet	Depth, feet	SAMPLES: Type Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	30	04	6-5-6	4	0.0		ML	Sandy SILT; olive gray (5Y 5/2), medium plasticity, ~40% fine sand, micaceous, medium dense, wet, visible sheen (continued)		7-3/8-in.-dia. borehole
							SM	Silty SAND; olive gray (5Y 4/2), fine [logged from cuttings] [OVA readings up to 166 ppm at borehole and in breathing zone during drilling; readings then drop to <1 ppm]		Bentonite chips (2-33 ft)
							SP-SM	SAND with silt; olive (5Y 4/3), fine, trace silt, micaceous, loose, wet, no visible sheen or NAPL globules		20-40 silica sand (33-35 ft)
	35	05	3-1-3	18	0.0					Prepacked well screen, 20-40 silica sand (35-40 ft)
										2-in. dia. 0.010-in. slot Sch. 40 PVC screen (35-40 ft)
		06	4-4-10	18	0.0			Becomes medium dense, slight odor		10-20 silica sand outside prepack (35-42 ft)
	40									Sump (40-41 ft)
							GP	GRAVEL with sand; angular to subrounded vesicular basalt		
								Boring terminated at 42.0 feet; refusal on basalt.		
	45									
	50									
	55									
	60									
	65									

Report: ENV_12W_...ELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 RP-04-41

URS Greiner Woodward Clyde

SCOEPA00009633

Project: Rhone Poulenc RI / FS Project Location: Portland, Oregon Project Number: 5292C0804A.00 00045	Log of Boring RP-06-87 Sheet 1 of 3

Date(s) Drilled and Installed	2/7/00	Geologist	G. Lukert	Reviewer	
Drilling Method	Air Rotary	Drilling Contractor	Cascade Drilling, Inc.	Total Depth of Borehole	88.0 feet
Sampling Method	Grab from cuttings, SPT split spoon	Hammer Data	140 lbs / 30-inch drop	Top of Casing Elevation	Not available
Size and Type of Well Casing	2-inch-dia. Schedule 40 PVC	Screen Perforation	0.010-inch slot (81-86 feet)	Approximete Surface Elevation	Not available
Seal or Backfill	Aquaguard bentonite grout 2-79 feet	Groundwater Level(s)	Not measured ATD; water equilibrium at 24.32 feet below TOC on 3/15/00		

Elevation feet	Depth, feet	SAMPLES: Type Number	SAMPLES: Sampling Resistance, blows / 6 in.	SAMPLES: Recovery, inches	SAMPLES: Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	0							Surface Conditions: grass		6-inch-dia. steel protective casing Concrete (0-2 ft)
	5	01	NA	NA	0.0		ML	SILT; very dark gray (5Y 3/1), low to medium plasticity, trace very fine sand, slightly micaceous, damp, no odor		7-3/8-in.-dia. borehole
	10	02	NA	NA	0.0					2-in.-dia. Sch. 40 PVC riser (to 81 ft)
	15	03	NA	NA	0.0			Increasing moisture		Aquaguard bentonite grout (2-79 ft)
	20	04	NA	NA	0.0		GM	Silty GRAVEL; very dark gray (5Y 3/1), angular to subrounded basalt fragments with silt matrix, moist, no odor		
	25	05	NA	NA	0.0		ML	Sandy SILT; very dark gray (5Y 3/1), medium plasticity, ~20% sand, moist, no odor		
	30									

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 RP-06-87

URS Greiner Woodward Clyde

SCOEPA00009634

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring RP-06-87

Elevation feet	Depth, feet	SAMPLES: Type Number	SAMPLES: Sampling Resistance, blows / 6 in.	SAMPLES: Recovery, inches	SAMPLES: Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	30									7-3/8-in.-dia. borehole
	35	06	NA	NA	0.0		ML	Clayey SILT; very dark gray (5Y 3/1, medium plasticity, wet		2-in.-dia. Sch. 40 PVC riser (to 81 ft)
	40							[very soft drilling 35-45 feet]		Aquaguard bentonite grout (2-79 ft)
	45	07	NA	NA	0.0		ML	SILT; very dark gray (5Y 3/1), medium plasticity, ~10% fine sand, wet		
	50	08	NA	NA	0.0					
	55	09	NA	NA	0.0		ML	Sandy SILT; very dark gray (5Y 3/1), very fine sand		
	60									
	65									

Report: ENV_12W...VELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 RP-06-87

SCOEPA00009635

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring RP-06-87

Sheet 3 of 3

Elevation feet	Depth, feet	SAMPLES: Type	SAMPLES: Number	SAMPLES: Sampling Resistance, blows / 6 in.	SAMPLES: Recovery, inches	SAMPLES: Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
65								ML	SILT; very dark gray (5Y 3/1), trace very fine sand		7-3/8-in.-dia. borehole
								SM/SC	Silty to clayey SAND; very dark gray (5Y 3/1), subrounded to rounded basalt fragments		
70			10	NA	NA	0.0					2-in.-dia. Sch. 40 PVC riser (to 81 ft)
			11	2-3-3	18	0.0		ML	SILT; very dark gray (5Y 3/1)		
								SP-SM	SAND with silt; very dark gray (5Y 3/1), fine, micaceous, trace low plasticity fines, loose, wet		
									Becomes brown (10YR 4/3)		Aquaguard bentonite grout (2-79 ft)
75			12	3-2-4	9	0.0					
80											20-40 silica sand (79-81 ft)
											Prepacked well screen, 20-40 silica sand (81-86 ft)
											2-in. dia. 0.010-in. slot Sch. 40 PVC screen (81-86 ft)
85			13	3-4-4	3	0.0					10-20 silica sand outside prepack (81-88 ft)
								SP/GP	SAND and GRAVEL; medium sand, rounded basalt fragments, wet		Sump (86-87 ft)
									Becomes predominantly rounded gravel with sand matrix		
									BASALT		
									Boring terminated at 88.0 feet.		
90											
95											
100											

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 RP-06-87

URS Greiner Woodward Clyde

SCOEPA00009636

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring RP-06-31

Sheet 1 of 2

Date(s) Drilled and Installed	2/7/00 and 2/8/00	Geologist	G. Lukert	Reviewer	
Drilling Method	Air Rotary	Drilling Contractor	Cascade Drilling, Inc.	Total Depth of Borehole	31.5 feet
Sampling Method	Grab from cuttings, SPT split spoon	Hammer Data	140 lbs / 30-inch drop	Top of Casing Elevation	Not available
Size and Type of Well Casing	2-inch-dia. Schedule 40 PVC	Screen Perforation	0.010-inch slot (24.5-29.5 feet)	Approximete Surface Elevation	Not available
Seal or Backfill	Bentonite chips 2-22.5 feet	Groundwater Level(s)	24 feet bgs on 2/7/00 ATD; water equilibrium at 17.04 feet below TOC on 3/15/00		

Elevation feet	Depth, feet	SAMPLES Type	SAMPLES Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	0								Surface Conditions: gravel		6-inch-dia. steel protective casing; Concrete (0-2 ft)
	5		01	NA	NA	0.0		ML	SILT; dark gray (5Y 4/1), medium plasticity, dry to damp, no odor		7-3/8-in.-dia. borehole
	10		02	NA	NA	0.0			Becomes damp		2-in.-dia. Sch. 40 PVC riser (to 24.5 ft); Bentonite chips (2-22.5 ft)
	15		03	NA	NA	0.0		ML/MH	SILT with clay; dark gray (5Y 4/1), medium to high plasticity, wood debris, damp to wet, no odor		
	20		04	NA	NA	0.0		ML	SILT with gravel; dark gray (5Y 4/1), medium plasticity, ~15% angular gravel, trace clay, moist, no odor		20-40 silica sand (22.5-24.5 ft)
	25		05	3-4-3	18	0.0		ML	SILT; dark gray (5Y 4/1), some organics, loose, wet		Prepacked well screen, 20-40 silica sand (24.5-29.5 ft)
								SM	Silty SAND; dark gray (5Y 4/1), loose, wet		2-in. dia. 0.010-in. slot Sch. 40 PVC screen (24.5-29.5 ft); 10-20 silica sand outside prepack (24.5-31.5 ft)
	30										

Report: ENV_12W_ELAND+/-USCS; File: RPACR145.GPJ; 4/5/2000 RP-06-31

URS Greiner Woodward Clyde

SCOEPA00009637

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring RP-06-31

Sheet 2 of 2

Elevation feet	Depth, feet	SAMPLES: Type Number	SAMPLES: Sampling Resistance, blows / 6 in.	SAMPLES: Recovery, inches	SAMPLES: Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	30	06	3-2-5	18	0.0		SM	Silty SAND; dark gray (5Y 4/1), ~30% fines, loose, saturated		Sump in 10-20 silica sand (29.5-30.5 ft)
							ML	SILT; dark gray (5Y 4/1), saturated		
								Bottom of boring at 31.5 feet.		
	35									
	40									
	45									
	50									
	55									
	60									
	65									

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 RP-06-31

URS Greiner Woodward Clyde

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring RP-01-65

Date(s) Drilled and Installed	2/8/00	Geologist	G. Lukert	Reviewer	
Drilling Method	Air Rotary	Drilling Contractor	Cascade Drilling, Inc.	Total Depth of Borehole	66.0 feet
Sampling Method	Grab from cuttings, SPT split spoon, piston-driven split spoon	Hammer Data	140 lbs / 30-inch drop	Top of Casing Elevation	Not available
Size and Type of Well Casing	7-3/8-inch-dia. steel casing to 52 feet, 2-inch-dia. Schedule 40 PVC	Screen Perforation	0.010-inch slot (59-64 feet)	Approximete Surface Elevation	Not available
Seal or Backfill	Aquaguard bentonite grout 2-53 feet, bentonite chips 53-56 feet	Groundwater Level(s)	Not measured ATD; water equilibrium at 20.55 feet bgs on 2/9/00 at 0813		

Elevation feet	Depth, feet	SAMPLES: Type Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	0							Surface Conditions: crushed rock		6-inch-dia. steel protective casing; Concrete (0-2 ft)
	5	01	NA	NA	0.0		ML	Sandy SILT; olive (5Y 4/3), with angular gravel (crushed rock), moist, no odor [FILL]		9-5/8-in.-dia. steel outer casing (to 51 ft); 7-3/8-in.-dia. steel inner casing (to 52 ft)
	10	02	NA	NA	0.0		ML/CL	Clayey SILT; brown (10YR 4/3), medium plasticity, trace fine sand, moist		2-in.-dia. Sch. 40 PVC riser (to 59 ft)
	15	03	NA	NA	0.0		ML	Sandy SILT; brown (10YR 4/3), medium plasticity, trace clay, moist		Aquaguard bentonite grout (2-53 ft)
	20						SM	Silty SAND; brown (10YR 4/3), fine, low to medium plasticity fines, wet [no sample collected; material same as at 25 feet]		Centralizers at 20-ft spacing to top of screen
	25	04	NA	NA	0.0					
	30									

Report: ENV_12/...ELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 RP-01-65

SCOEPA00009639

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring RP-01-65

Elevation feet / Depth, feet	SAMPLES: Type Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
30	05	NA	NA	0.0		ML/CL	SILT with clay; olive gray (5Y 4/2), medium plasticity, trace sand		9-5/8-in.-dia. steel outer casing (to 51 ft)
35	06	NA	NA	0.0		SC	Clayey SAND; olive gray (5Y 4/2), medium, trace silt		7-3/8-in.-dia. steel inner casing (to 52 ft)
40	07	NA	NA	0.0		ML	SILT with sand and clay; olive gray (5Y 4/2), medium plasticity, ~15% sand, ~15% clay		2-in.-dia. Sch. 40 PVC riser (to 59 ft)
	08	NA	NA	0.0					Aquaguard bentonite grout (2-53 ft)
45	09	1-4-4	18	0.0		ML	SILT with sand; olive gray (5Y 4/2), medium plasticity, loose Fine sand		
50	10	NA	NA	NA			Increasing sand		
							BASALT, slightly weathered, red-orange iron oxide staining, very little fracturing, all angular Small, irregular fractures (indicated by drilling); black and red-stained fragments		Bentonite chips (53-56 ft)
55									6-inch-dia. borehole below 52 ft
									10-20 silica sand (56-66 ft)
							Highly fractured (possibly interbedded)		Centralizer at top of screen
60							Fractured		2-in. dia. 0.010-in. slot Sch. 40 PVC screen (59-64 ft)
									Sump (65-66 ft)
65									

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 RP-01-65

URS Greiner Woodward Clyde

SCOEPA00009640

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring RP-01-65

Elevation feet / Depth, feet	SAMPLES: Type Number	SAMPLES: Sampling Resistance, blows / 6 in.	SAMPLES: Recovery, inches	SAMPLES: Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
65							BASALT, black with red iron oxide staining, slightly weathered, fractured (continued)		10-20 silica sand (56-66 ft)
							Bottom of boring at 66.0 feet.		
70									
75									
80									
85									
90									
95									
100									

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 RP-01-65

URS Greiner Woodward Clyde

Project: Rhone Poulenc RI / FS Project Location: Portland, Oregon Project Number: 5292C0804A.00 00045	Log of Boring RP-01-51 Sheet 1 of 2

Date(s) Drilled and Installed	2/9/00	Geologist	G. Lukert	Reviewer	
Drilling Method	Air Rotary	Drilling Contractor	Cascade Drilling, Inc.	Total Depth of Borehole	51.0 feet
Sampling Method	Grab from cuttings, SPT split spoon	Hammer Data	140 lbs / 30-inch drop	Top of Casing Elevation	Not available
Size and Type of Well Casing	2-inch-dia. Schedule 40 PVC	Screen Perforation	0.010-inch slot (45-50 feet)	Approximete Surface Elevation	Not available
Seal or Backfill	Aquaguard bentonite grout 2-43 feet	Groundwater Level(s)	Not measured ATD; water equilibrium at 22.09 feet bgs on 2/10/00 at 0800		

Elevation feet	Depth, feet	SAMPLES: Type Number	SAMPLES: Sampling Resistance, blows / 6 in.	SAMPLES: Recovery, inches	SAMPLES: Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	0							Surface Conditions: crushed rock		6-inch-dia. steel protective casing Concrete (0-2 ft)
	5	01	NA	NA	0.0		ML	Sandy SILT; olive (5Y 4/3), with angular gravel (crushed rock), damp, no odor [FILL]		7-3/8-in.-dia. borehole
	10	02	NA	NA	0.0		ML	SILT; olive brown (5Y 4/4), medium plasticity, trace sand, slightly micaceous, damp to moist, no odor		2-in.-dia. Sch. 40 PVC riser (to 45 ft)
	15	03	NA	NA	0.0			Becomes olive (5Y 4/3), damp, no sand		Aquaguard bentonite grout (2-43 ft)
	20						SP-SM	SAND with silt; medium, trace clay		
	25									
	30									

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 RP-01-51

URS Greiner Woodward Clyde

SCOEPA00009642

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring RP-01-51

Sheet 2 of 2

Elevation feet	Depth, feet	SAMPLES: Type Number	SAMPLES: Sampling Resistance, blows / 6 in.	SAMPLES: Recovery, inches	SAMPLES: Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	30						CH/MH	Silty CLAY to clayey SILT; high plasticity, trace sand		7-3/8-in.-dia. borehole
	35									2-in.-dia. Sch. 40 PVC riser (to 45 ft)
		04	2-2-3	18	0.0		SM	Silty SAND; gray, fine, loose, wet		Aquaguard bentonite grout (2-43 ft)
	40									
							SP-SM	SAND with silt; dark grayish brown (10YR 4/2), fine, low plasticity fines, micaceous, loose, wet, no odor		20-40 silica sand (43-45 ft)
	45	05	1-2-2	18	0.0					Prepacked well screen, 20-40 silica sand (45-50 ft)
										2-in. dia. 0.010-in. slot Sch. 40 PVC screen (45-50 ft)
										10-20 silica sand outside prepack (45-51 ft)
	50							BASALT		Sump (50-51 ft)
								Bottom of boring at 51.0 feet.		
	55									
	60									
	65									

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 RP-01-51

URS Greiner Woodward Clyde

SCOEPA00009643

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring RP-01-31

Sheet 1 of 2

Date(s) Drilled and Installed	2/10/00	Geologist	G. Lukert	Reviewer	
Drilling Method	Air Rotary	Drilling Contractor	Cascade Drilling, Inc.	Total Depth of Borehole	31.5 feet
Sampling Method	Grab from cuttings, SPT split spoon	Hammer Data	140 lbs / 30-inch drop	Top of Casing Elevation	Not available
Size and Type of Well Casing	2-inch-dia. Schedule 40 PVC	Screen Perforation	0.010-inch slot (25-30 feet)	Approximete Surface Elevation	Not available
Seal or Backfill	Bentonite chips 2-23 feet	Groundwater Level(s)	23 feet bgs on 2/10/00 ATD; water equilibrium at 23.77 feet below TOC on 3/15/00		

Elevation feet	Depth, feet	SAMPLES Type	Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	0								Surface Conditions: crushed rock		6-inch-dia. steel protective casing Concrete (0-2 ft)
	5		01	NA	NA	0.0		ML	SILT with sand; olive (5Y 4/3), medium plasticity, ~15% sand, damp, no odor		7-3/8-in.-dia. borehole
	10		02	NA	NA	0.0		ML	SILT; olive (5Y 4/3), medium plasticity, no sand, damp		2-in.-dia. Sch. 40 PVC riser (to 25 ft) Bentonite chips (2-23 ft)
	15		03	NA	NA	0.0			Becomes low to medium plasticity, dry		
	20		04	NA	NA	0.0					
								ML	SILT with sand; olive (5Y 4/3), medium plasticity, ~20% very fine sand, trace clay, loose, wet		20-40 silica sand (23-25 ft)
	25		05	2-3-3	18	0.0		SM	Silty SAND; olive (5Y 4/3), fine, low plasticity fines, loose, wet, no odor		Prepacked well screen, 20-40 silica sand (25-30 ft) 2-in. dia. 0.010-in. slot Sch. 40 PVC screen (25-30 ft) 10-20 silica sand outside prepack (25-31.5 ft)
	30										

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 RP-01-31

URS Greiner Woodward Clyde

SCOEPA00009644

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring RP-01-31

Sheet 2 of 2

Elevation feet	Depth, feet	SAMPLES: Type Number	SAMPLES: Sampling Resistance, blows / 6 in.	SAMPLES: Recovery, inches	SAMPLES: Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	30	06	3-3-2	12	0.0		ML	Sandy SILT; olive (5Y 4/3), fine, loose, wet		Sump (30-31 ft)
							ML	SILT; olive (5Y 4/3), trace sand, loose, wet		
								Bottom of boring at 31.5 feet.		
	35									
	40									
	45									
	50									
	55									
	60									
	65									

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 RP-01-31

URS Greiner Woodward Clyde

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring W-16-31

Sheet 1 of 2

Date(s) Drilled and Installed	2/11/00	Geologist	G. Lukert	Reviewer	
Drilling Method	Air Rotary	Drilling Contractor	Cascade Drilling, Inc.	Total Depth of Borehole	31.5 feet
Sampling Method	SPT split spoon	Hammer Data	140 lbs / 30-inch drop	Top of Casing Elevation	Not available
Size and Type of Well Casing	2-inch-dia. Schedule 40 PVC	Screen Perforation	0.010-inch slot (25-30 feet)	Approximete Surface Elevation	Not available
Seal or Backfill	Bentonite chips 2-23 feet	Groundwater Level(s)	Not measured ATD; water equilibrium at 3.27 feet bgs on 2/11/00		

Elevation feet	Depth, feet	SAMPLES Type Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	0							Surface Conditions: gravel		6-inch-dia. steel protective casing Concrete (0-2 ft)
	5	01	2-2-3	6	260		SW	SAND; black, debris (shingles with grit), loose, wet [FILL] [OVA=0.0 ppm in breathing zone]		7-3/8-in.-dia. borehole
							SM	Silty SAND; black, medium, some grit from shingles, wood debris, concrete fragments, loose, wet [FILL]		2-in.-dia. Sch. 40 PVC riser (to 25 ft)
	10	02	1-3-3	6	0.0					
							SP-SM	SAND with silt; gray, fine to medium, ~10% silt, wet		Bentonite chips (2-23 ft)
	15	03	2-2-3	18	387		SP	SAND; very dark gray (5Y 3/1), fine to medium, slightly micaceous, loose, wet		
	20	04	1-1-2	18	108			Becomes very loose; occasional gray to greenish gray silt stringers (laminations), 0.2-0.5 inch thick, wet		20-40 silica sand (23-25 ft)
	25	05	2-3-3	18	53			Sand grades medium, micaceous, loose, no silt laminations		Prepacked well screen, 20-40 silica sand (25-30 ft) 2-in. dia. 0.010-in. slot Sch. 40 PVC screen (25-30 ft)
							ML	SILT; dark olive gray (5Y 3/2)		10-20 silica sand outside prepack (25-31.5 ft)
	30									

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 W-16-31

URS Greiner Woodward Clyde

SCOEPA00009646

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring W-16-31

Sheet 2 of 2

Elevation feet / Depth, feet	SAMPLES: Type Number	SAMPLES: Sampling Resistance, blows / 6 in.	SAMPLES: Recovery, inches	SAMPLES: Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
30	06	3-3-4	18	73		ML	SILT; dark grayish brown (2.5Y 4/2), organic debris, possible crude structure, occasional medium to high plasticity silty clay laminations, loose, wet		Sump (30-31 ft)
							Bottom of boring at 31.5 feet.		
35									
40									
45									
50									
55									
60									
65									

Report: ENV_12V... ELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 W-16-31

URS Greiner Woodward Clyde

SCOEPA00009647

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring W-03-81

Sheet 1 of 3

Date(s) Drilled and Installed	2/16/00	Geologist	G. Lukert	Reviewer	
Drilling Method	Air Rotary	Drilling Contractor	Cascade Drilling, Inc.	Total Depth of Borehole	91.5 feet
Sampling Method	Grab from cuttings, SPT split spoon	Hammer Data	140 lbs / 30-inch drop	Top of Casing Elevation	Not available
Size and Type of Well Casing	2-inch-dia. Schedule 40 PVC	Screen Perforation	0.010-inch slot (75-80 feet)	Approximete Surface Elevation	Not available
Seal or Backfill	Aquaguard bentonite grout 2-73 feet, bentonite chips 82-91.5 feet	Groundwater Level(s)	Not measured ATD; water equilibrium at 39 feet bgs on 2/17/00 at 0700		

Elevation feet	Depth, feet	SAMPLES Type	Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	0								Surface Conditions: debris, topsoil		6-inch-dia. steel protective casing Concrete (0-2 ft)
	5		01	NA	NA	0.0		SP	SAND; dark brown (10YR 3/3), medium subrounded to rounded grains, trace rounded gravel, no fines, damp		7-3/8-in.-dia. borehole
	10		02	NA	NA	0.0					2-in.-dia. Sch. 40 PVC riser (to 75 ft)
	15		03	NA	NA	0.0			Becomes very dark gray (5Y 3/1), fine to medium, no gravel		Aquaguard bentonite grout (2-73 ft)
	20		04	NA	NA	0.0		SM	Silty SAND; very dark gray (5Y 3/1), fine, ~20% low plasticity fines, wet		
	25		05	NA	NA	0.0		SP-SM	SAND with silt; very dark gray (5Y 3/1), fine to medium, trace low plasticity fines, wet		
	30										

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 W-03-81

URS Greiner Woodward Clyde

SCOEPA00009648

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring W-03-81

Sheet 2 of 3

Elevation feet	Depth, feet	SAMPLES: Type Number	SAMPLES: Sampling Resistance, blows / 6 in.	SAMPLES: Recovery, inches	SAMPLES: Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	30	06	NA	NA	0.0		ML	Sandy SILT; very dark gray (5Y 3/1), ~20% sand, wet		7-3/8-in.-dia. borehole
	35	07	NA	NA	0.0		ML/MH	SILT; very dark gray (5Y 3/1), medium to high plasticity, trace sand, wet		2-in.-dia. Sch. 40 PVC riser (to 75 ft)
	40	08	NA	NA	0.0			Becomes high plasticity, with trace clay, no sand		Aquaguard bentonite grout (2-73 ft)
	45	09	NA	NA	0.0			Becomes medium to high plasticity, no clay		
	50	10	NA	NA	0.0					
	55	11	NA	NA	0.0		ML	Sandy SILT; very dark gray (5Y 3/1), medium plasticity, very fine sand, wet		
	60									
	65									

Report: ENV_12W_ELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 W-03-81

SCOEPA00009649

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring W-03-81

Sheet 3 of 3

Elevation feet	Depth, feet	SAMPLES Type	SAMPLES Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	65							ML	Sandy SILT; very dark gray (5Y 3/1), medium plasticity, very fine sand, wet (continued)		7-3/8-in.-dia. borehole
	70										2-in.-dia. Sch. 40 PVC riser (to 75 ft)
											Aquaguard bentonite grout (2-73 ft)
	75										20-40 silica sand (73-75 ft)
											Prepacked well screen, 20-40 silica sand (75-80 ft)
											2-in. dia. 0.010-in. slot Sch. 40 PVC screen (75-80 ft)
	80										10-20 silica sand outside prepack (75-82 ft)
			12	3-3-4	18	0.0		ML	SILT; very dark gray (5Y 3/1), medium plasticity, organic debris, loose, damp		Sump (80-81 ft)
											Bentonite (82-91.5 ft)
	85		13	4-4-3	18	0.0					
	90		14	3-4-5	NA	0.0			With fine sand layers 1 to 2 inches thick		
									Bottom of boring at 91.5 feet.		
	95										
	100										

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 W-03-81

URS Greiner Woodward Clyde

SCOEPA00009650

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring RP-03-63

Sheet 1 of 2

Date(s) Drilled and Installed	2/17/00	Geologist	G. Lukert	Reviewer	
Drilling Method	Air Rotary	Drilling Contractor	Cascade Drilling, Inc.	Total Depth of Borehole	64.0 feet
Sampling Method	Grab from cuttings, SPT split spoon	Hammer Data	140 lbs / 30-inch drop	Top of Casing Elevation	Not available
Size and Type of Well Casing	2-inch-dia. Schedule 40 PVC	Screen Perforation	0.010-inch slot (57.4-62.4 feet)	Approximete Surface Elevation	Not available
Seal or Backfill	Aquaguard bentonite grout 2.5-55.4 feet	Groundwater Level(s)	Not measured ATD; water equilibrium at 16.41 feet bgs on 2/17/00		

Elevation feet	Depth, feet	SAMPLES Type	Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	0								Surface Conditions: gravel		6-inch-dia. steel protective casing; Concrete (0-2.5 ft)
	5		01	NA	NA	0.0		ML	SILT; very dark grayish brown (10YR 3/2), medium plasticity, slightly micaceous, dry to damp, no odor		7-3/8-in.-dia. borehole
	10		02	NA	NA	0.0		ML	Sandy SILT; very dark gray (10YR 3/1), ~40% fine subrounded sand, moist to wet, no odor		2-in.-dia. Sch. 40 PVC riser (to 57.4 ft); Aquaguard bentonite grout (2.5-55.4 ft)
	15		03	NA	NA	0.0		SP	SAND; dark brown (10YR 3/3), fine to medium, poorly graded, moist, no odor		
	20		04	NA	NA	0.0		SM	Silty SAND; dark brown (10YR 3/3), ~30% silt, wet, no odor		
	25		05	NA	NA	42		ML	SILT with sand; olive (5Y 4/3), wet, some odor (creosote)		
	30										

Report: ENV_12\...VELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 RP-03-63

URS Greiner Woodward Clyde

SCOEPA00009651

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring RP-03-63

Elevation feet	Depth, feet	SAMPLES Type	Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	30		06	NA	NA	0.0		ML	SILT; olive (5Y 4/3), medium plasticity, wet, no odor		7-3/8-in.-dia. borehole
	35		07	NA	NA	0.0					2-in.-dia. Sch. 40 PVC riser (to 57.4 ft)
	40		08	NA	NA	0.0			With trace clay		Aquaguard bentonite grout (2.5-55.4 ft)
	45		09	NA	NA	0.0					
	50		10	NA	NA	0.0		CL/ML	Silty CLAY; olive (5Y 4/3), medium plasticity, wet, no odor		
	55		11	2-2-1	18	0.0		SP-SM	SAND with silt; dark brown (10YR 3/3), fine to medium, trace silt, micaceous, wet, very loose Silt layer Silt layer		20-40 silica sand (55.4-57.4 ft) Prepacked well screen, 20-40 silica sand (57.4-62.4 ft)
	60		12	1-3-2	18	0.0		SP	SAND; dark olive gray (5Y 3/2), medium, micaceous, with basalt fragments, loose, wet Silt layer		2-in. dia. 0.010-in. slot Sch. 40 PVC screen (57.4-62.4 ft) 10-20 silica sand outside prepack (57.4-64 ft) Sump (62.4-63.4 ft)
									BASALT		
	65								**Boring terminated at 64.0 feet.**		

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 RP-03-63

URS Greiner Woodward Clyde

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring RP-03-26

Sheet 1 of 1

Date(s) Drilled and Installed	**2/17/00**	Geologist	**G. Lukert**	Reviewer	
Drilling Method	**Air Rotary**	Drilling Contractor	**Cascade Drilling, Inc.**	Total Depth of Borehole	**26.5 feet**
Sampling Method	**Grab from cuttings, SPT split spoon**	Hammer Data	**140 lbs / 30-inch drop**	Top of Casing Elevation	**Not available**
Size and Type of Well Casing	**2-inch-dia. Schedule 40 PVC**	Screen Perforation	**0.010-inch slot (20-25 feet)**	Approximete Surface Elevation	**Not available**
Seal or Backfill	**Bentonite chips 2-18 feet**	Groundwater Level(s)	**13.5 feet bgs on 2/17/00 ATD; water equilibrium at 20.9 feet bgs on 2/17/99 at 1510**		

Elevation feet	Depth, feet	SAMPLES Type	SAMPLES Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Well Completion Schematic	FIELD NOTES AND WELL DETAILS
	0								Surface Conditions: gravel		6-inch-dia. steel protective casing; Concrete (0-2 ft)
	5		01	NA	NA	0.0		ML	SILT; dark brown (10YR 3/3), medium plasticity, 10% sand, organic debris (wood), damp		7-3/8-in.-dia. borehole; 2-in.-dia. Sch. 40 PVC riser (to 20 ft)
	10		02	NA	NA	0.0		SP-SM	SAND with silt and gravel; very dark brown (10YR 2/2), ~20% rounded gravel to 3 cm diameter, ~10% silt, damp		
								SP	SAND; very dark brown (10YR 2/2), medium, loose, wet ▽		Bentonite chips (2-18 ft)
	15		03	2-4-3	18	0.0		ML	Sandy SILT; very dark brown (10YR 2/2), fine sand, loose, saturated		20-40 silica sand (18-20 ft)
	20		04	4-3-4	18	160		ML	Sandy SILT; dark olive gray (5Y 3/2), medium plasticity, fine sand, loose, moist to wet, organic odor (creosote?)		Prepacked well screen, 20-40 silica sand (20-25 ft); 2-in. dia. 0.010-in. slot Sch. 40 PVC screen (20-25 ft)
								SM/ML	Silty SAND to sandy SILT; dark olive gray (5Y 3/2), ~50% fine sand, ~50% medium plasticity silt, loose, odor (small NAPL blebs observed on bottom of drill stem)		10-20 silica sand outside prepack (20-26.5 ft)
	25		05	3-3-2	18	180			Sand grades medium; saturated, odor, visible rainbow sheen		
								ML	SILT; dark olive gray (5Y 3/2), loose, saturated		Sump (25-26 ft)
									Bottom of boring at 26.5 feet.		
	30										

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 RP-03-26

URS Greiner Woodward Clyde

SCOEPA00009653

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring PZ-02-40

Sheet 1 of 2

Date(s) Drilled and Installed	3/15/00	Geologist	G. Lukert	Reviewer	
Drilling Method	Hollow-Stem Auger	Drilling Contractor	Cascade Drilling, Inc.	Total Depth of Borehole	40.3 feet
Sampling Method	SPT split spoon	Hammer Data	140 lbs / 30-inch drop	Top of Casing Elevation	Not available
Size and Type of Well Casing	2-inch-dia. Schedule 40 PVC	Screen Perforation	0.010-inch slot (29-39 feet)	Approximete Surface Elevation	Not available
Seal or Backfill	Aquaguard bentonite grout 2-24 feet, bentonite chips 24-27 feet	Groundwater Level(s)	35 feet bgs on 3/15/00 ATD		

Elevation feet	Depth, feet	SAMPLES Type	Number	Sampling Resistance, blows / 6 in.	Recovery, inches	Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Piezometer Completion Schematic	FIELD NOTES AND WELL DETAILS
	0								Surface Conditions: gravel (road base)		6-inch-dia. steel protective casing Concrete (0-2 ft)
	5		01	8-55/12"	6	0.0		GW-GM	GRAVEL with silt; very dark grayish brown (10YR 3/2), some coarse sand, angular to subrounded, ~10% silt, wet (perched water), no odor		10-1/4-in.-dia. borehole
	10		02	25-55/4"	0	NA			[No sample recovery]		2-in.-dia. Sch. 40 PVC riser (to 29 ft)
			03	5-11-16	18	0.0		ML	Sandy SILT; light olive brown (2.5Y 5/3), medium plasticity, ~30% fine sand, micaceous, medium dense, damp to moist		Aquaguard bentonite grout (2-24 ft)
	15		04	7-15-21	18	0.0			Becomes dense, damp, low to medium plasticity, with ~40% fine sand		
								SP	SAND; brown (10YR 4/3), fine to medium, micaceous, no fines, medium dense, dry		
	20		05	7-11-13	8	0.0					
								SM	Silty SAND; light olive brown (2.5Y 5/3), very dense, dry		
	25		06	55/6"	1	0.0					Bentonite chips (24-27 ft) 20-40 silica sand (27-29 ft) Prepacked well screen (29-39 ft)
	30										

Report: ENV_12W_CLEVELAND+/-USCS; File: RPACR145.GPJ; 4/5/2000 PZ-02-40

URS Greiner Woodward Clyde

Project: Rhone Poulenc RI / FS
Project Location: Portland, Oregon
Project Number: 5292C0804A.00 00045

Log of Boring PZ-02-40

Sheet 2 of 2

Elevation feet	Depth, feet	SAMPLES: Type Number	SAMPLES: Sampling Resistance, blows / 6 in.	SAMPLES: Recovery, inches	SAMPLES: Headspace OVA, ppm	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	Piezometer Completion Schematic	FIELD NOTES AND WELL DETAILS
	30	07	12-15-50/4"	12	0.0		SP-SM	SAND with silt; light olive brown (2.5Y 5/4), fine to medium, ~10% low to medium plasticity fines, micaceous, very dense, wet		Prepacked well screen, 20-40 silica sand (29-39 ft)
	35	08	16-56/6"	4	0.0		GM	Silty GRAVEL; light olive brown (2.5Y 5/4), basalt fragments in silty sand matrix, very dense, wet		2-in. dia. 0.010-in. slot Sch. 40 PVC screen (29-39 ft); 10-20 silica sand outside prepack (29-40.3 ft); Sump (39-40 ft)
	40	09	50/3"	3	0.0			BASALT; angular fragments in sandy silt matrix **Boring terminated at 40.3 feet.**		
	45									
	50									
	55									
	60									
	65									

Report: ENV_12W_PORTLAND+/-USCS; File: RPACRI45.GPJ; 4/5/2000 PZ-02-40

URS Greiner Woodward Clyde

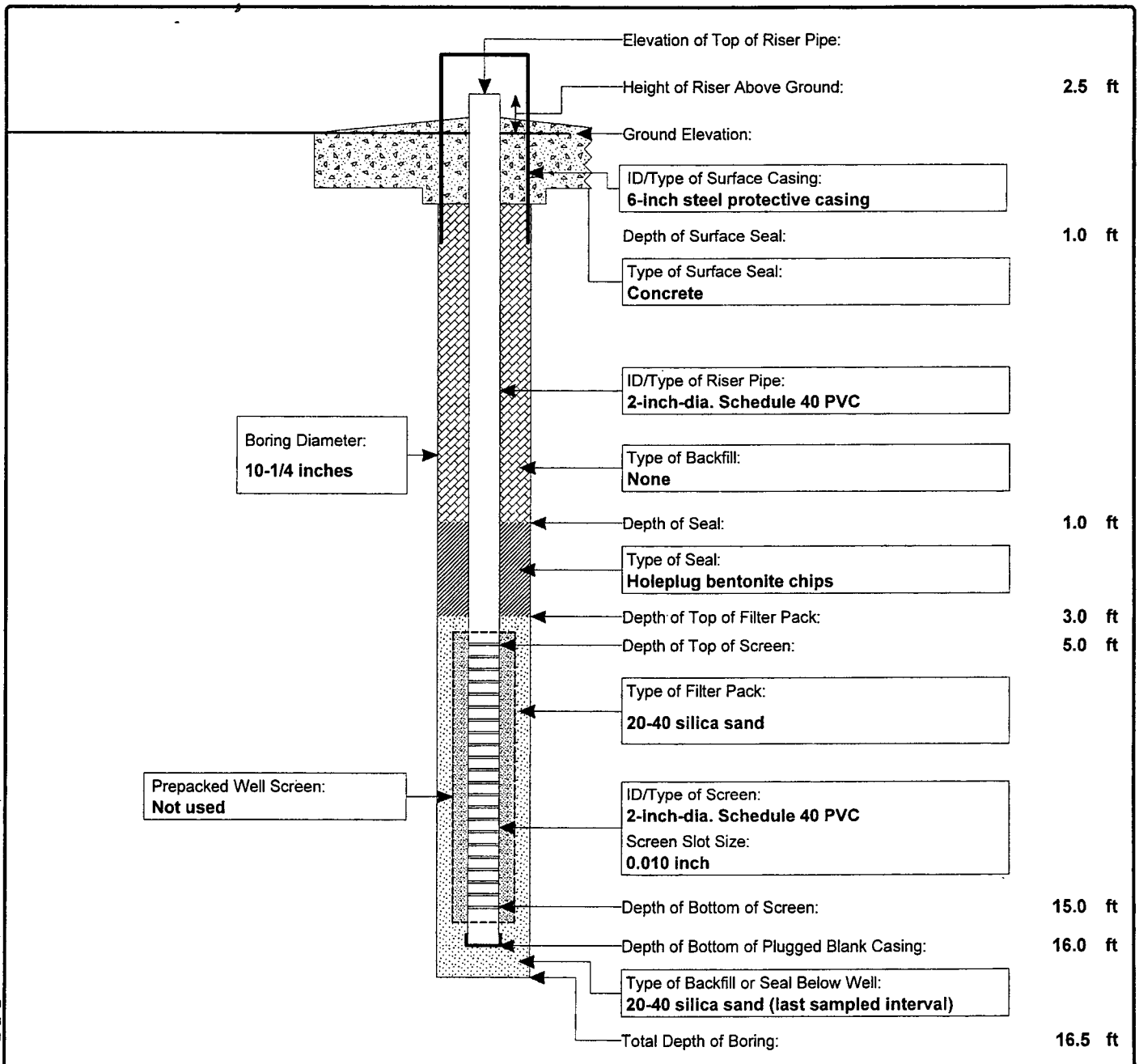
SCOEPA00009655

SCOEPA00009656

SCOEPA00009657

Project: Rhone Poulenc RI / FS Project Location: Portland, Oregon Project Number: 5292C0804A.00 00045	MONITORING WELL CONSTRUCTION LOG FOR WELL RP-05-16

Well Location	150 feet west of treatment facility		Date(s) Installed	1/13/00	Time 1000
Installed By	Cascade Drilling, Inc.	Observed By	G. Lukert	Total Depth	16.5 feet
Method of Installation	Hollow-stem auger, annular material placed with tremie				
Screened Interval	5 - 15 feet bgs	Completion Zone	Shallow Alluvium		
Remarks	Refer to Log of Boring RP-05-16 for sampling data and lithology.				



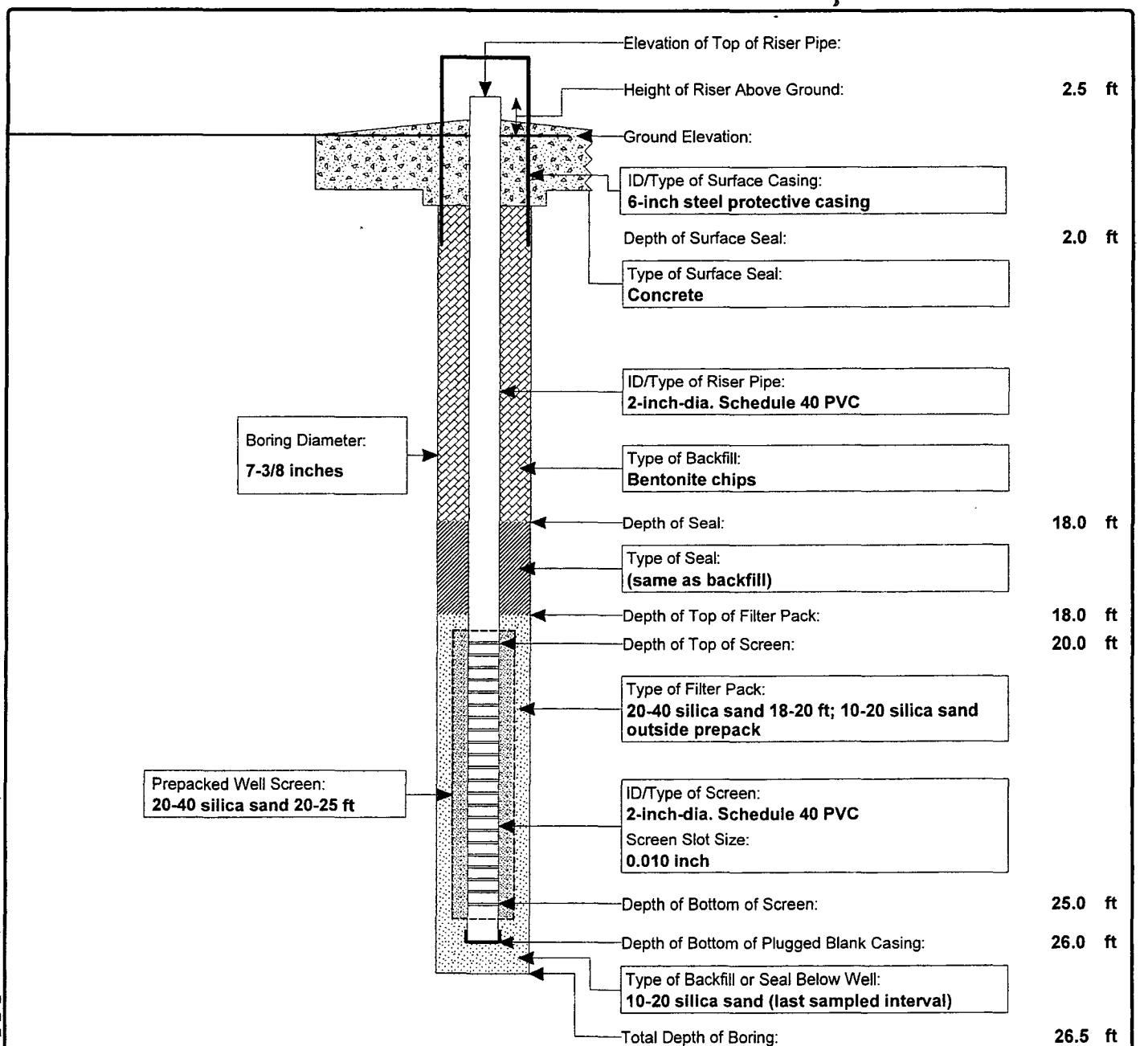
NOTE: DIAGRAM IS NOT TO SCALE

Report: ENV_WELL_CONSTR_A_G_PREPACK; File: RPACRI45.GPJ; 4/5/2000 RP-05-16

URS Greiner Woodward Clyde

Project: Rhone Poulenc RI / FS Project Location: Portland, Oregon Project Number: 5292C0804A.00 00045	MONITORING WELL CONSTRUCTION LOG FOR WELL W-08-25

Well Location	East side of West Doane Lake		Date(s) Installed	1/18/00	Time 1100
Installed By	Cascade Drilling, Inc.	Observed By	G. Lukert	Total Depth	26.5 feet
Method of Installation	Air rotary rig, annular material placed with tremie				
Screened Interval	20 - 25 feet bgs	Completion Zone	Shallow Alluvium		
Remarks	Refer to Log of Boring W-08-25 for sampling data and lithology.				



NOTE: DIAGRAM IS NOT TO SCALE

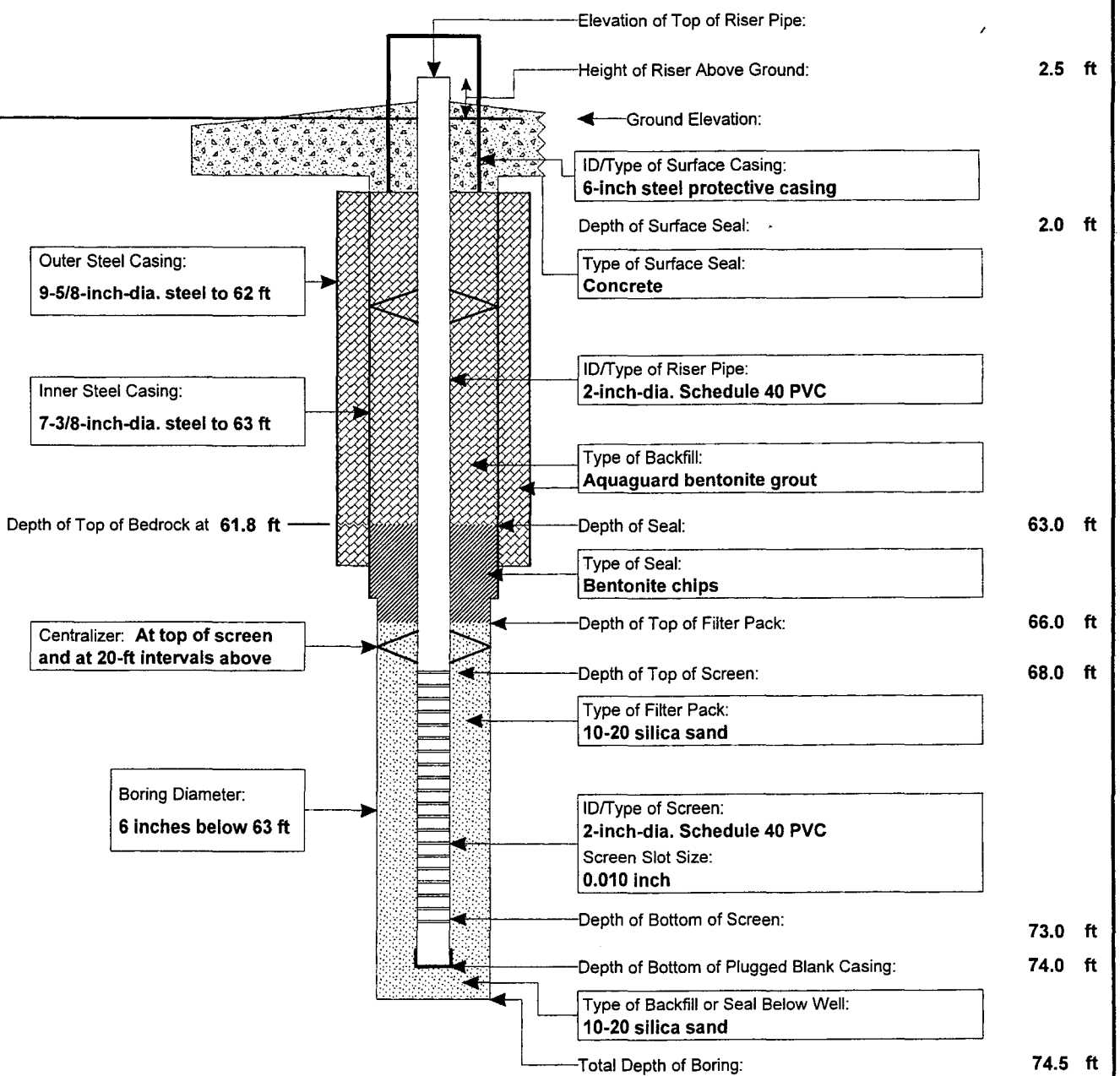
Report: ENV_WELL_CONSTR_A_G_PREPACK; File: RPACRI45.GPJ; 4/5/2000 W-08-25

URS Greiner Woodward Clyde

SCOEPA00009659

Project: Rhone Poulenc RI / FS Project Location: Portland, Oregon Project Number: 5292C0804A.00 00045	MONITORING WELL CONSTRUCTION LOG FOR WELL W-08-74

Well Location	East side of West Doane Lake			Date(s) Installed	1/19/00 - 1/20/00 Time 1500
Installed By	Cascade Drilling, Inc.	Observed By	G. Lukert	Total Depth	74.5 feet
Method of Installation	Air rotary rig, annular material placed with tremie				
Screened Interval	68 - 73 feet bgs	Completion Zone	Basalt		
Remarks	Refer to Log of Boring W-08-74 for sampling data and lithology.				



NOTE: DIAGRAM IS NOT TO SCALE

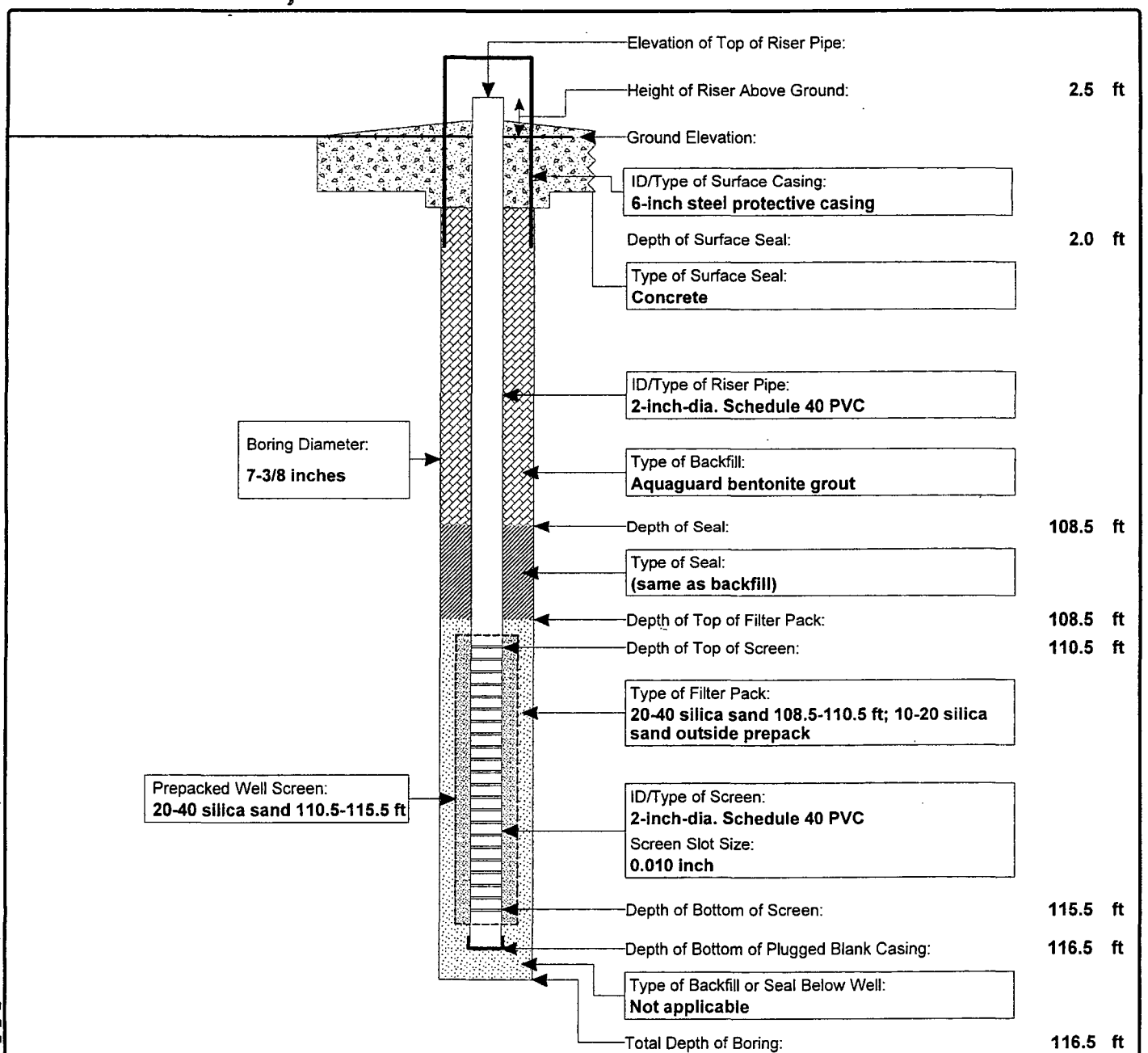
Report: ENV_WELL_CONSTR_A_G_BASALT; File: RPACRI45.GPJ; 4/5/2000 W-08-74

URS Greiner Woodward Clyde

SCOEPA00009660

Project: Rhone Poulenc RI / FS Project Location: Portland, Oregon Project Number: 5292C0804A.00 00045	MONITORING WELL CONSTRUCTION LOG FOR WELL W-09-116

Well Location	Northwest corner of lake area			Date(s) Installed 1/21/00	Time 1200
Installed By	Cascade Drilling, Inc.	Observed By	G. Lukert	Total Depth	116.5 feet
Method of Installation	Air rotary rig, annular material placed with tremie				
Screened Interval	110.5 - 115.5 feet bgs	Completion Zone	Deep Alluvium		
Remarks	Refer to Log of Boring W-09-116 for sampling data and lithology.				



NOTE: DIAGRAM IS NOT TO SCALE

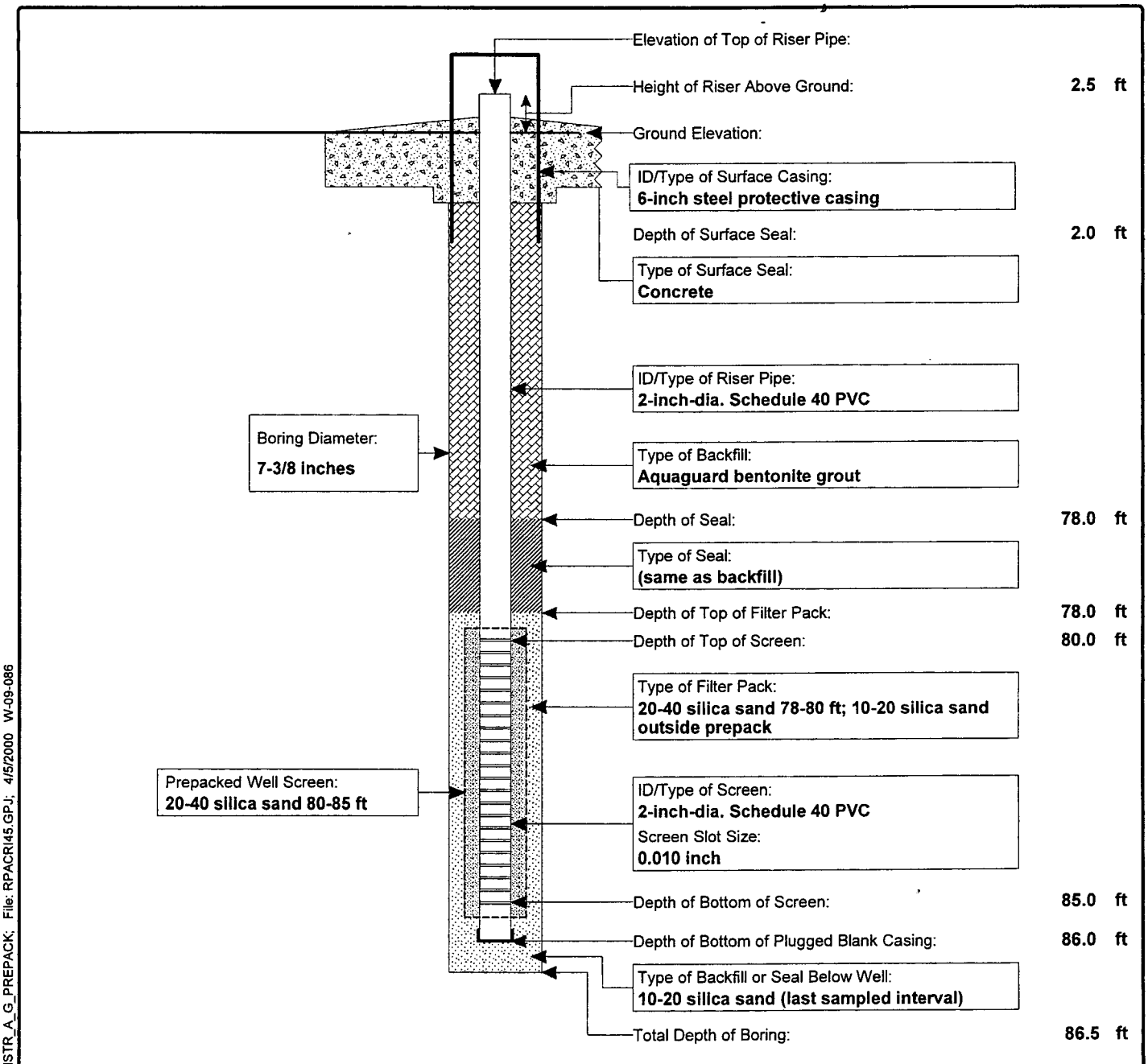
Report: ENV_WELL_CONSTR_A_G_PREPACK; File: RPACRI45.GPJ; 4/5/2000 W-09-116

URS Greiner Woodward Clyde

SCOEPA00009661

Project: Rhone Poulenc RI / FS Project Location: Portland, Oregon Project Number: 5292C0804A.00 00045	MONITORING WELL CONSTRUCTION LOG FOR WELL W-09-86

Well Location	Northwest corner of lake area		Date(s) Installed	1/25/00	Time 1200
Installed By	Cascade Drilling, Inc.	Observed By	G. Lukert	Total Depth	86.5 feet
Method of Installation	Air rotary rig, annular material placed with tremie				
Screened Interval	80 - 85 feet bgs	Completion Zone	Intermediate Alluvium		
Remarks	Refer to Log of Boring W-09-86 for sampling data and lithology.				



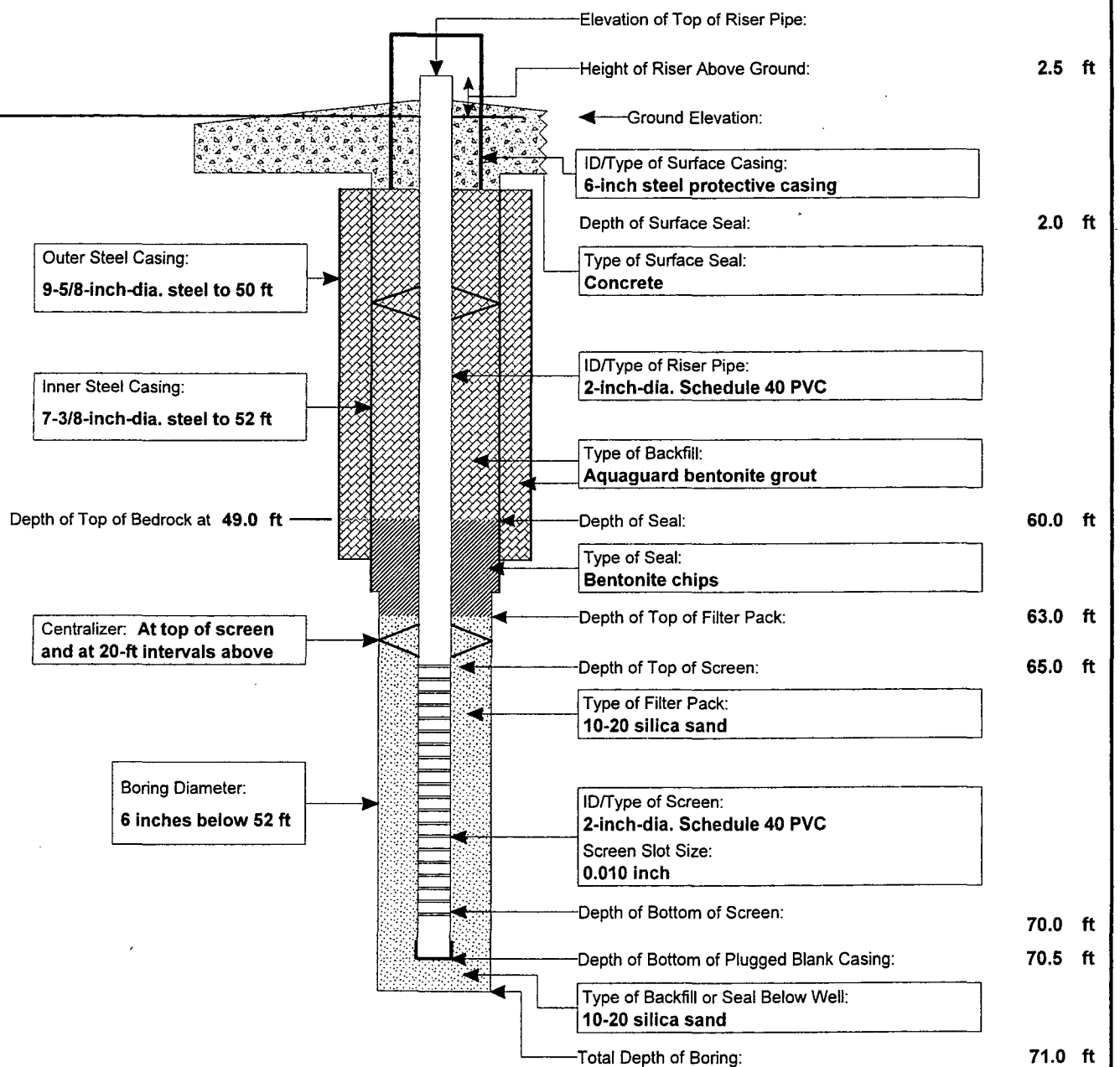
NOTE: DIAGRAM IS NOT TO SCALE

Report: ENV_WELL_CONSTR_A_G_PREPACK; File: RPACRI45.GPJ; 4/5/2000 W-09-086

URS Greiner Woodward Clyde

Project: Rhone Poulenc RI / FS Project Location: Portland, Oregon Project Number: 5292C0804A.00 00045	MONITORING WELL CONSTRUCTION LOG FOR WELL MW-05-70

Well Location	MW-05 cluster			Date(s) Installed	1/31/00 - 2/1/00 Time 0800
Installed By	Cascade Drilling, Inc.	Observed By	G. Lukert	Total Depth	71.0 feet
Method of Installation	Air rotary rig, annular material placed with tremie				
Screened Interval	65 - 70 feet bgs	Completion Zone	Basalt		
Remarks	Refer to Log of Boring MW-05-70 for sampling data and lithology.				



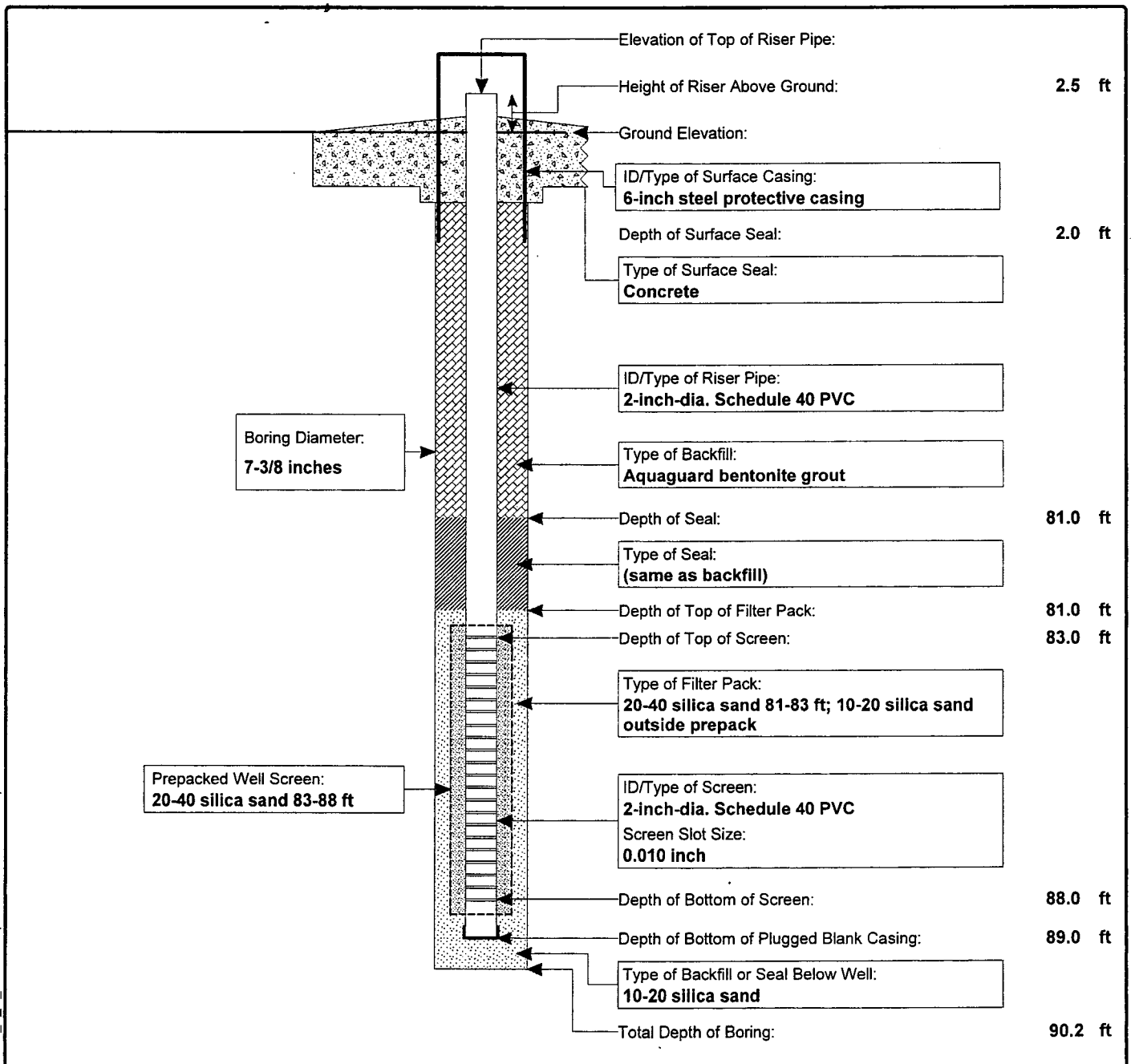
NOTE: DIAGRAM IS NOT TO SCALE

URS Greiner Woodward Clyde

Report: ENV_WELL_CONSTR_A_G_BASALT; File: RPACRI45.GPJ; 4/5/2000 W-05-70

Project: Rhone Poulenc RI / FS Project Location: Portland, Oregon Project Number: 5292C0804A.00 00045	MONITORING WELL CONSTRUCTION LOG FOR WELL W-04-89

Well Location	Gould Property			Date(s) Installed	1/26/00 - 1/27/00 Time 1600
Installed By	Cascade Drilling, Inc.	Observed By	G. Lukert	Total Depth	90.2 feet
Method of Installation	Air rotary rig, annular material placed with tremie				
Screened Interval	83 - 88 feet bgs	Completion Zone	Deep Alluvium		
Remarks	Refer to Log of Boring W-04-89 for sampling data and lithology.				



NOTE: DIAGRAM IS NOT TO SCALE

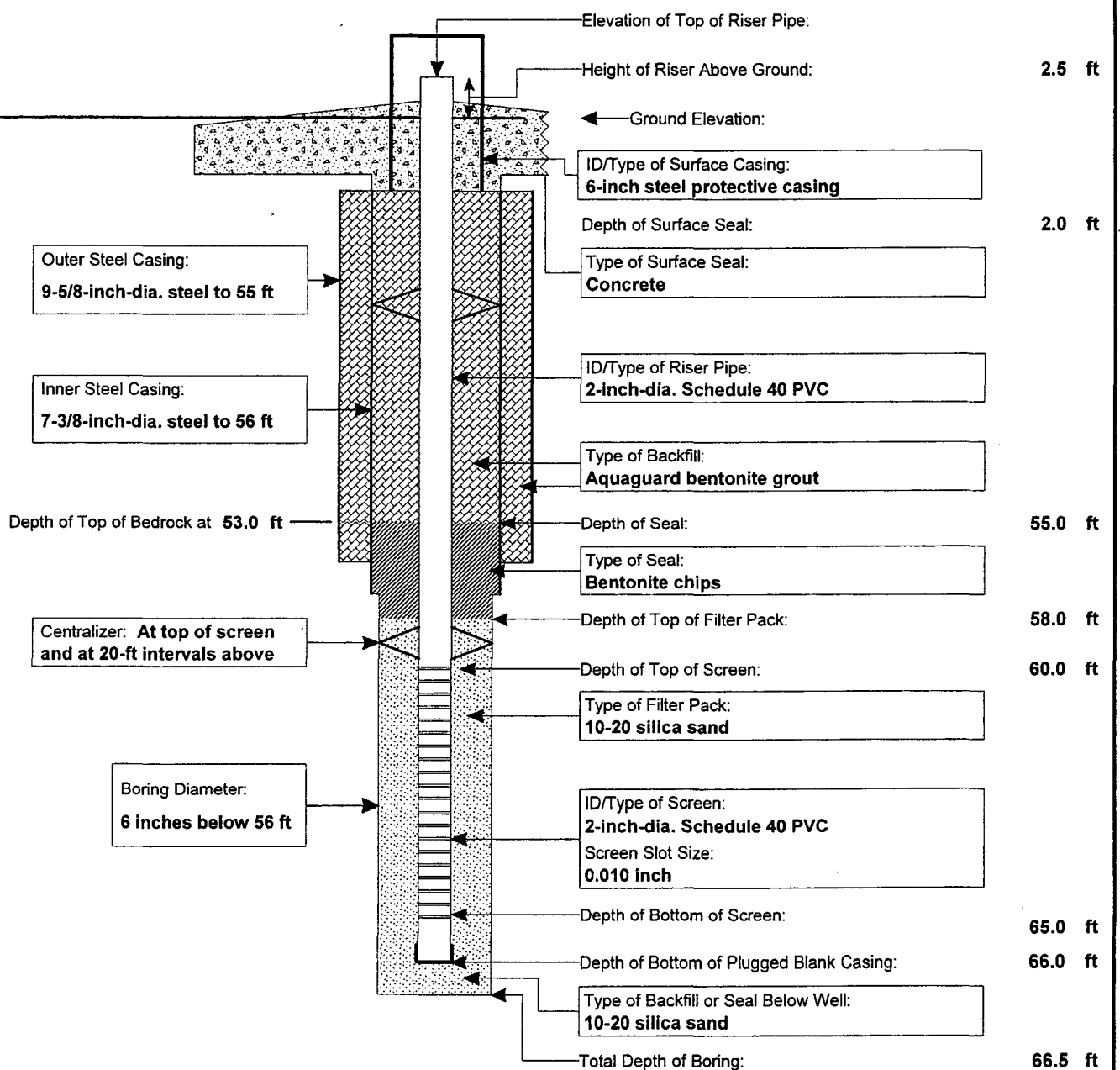
Report: ENV_WELL_CONSTR_A_G_PREPACK; File: RPACRI45.GPJ; 4/5/2000 W-04-89

URS Greiner Woodward Clyde

SCOEPA00009664

Project: Rhone Poulenc RI / FS Project Location: Portland, Oregon Project Number: 5292C0804A.00 00045	MONITORING WELL CONSTRUCTION LOG FOR WELL RP-02-66

Well Location	Atochem Property, west of CPT-16		Date(s) Installed	2/1/00 - 2/2/00	Time 1200
Installed By	Cascade Drilling, Inc.	Observed By	G. Lukert	Total Depth	66.5 feet
Method of Installation	Air rotary rig, annular material placed with tremie				
Screened Interval	60 - 65 feet bgs	Completion Zone	Basalt		
Remarks	Refer to Log of Boring RP-02-66 for sampling data and lithology.				



NOTE: DIAGRAM IS NOT TO SCALE

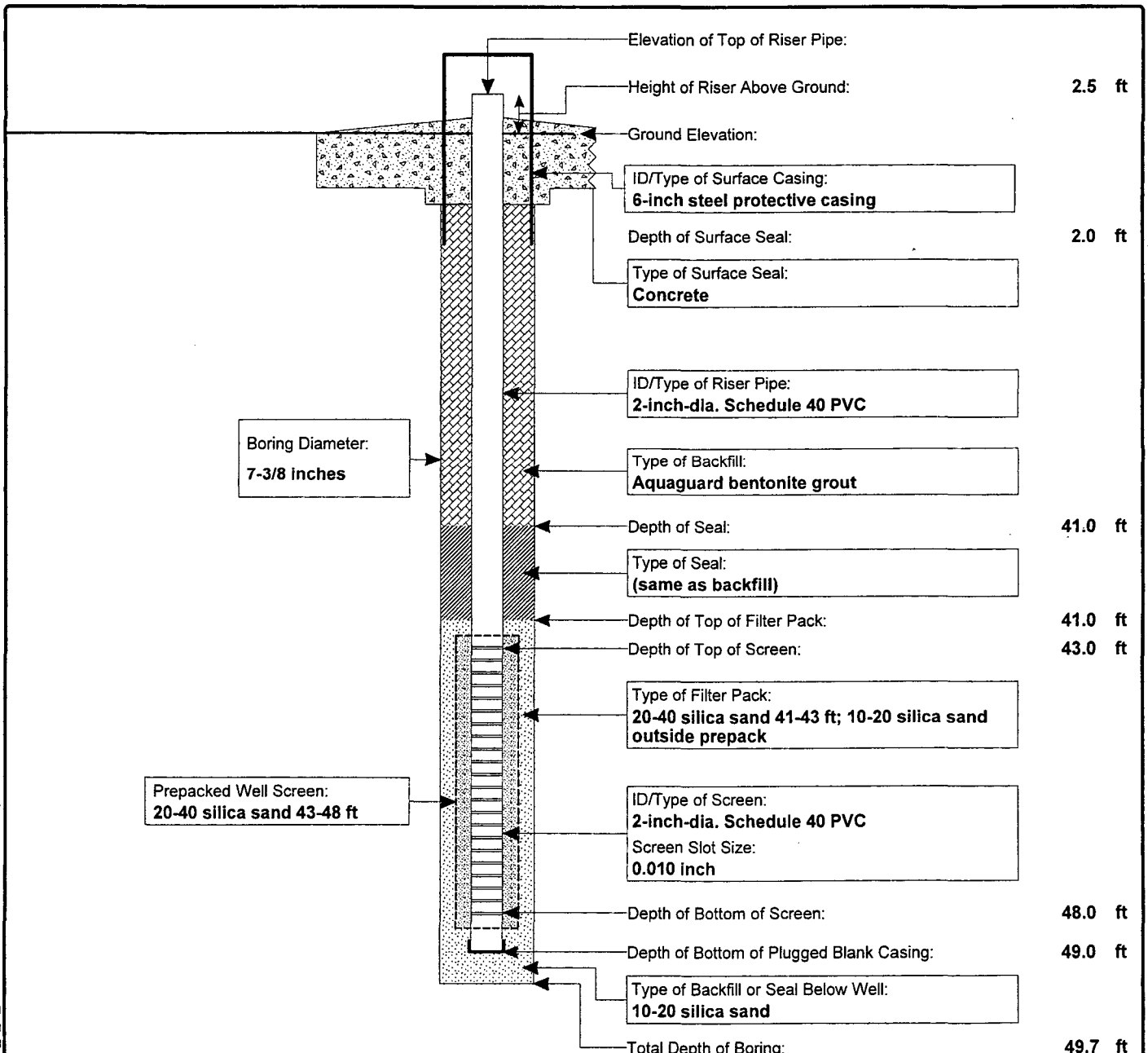
Report: ENV_WELL_CONSTR_A_G_BASALT; File: RPACRI45.GPJ; 4/5/2000 RP-02-66

URS Greiner Woodward Clyde

SCOEPA00009665

Project: Rhone Poulenc RI / FS Project Location: Portland, Oregon Project Number: 5292C0804A.00 00045	MONITORING WELL CONSTRUCTION LOG FOR WELL RP-02-49

Well Location	Atochem Property, west of CPT-16		Date(s) Installed	2/3/00	Time 1030
Installed By	Cascade Drilling, Inc.	Observed By	G. Lukert	Total Depth	49.7 feet
Method of Installation	Air rotary rig, annular material placed with tremie				
Screened Interval	43 - 48 feet bgs	Completion Zone	Deep Alluvium		
Remarks	Refer to Log of Boring RP-02-49 for sampling data and lithology.				



NOTE: DIAGRAM IS NOT TO SCALE

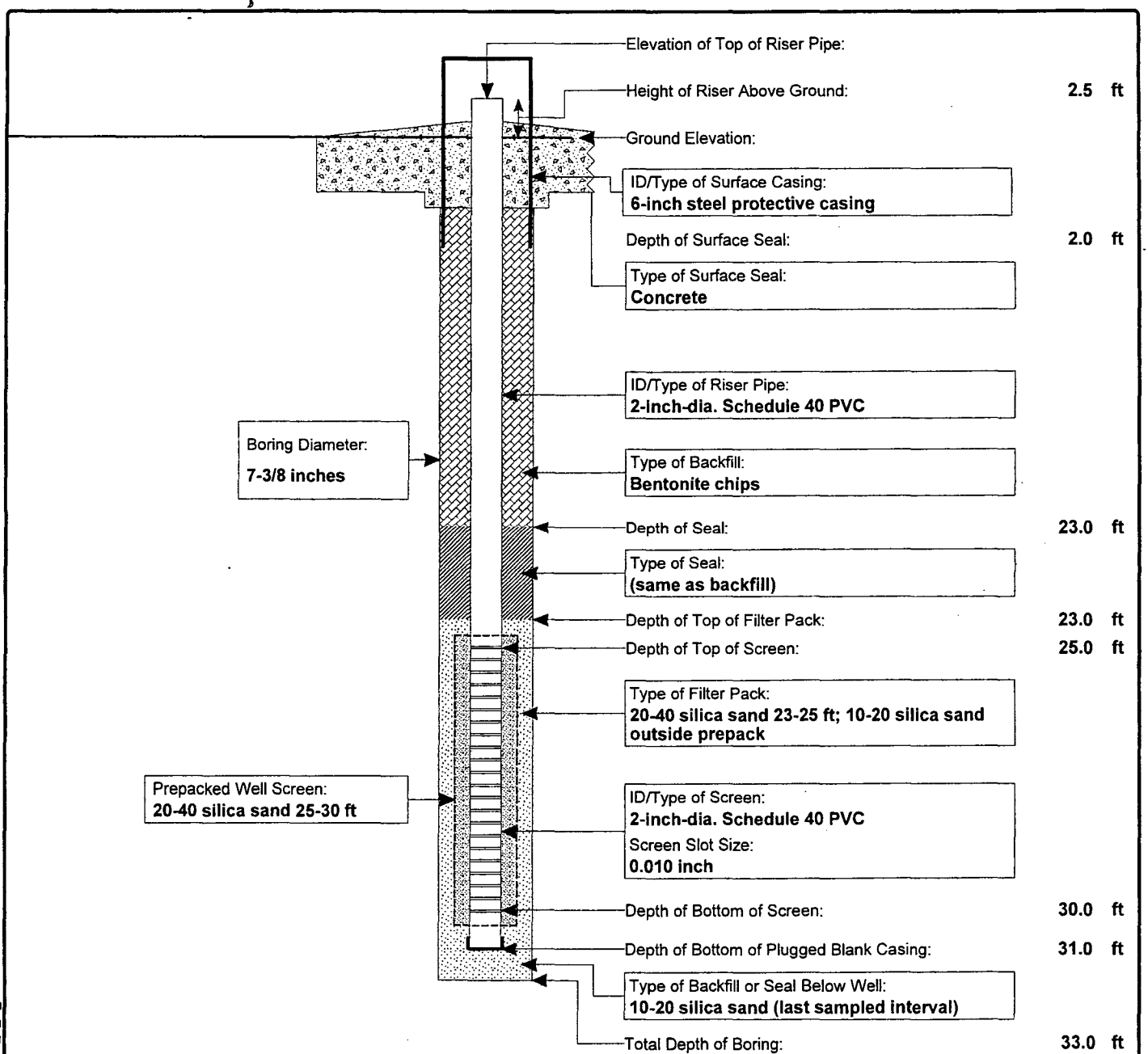
Report: ENV_WELL_CONSTR_A_G_PREPACK; File: RPACR145.GPJ; 4/5/2000 RP-02-49

URS Greiner Woodward Clyde

SCOEPA00009666

Project: Rhone Poulenc RI / FS Project Location: Portland, Oregon Project Number: 5292C0804A.00 00045	MONITORING WELL CONSTRUCTION LOG FOR WELL RP-02-31

Well Location	Atochem Property, west of CPT-16		Date(s) Installed	2/3/00	Time 1500
Installed By	Cascade Drilling, Inc.	Observed By	G. Lukert	Total Depth	33.0 feet
Method of Installation	Air rotary rig, annular material placed with tremie				
Screened Interval	25 - 30 feet bgs	Completion Zone	Shallow Alluvium		
Remarks	Refer to Log of Boring RP-02-31 for sampling data and lithology.				



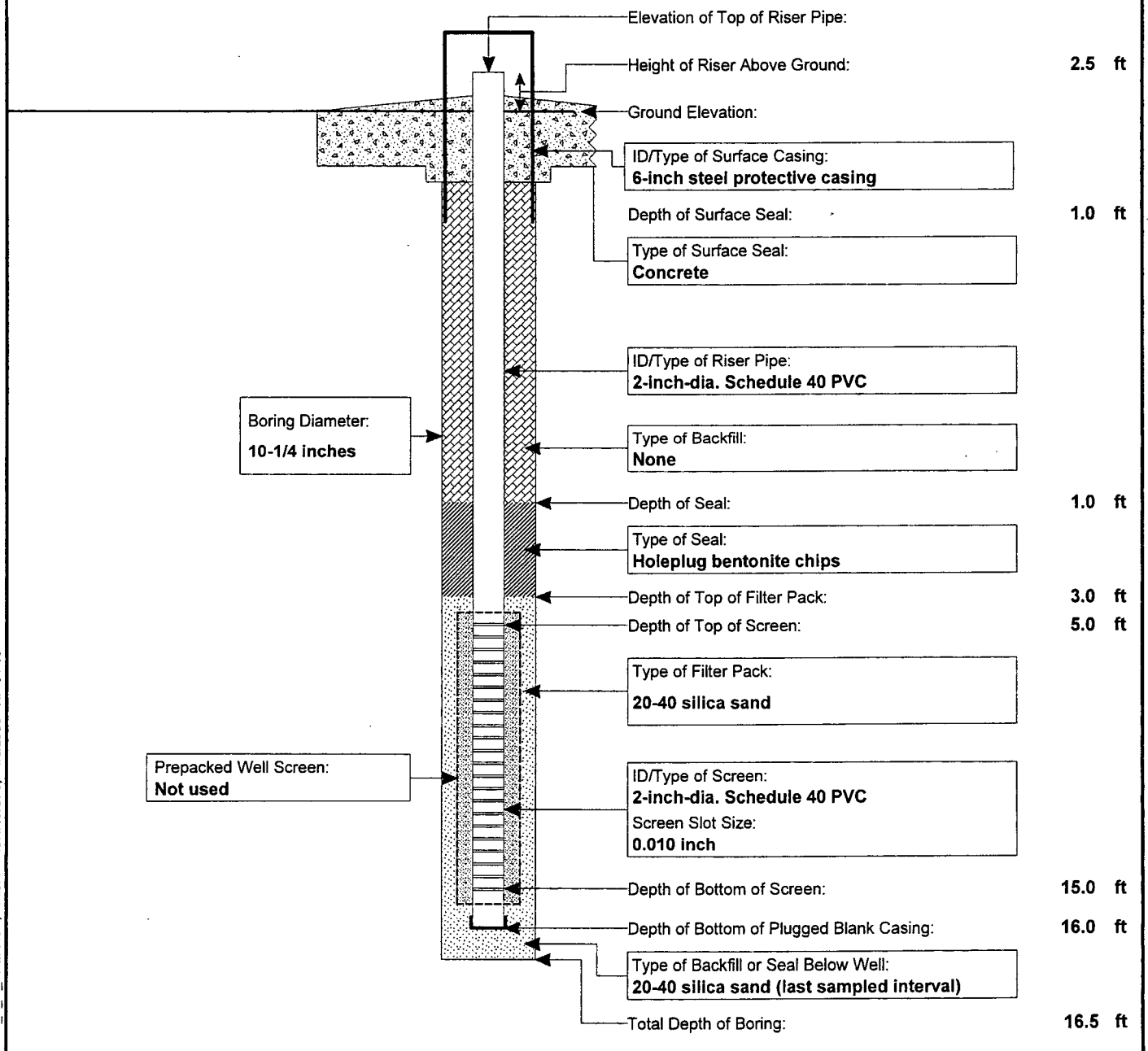
NOTE: DIAGRAM IS NOT TO SCALE

Report: ENV_WELL_CONSTR_A_G_PREPACK; File: RPACR145.GPJ; 4/5/2000 RP-02-31

URS Greiner Woodward Clyde

Project: Rhone Poulenc RI / FS Project Location: Portland, Oregon Project Number: 5292C0804A.00 00045	MONITORING WELL CONSTRUCTION LOG FOR WELL RP-04-16

Well Location	South end of West Doane Lake			Date(s) Installed 1/13/00	Time 1400
Installed By	Cascade Drilling, Inc.	Observed By	G. Lukert	Total Depth	16.5 feet
Method of Installation	Hollow-stem auger, annular material placed with tremie				
Screened Interval	5 - 15 feet bgs	Completion Zone	Upper Aquifer		
Remarks	Refer to Log of Boring RP-04-16 for sampling data and lithology.				



NOTE: DIAGRAM IS NOT TO SCALE

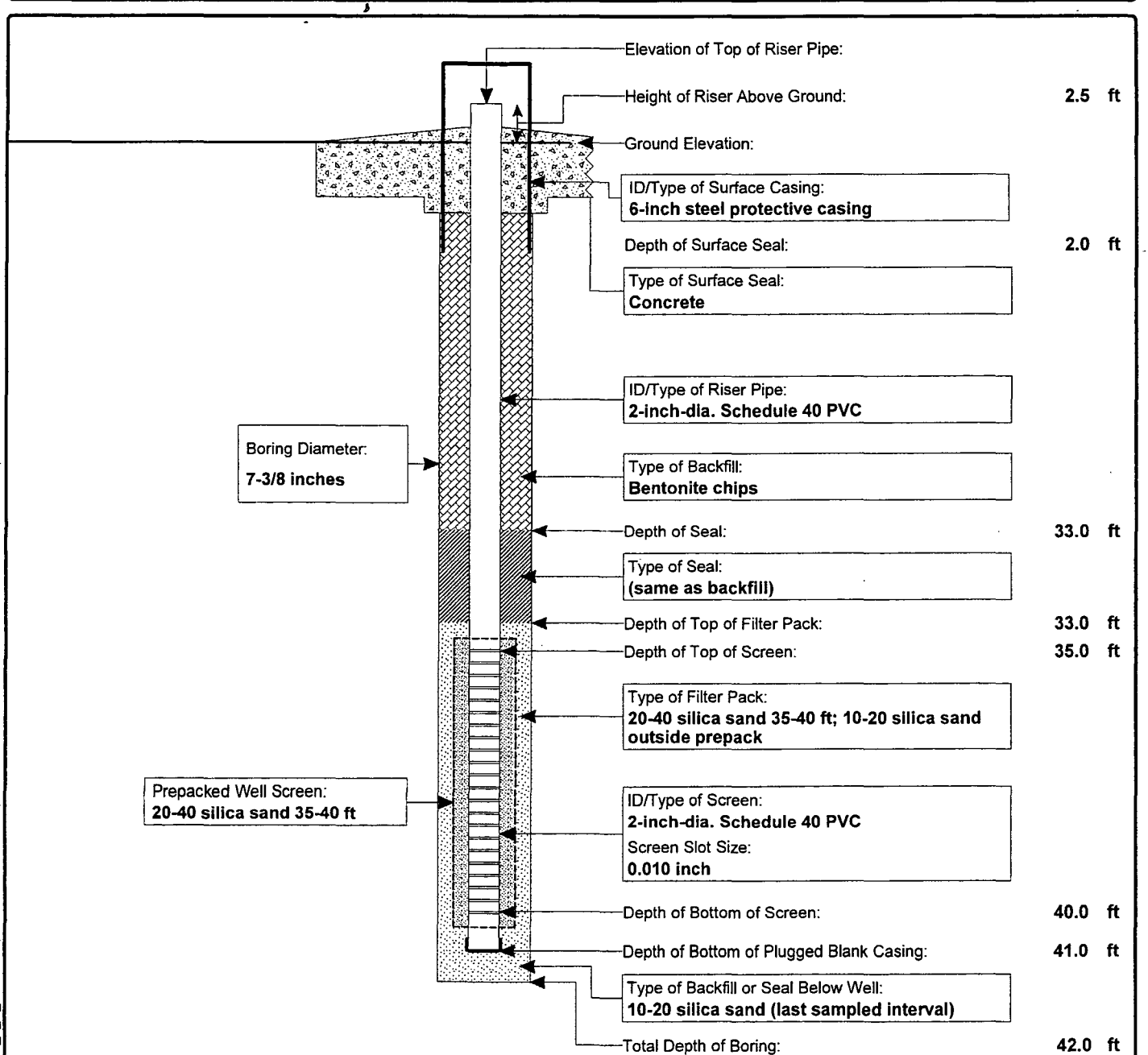
Report: ENV_WELL_CONSTR_A_G_PREPACK; File: RPACR145.GPJ; 4/5/2000 RP-04-16

URS Greiner Woodward Clyde

SCOEPA00009668

Project: Rhone Poulenc RI / FS Project Location: Portland, Oregon Project Number: 5292C0804A.00 00045	MONITORING WELL CONSTRUCTION LOG FOR WELL RP-04-41

Well Location	South end of West Doane Lake			Date(s) Installed	2/21/00 - 2/22/00 Time 1600
Installed By	Cascade Drilling, Inc.	Observed By	G. Lukert	Total Depth	42.0 feet
Method of Installation	Air rotary rig, annular material placed with tremie				
Screened Interval	35 - 40 feet bgs	Completion Zone	Deep Alluvium		
Remarks	Refer to Log of Boring RP-04-41 for sampling data and lithology.				



NOTE: DIAGRAM IS NOT TO SCALE

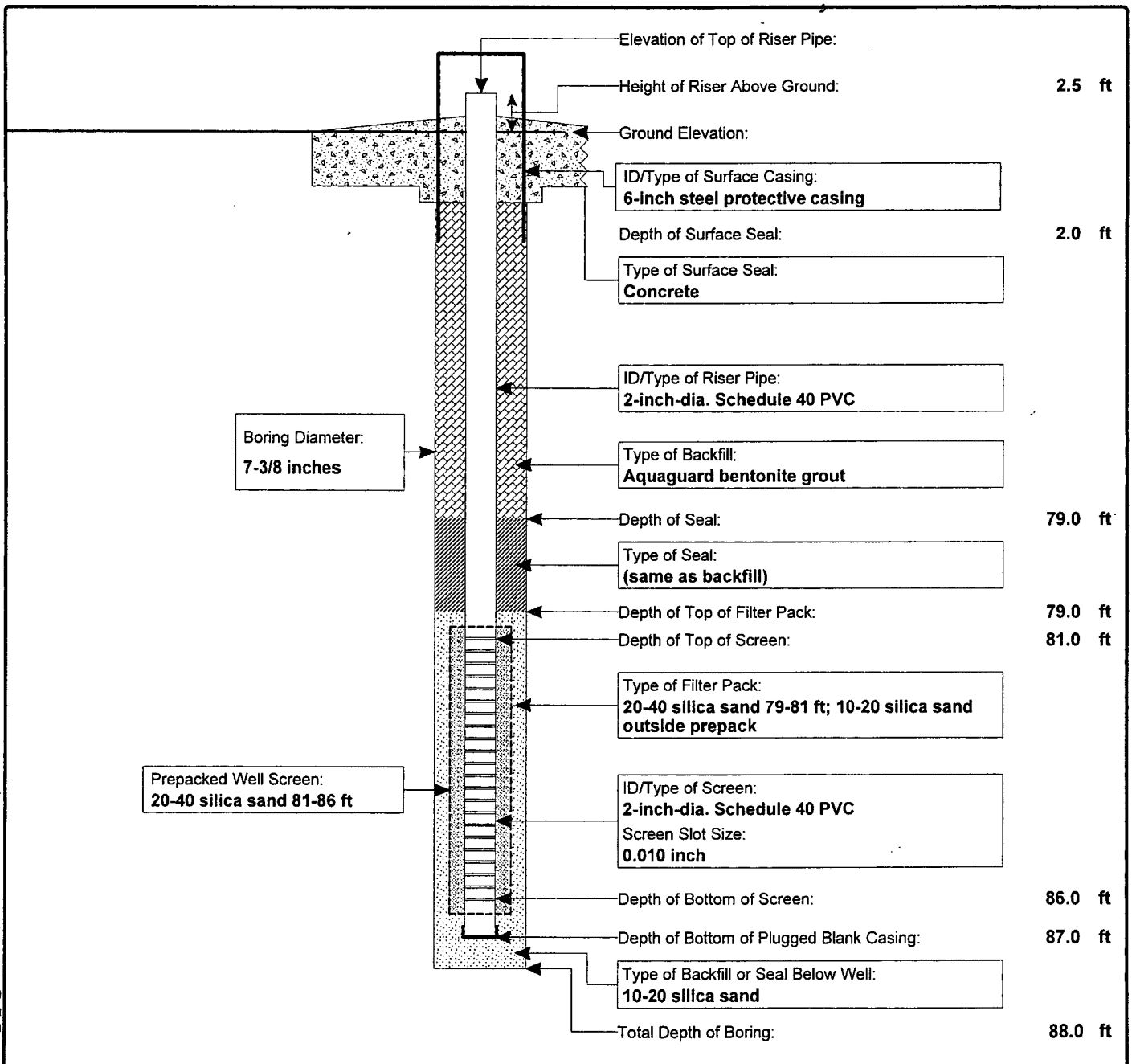
Report: ENV_WELL_CONSTR_A_G_PREPACK; File: RPACRI45.GPJ; 4/5/2000 RP-04-41

URS Greiner Woodward Clyde

SCOEPA00009669

Project: Rhone Poulenc RI / FS Project Location: Portland, Oregon Project Number: 5292C0804A.00 00045	MONITORING WELL CONSTRUCTION LOG FOR WELL RP-06-87

Well Location	BNSF Property, north side of tracks, at GP-027		Date(s) Installed	2/7/00	Time 1300
Installed By	Cascade Drilling, Inc.	Observed By	G. Lukert	Total Depth	88.0 feet
Method of Installation	Air rotary rig, annular material placed with tremie				
Screened Interval	81 - 86 feet bgs	Completion Zone	Deep Alluvium		
Remarks	Refer to Log of Boring RP-06-87 for sampling data and lithology.				



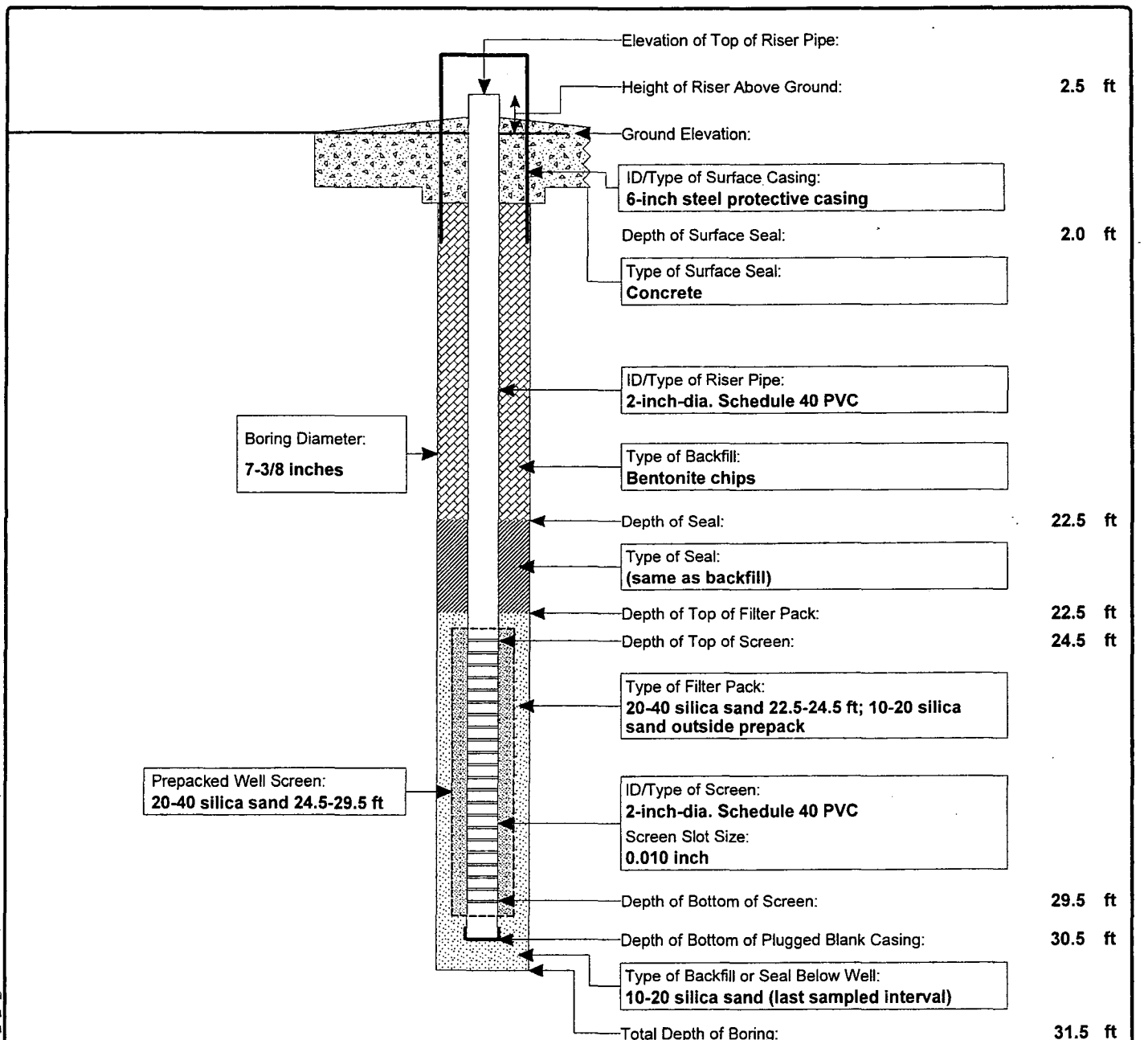
NOTE: DIAGRAM IS NOT TO SCALE

Report: ENV_WELL_CONSTR_A_G_PREPACK; File: RPACRI45.GPJ; 4/5/2000 RP-06-87

URS Greiner Woodward Clyde

Project: Rhone Poulenc RI / FS Project Location: Portland, Oregon Project Number: 5292C0804A.00 00045	MONITORING WELL CONSTRUCTION LOG FOR WELL RP-06-31

Well Location	BNSF Property, north side of tracks, at GP-027		Date(s) Installed	2/8/00	Time 0830
Installed By	Cascade Drilling, Inc.	Observed By	G. Lukert	Total Depth	31.5 feet
Method of Installation	Air rotary rig, annular material placed with tremie				
Screened Interval	24.5 - 29.5 feet bgs	Completion Zone	Shallow Alluvium		
Remarks	Refer to Log of Boring RP-06-31 for sampling data and lithology.				



NOTE: DIAGRAM IS NOT TO SCALE

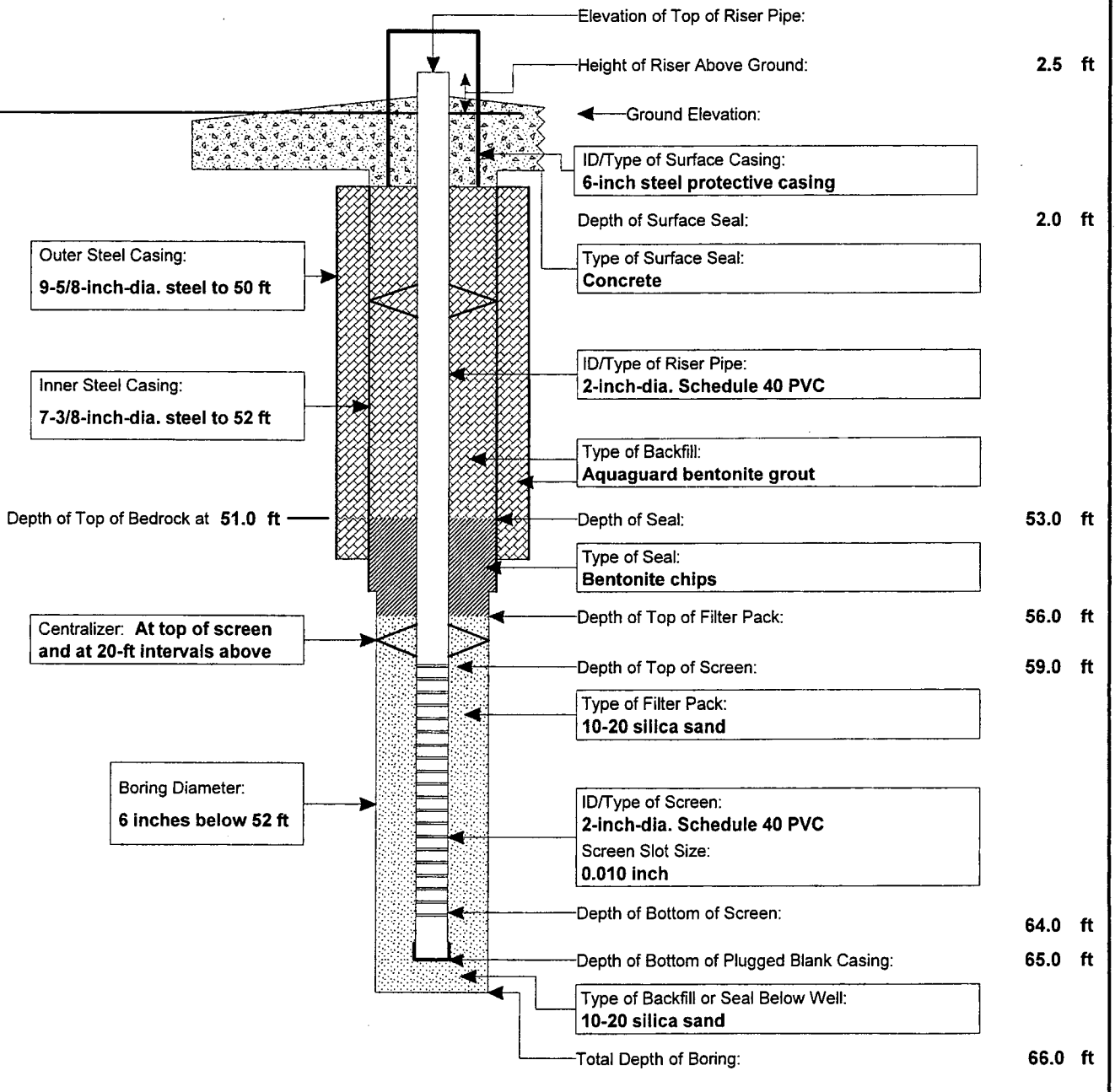
Report: ENV_WELL_CONSTR_A_G_PREPACK; File: RPACRI45.GPJ; 4/5/2000 RP-06-31

URS Greiner Woodward Clyde

SCOEPA00009671

Project: Rhone Poulenc RI / FS Project Location: Portland, Oregon Project Number: 5292C0804A.00 00045	MONITORING WELL CONSTRUCTION LOG FOR WELL RP-01-65

Well Location	BNSF Property, at CPT-26		Date(s) Installed 2/8/00	Time	1630
Installed By	Cascade Drilling, Inc.	Observed By	G. Lukert	Total Depth	66.0 feet
Method of Installation	Air rotary rig, annular material placed with tremie				
Screened Interval	59 - 64 feet bgs	Completion Zone	Basalt		
Remarks	Refer to Log of Boring RP-01-65 for sampling data and lithology.				



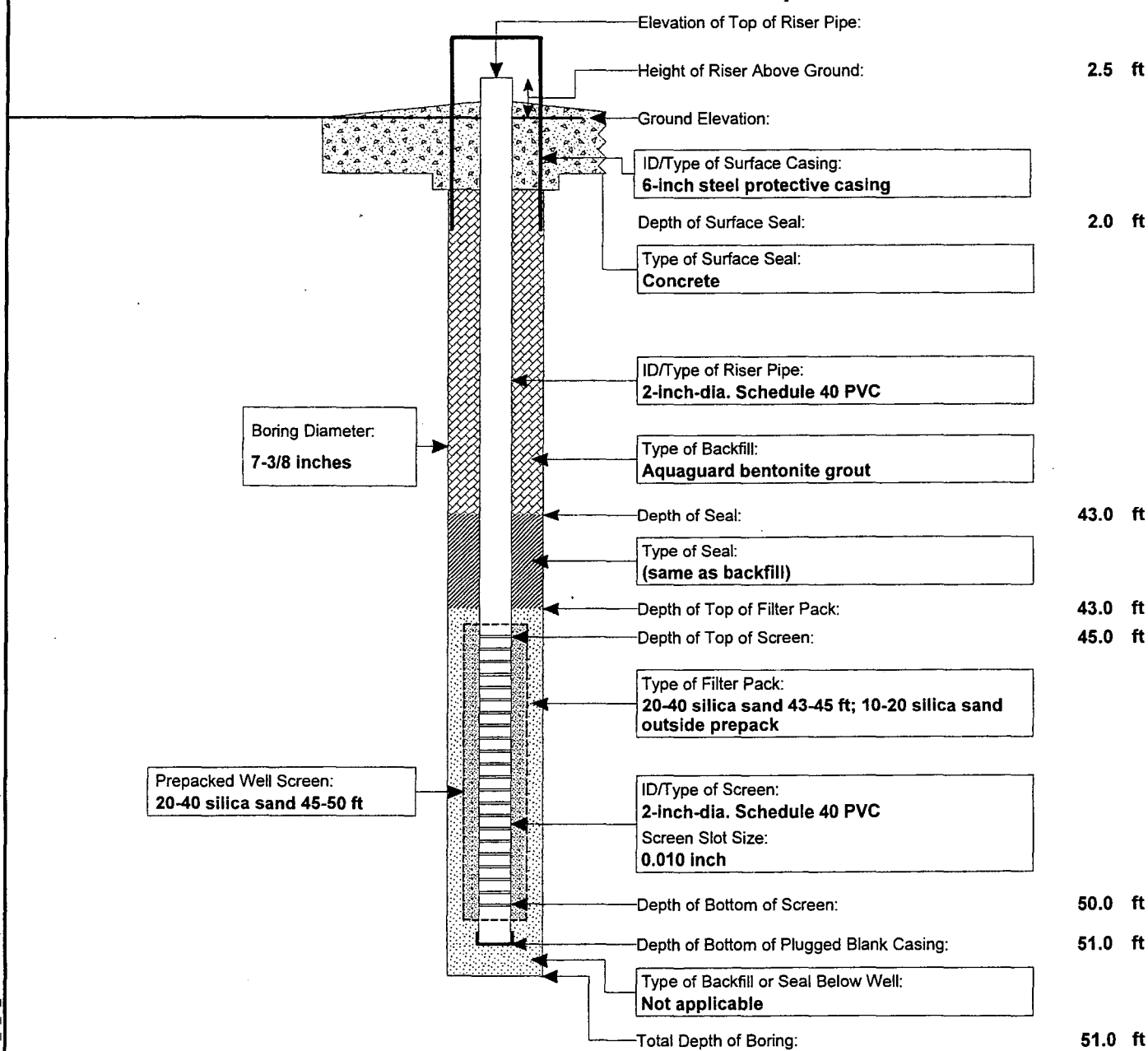
NOTE: DIAGRAM IS NOT TO SCALE

Report: ENV_WELL_CONSTR_A_G_BASALT; File: RPACRI45.GPJ; 4/5/2000 RP-01-65

URS Greiner Woodward Clyde

Project: Rhone Poulenc RI / FS Project Location: Portland, Oregon Project Number: 5292C0804A.00 00045	MONITORING WELL CONSTRUCTION LOG FOR WELL RP-01-51

Well Location	BNSF Property, at CPT-26		Date(s) Installed 2/9/00	Time	1600
Installed By	Cascade Drilling, Inc.	Observed By	G. Lukert	Total Depth	51.0 feet
Method of Installation	Air rotary rig, annular material placed with tremie				
Screened Interval	45 - 50 feet bgs	Completion Zone	Deep Alluvium		
Remarks	Refer to Log of Boring RP-01-51 for sampling data and lithology.				



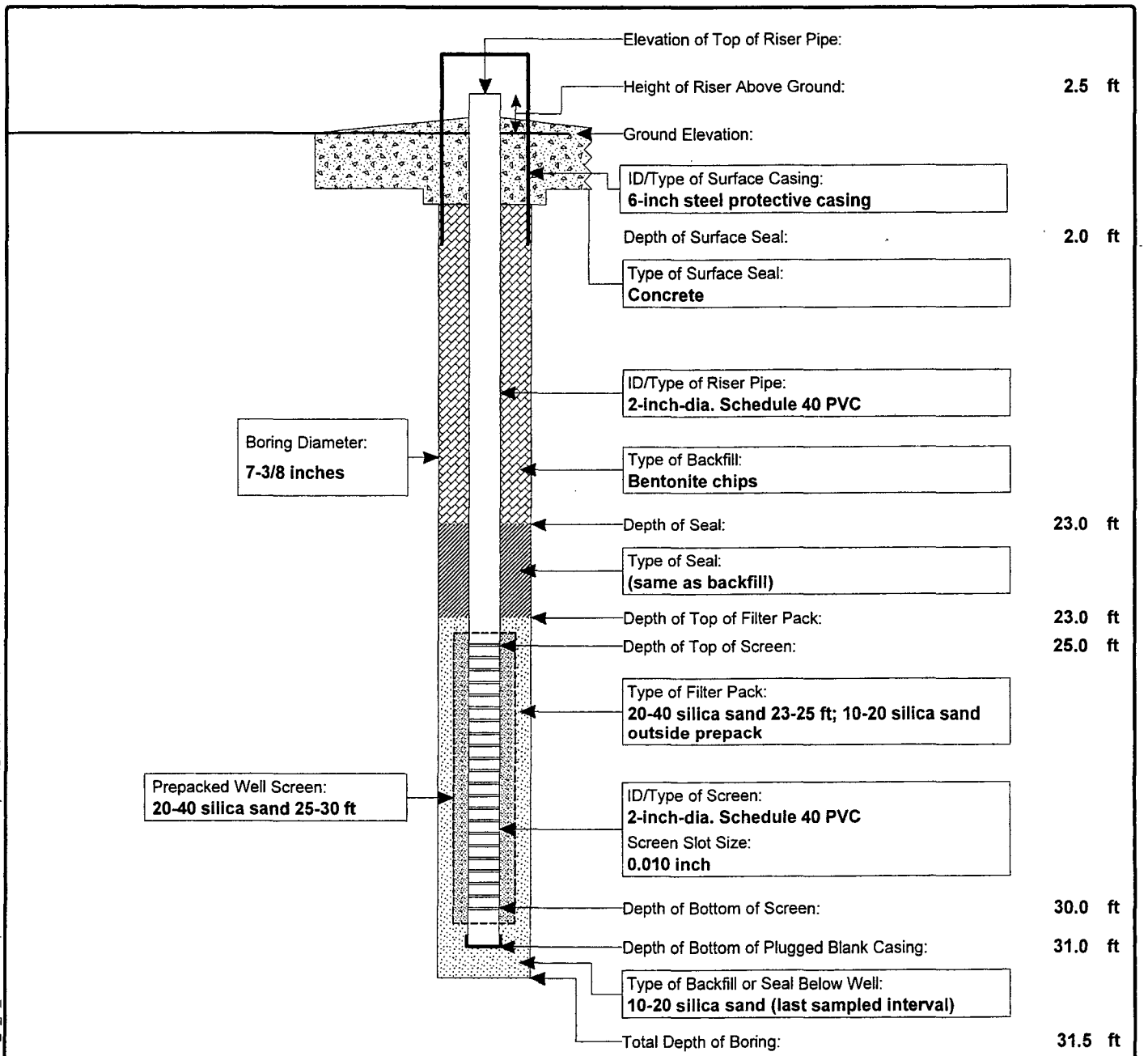
NOTE: DIAGRAM IS NOT TO SCALE

Report: ENV_WELL_CONSTR_A_G_PREPACK; File: RPACRI45.GPJ; 4/5/2000 RP-01-51

URS Greiner Woodward Clyde

Project: Rhone Poulenc RI / FS Project Location: Portland, Oregon Project Number: 5292C0804A.00 00045	MONITORING WELL CONSTRUCTION LOG FOR WELL RP-01-31

Well Location	BNSF Property, at CPT-26		Date(s) Installed	2/10/00	Time 0920
Installed By	Cascade Drilling, Inc.	Observed By	G. Lukert	Total Depth	31.5 feet
Method of Installation	Air rotary rig, annular material placed with tremie				
Screened Interval	25 - 30 feet bgs	Completion Zone	Shallow Alluvium		
Remarks	Refer to Log of Boring RP-01-31 for sampling data and lithology.				



NOTE: DIAGRAM IS NOT TO SCALE

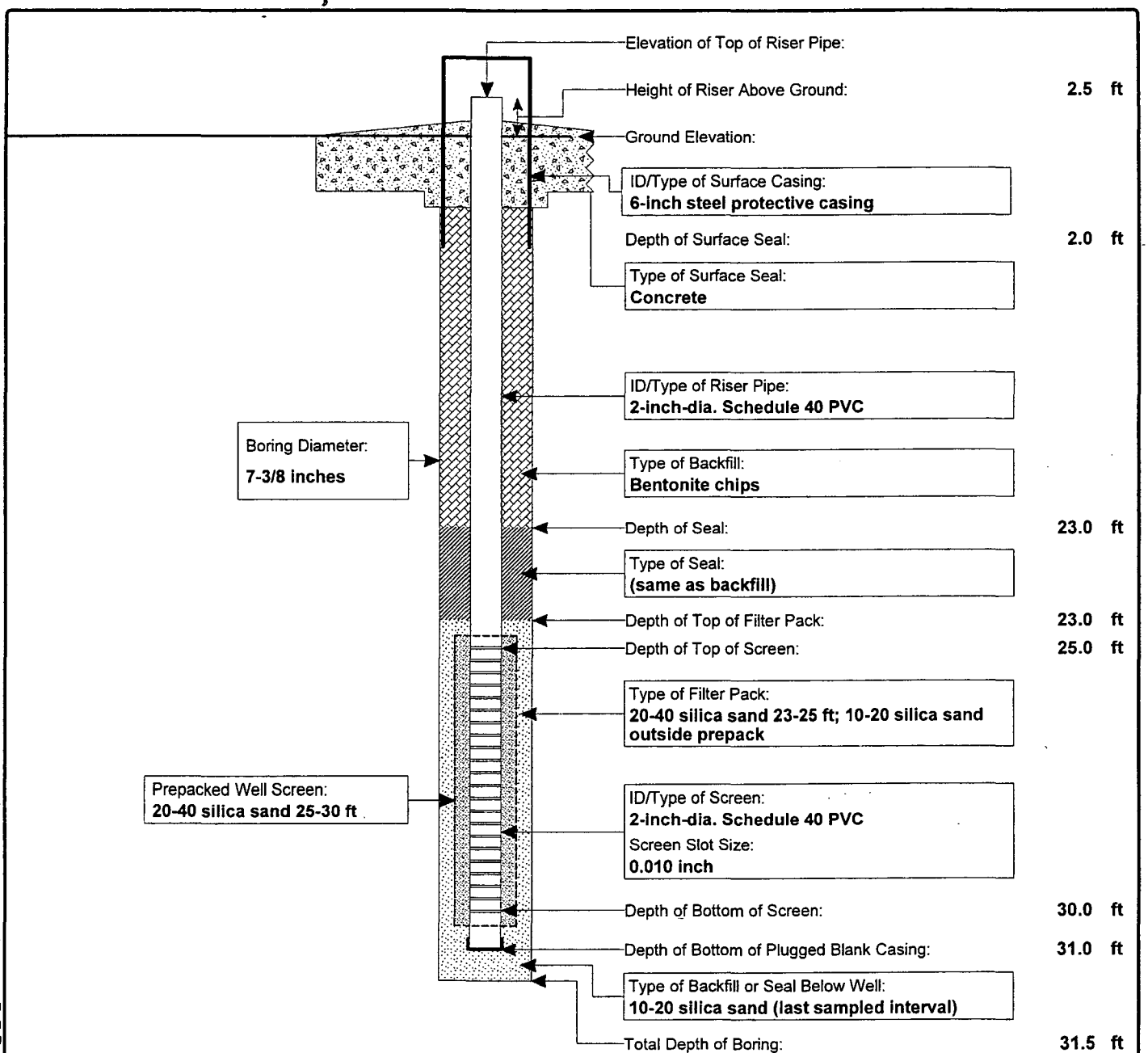
Report: ENV_WELL_CONSTR_A_G_PREPACK; File: RPACRI45.GPJ; 4/5/2000 RP-01-31

URS Greiner Woodward Clyde

SCOEPA00009674

Project: Rhone Poulenc RI / FS Project Location: Portland, Oregon Project Number: 5292C0804A.00 00045	MONITORING WELL CONSTRUCTION LOG FOR WELL W-16-31

Well Location	Northwest corner of Schnitzer Property		Date(s) Installed	2/11/00	Time 1000
Installed By	Cascade Drilling, Inc.	Observed By	G. Lukert	Total Depth	31.5 feet
Method of Installation	Air rotary rig, annular material placed with tremie				
Screened Interval	25 - 30 feet bgs	Completion Zone	Shallow Alluvium		
Remarks	Refer to Log of Boring W-16-31 for sampling data and lithology.				



NOTE: DIAGRAM IS NOT TO SCALE

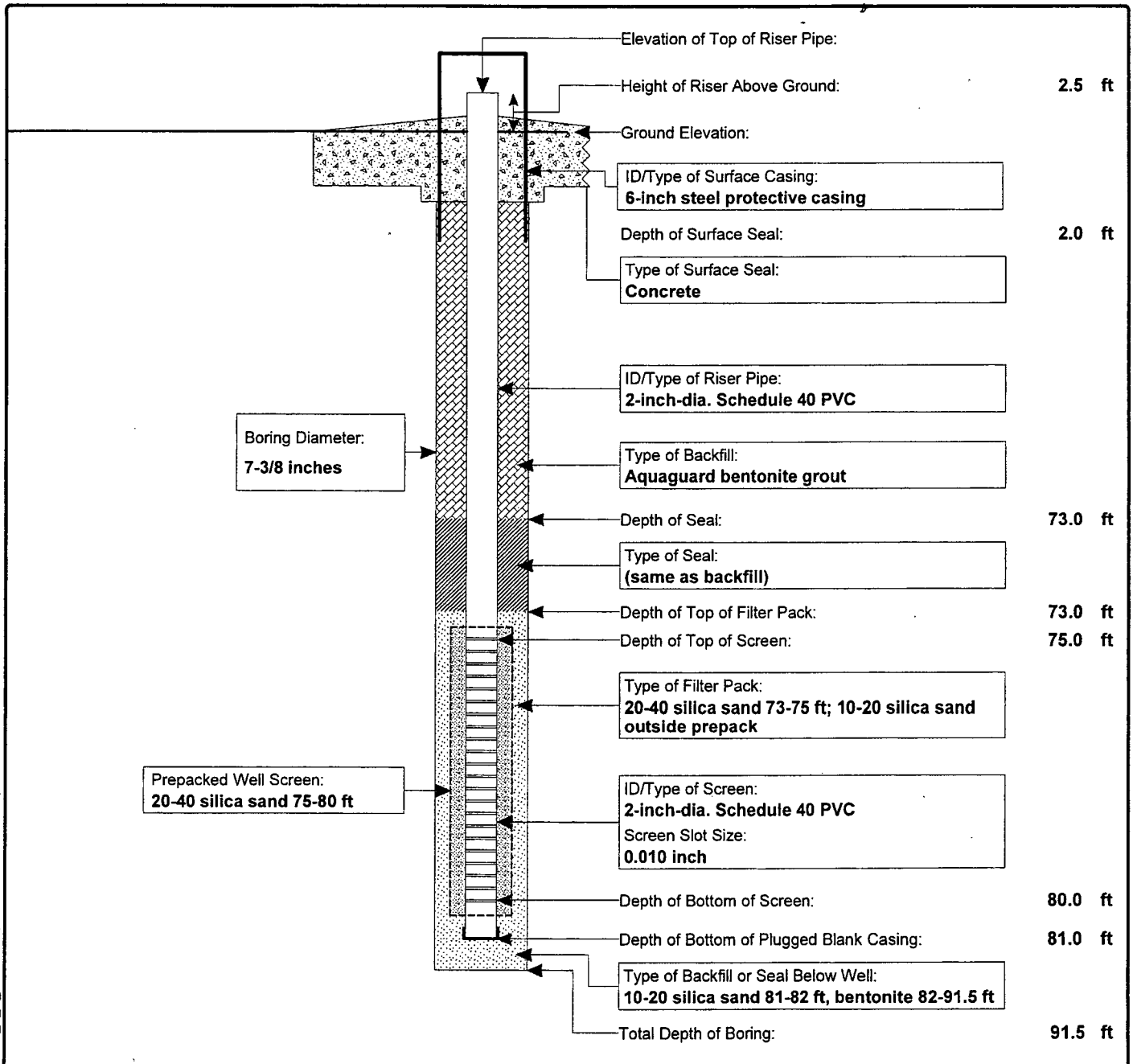
Report: ENV_WELL_CONSTR_A_G_PREPACK; File: RPACR145.GPJ; 4/5/2000 W-16-31

URS Greiner Woodward Clyde

SCOEPA00009675

Project: Rhone Poulenc RI / FS Project Location: Portland, Oregon Project Number: 5292C0804A.00 00045	MONITORING WELL CONSTRUCTION LOG FOR WELL W-03-81

Well Location	Wacker Property, north of CPT-24		Date(s) Installed	2/16/00	Time 1630
Installed By	Cascade Drilling, Inc.	Observed By	G. Lukert	Total Depth	91.5 feet
Method of Installation	Air rotary rig, annular material placed with tremie				
Screened Interval	75 - 80 feet bgs	Completion Zone	Deep Alluvium		
Remarks	Refer to Log of Boring W-03-81 for sampling data and lithology.				



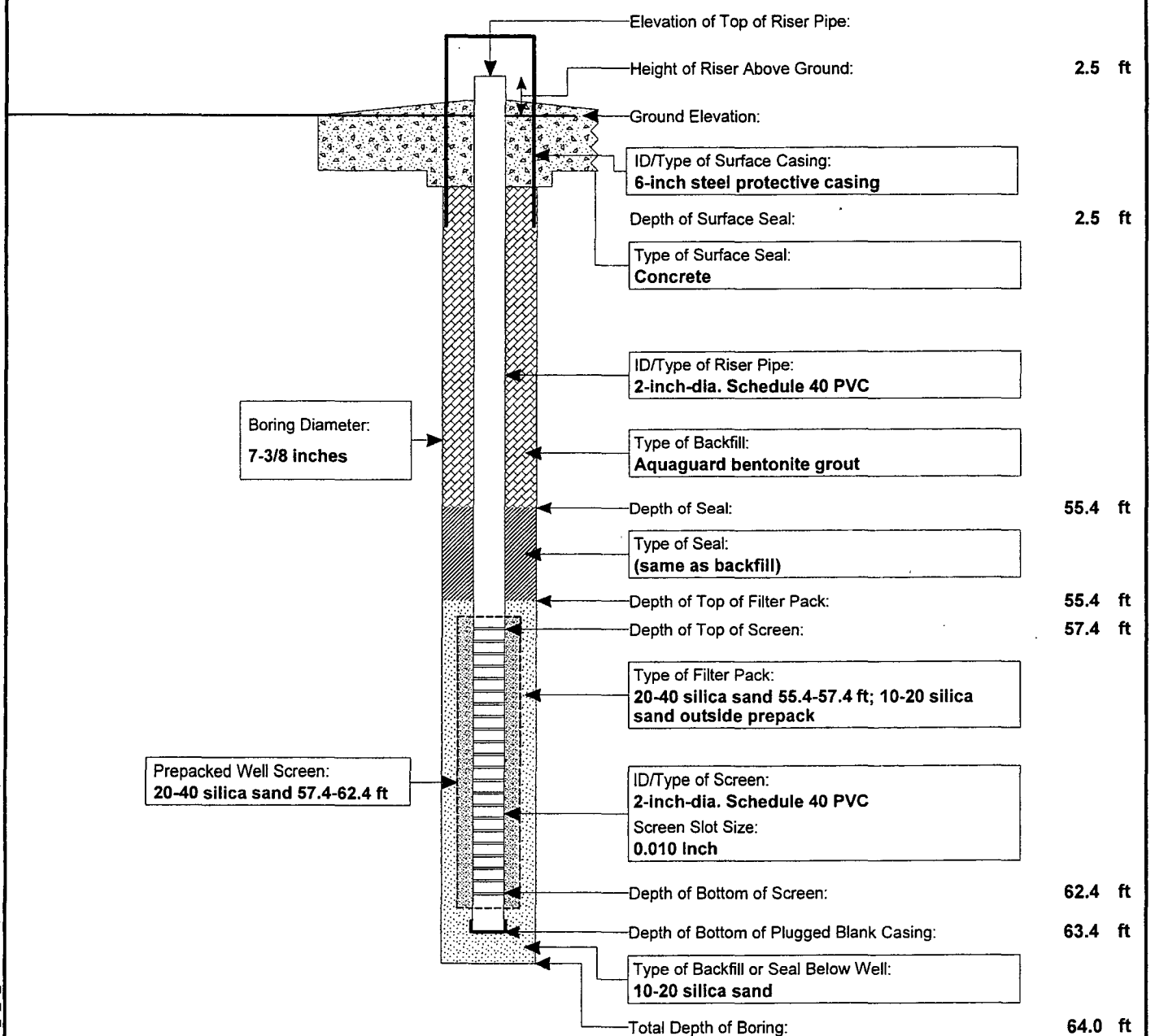
NOTE: DIAGRAM IS NOT TO SCALE

Report: ENV_WELL_CONSTR_A_G_PREPACK; File: RPACRI45.GPJ; 4/5/2000 W-03-81

URS Greiner Woodward Clyde

Project: Rhone Poulenc RI / FS Project Location: Portland, Oregon Project Number: 5292C0804A.00 00045	MONITORING WELL CONSTRUCTION LOG FOR WELL RP-03-63

Well Location	Wacker Property, at CPT-22		Date(s) Installed	2/17/00	Time 1200
Installed By	Cascade Drilling, Inc.	Observed By	G. Lukert	Total Depth	64.0 feet
Method of Installation	Air rotary rig, annular material placed with tremie				
Screened Interval	57.4 - 62.4 feet bgs	Completion Zone	Deep Alluvium		
Remarks	Refer to Log of Boring RP-03-63 for sampling data and lithology.				



NOTE: DIAGRAM IS NOT TO SCALE

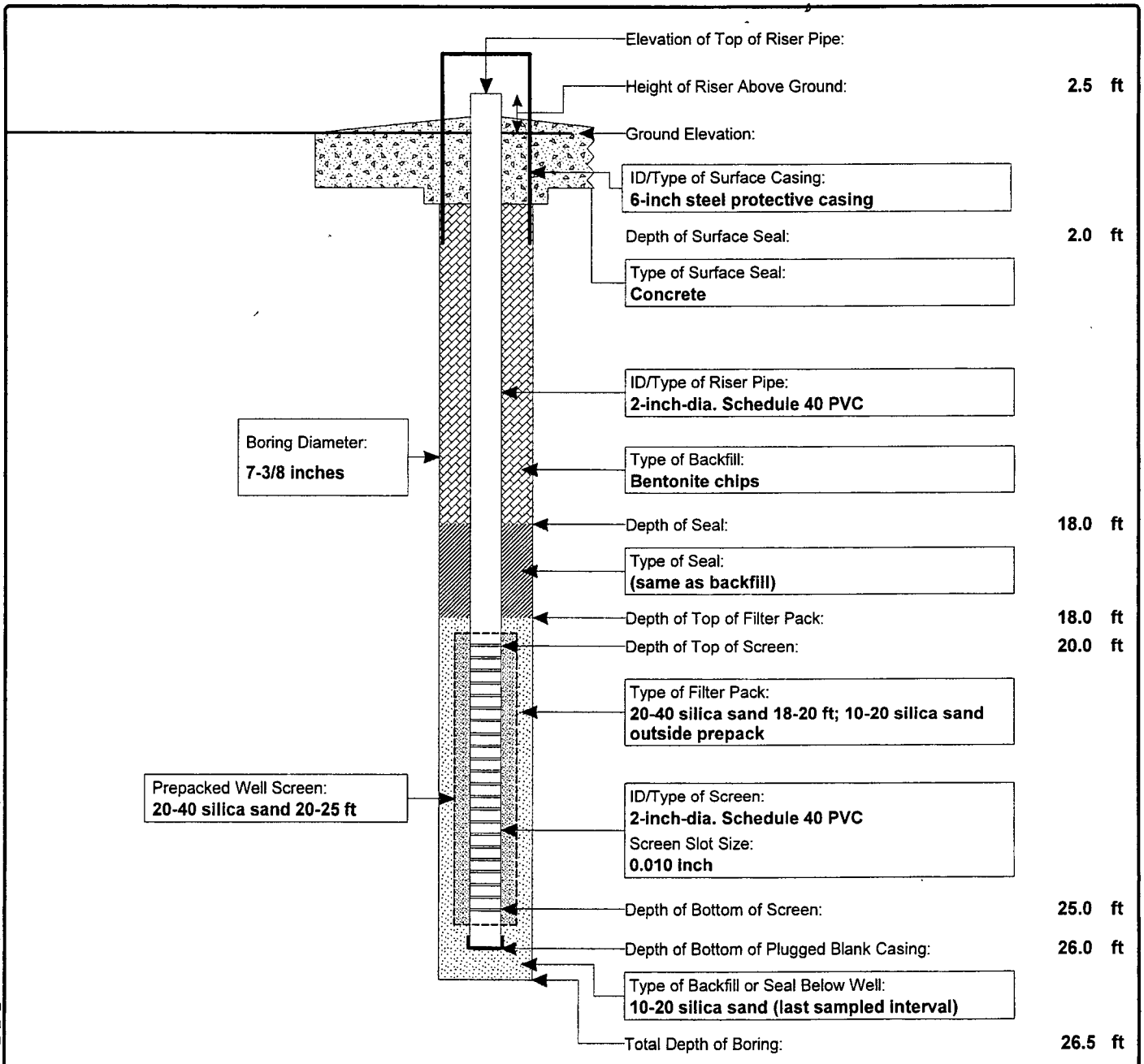
Report: ENV_WELL_CONSTR_A_G_PREPACK; File: RPACR145.GPJ; 4/5/2000 RP-03-63

URS Greiner Woodward Clyde

SCOEPA00009677

Project: Rhone Poulenc RI / FS Project Location: Portland, Oregon Project Number: 5292C0804A.00 00045	MONITORING WELL CONSTRUCTION LOG FOR WELL RP-03-26

Well Location	Wacker Property, at CPT-22		Date(s) Installed	2/17/00	Time 1500
Installed By	Cascade Drilling, Inc.	Observed By	G. Lukert	Total Depth	26.5 feet
Method of Installation	Air rotary rig, annular material placed with tremie				
Screened Interval	20 - 25 feet bgs	Completion Zone	Shallow Alluvium		
Remarks	Refer to Log of Boring RP-03-26 for sampling data and lithology.				



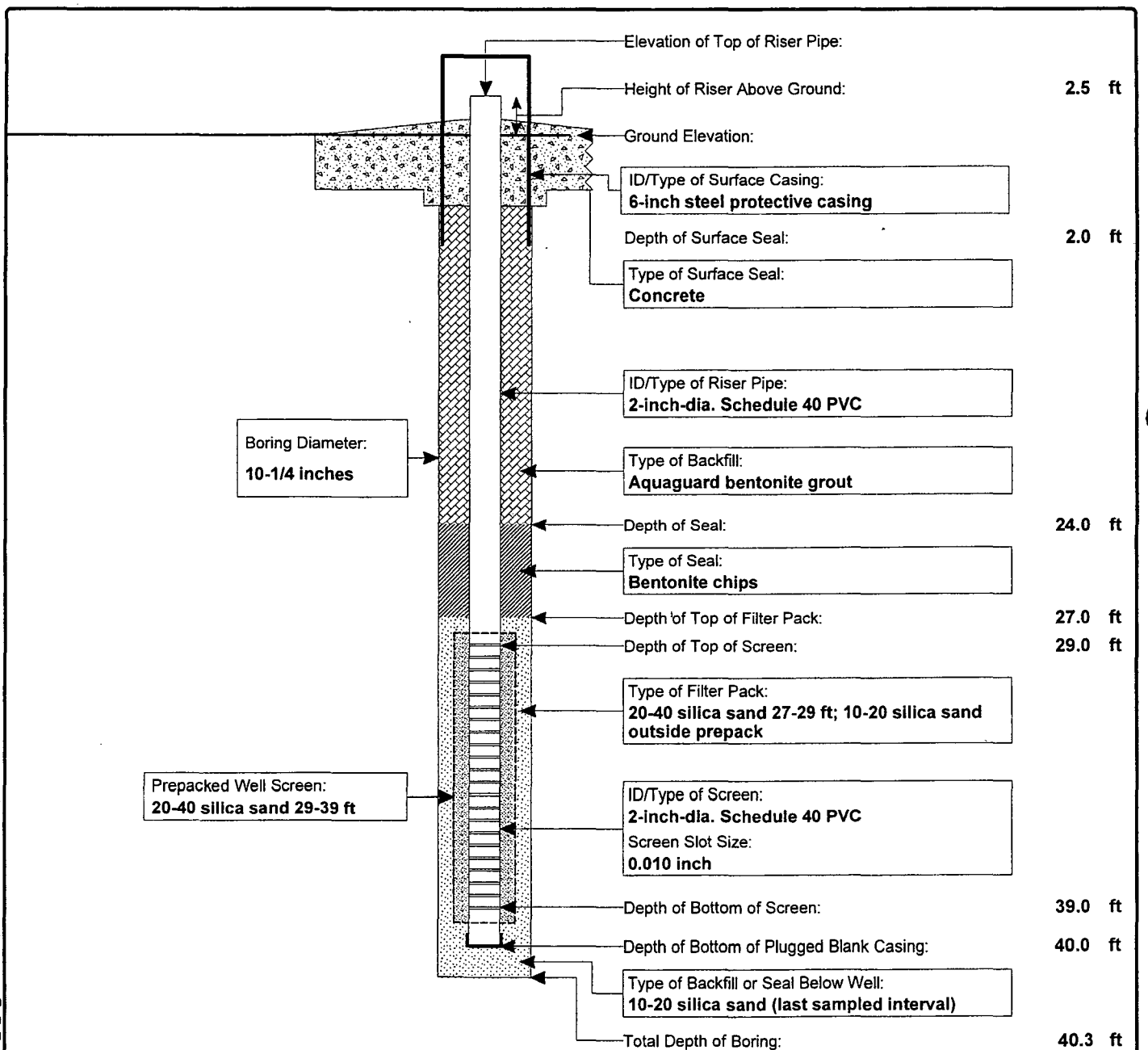
NOTE: DIAGRAM IS NOT TO SCALE

Report: ENV_WELL_CONSTR_A_G_PREPACK; File: RPACRI45.GPJ; 4/5/2000 RP-03-26

URS Greiner Woodward Clyde

Project: Rhone Poulenc RI / FS Project Location: Portland, Oregon Project Number: 5292C0804A.00 00045	MONITORING WELL CONSTRUCTION LOG FOR WELL PZ-02-40

Well Location	West side of Highway 30, Site 6		Date(s) Installed	3/15/00	Time 1300
Installed By	Cascade Drilling, Inc.	Observed By	G. Lukert	Total Depth	40.3 feet
Method of Installation	Hollow-stem auger rig, annular material placed with tremie				
Screened Interval	29 - 39 feet bgs	Completion Zone	Shallow Alluvium		
Remarks	Refer to Log of Boring PZ-02-40 for sampling data and lithology.				



NOTE: DIAGRAM IS NOT TO SCALE

Report: ENV_WELL_CONSTR_A_G_PREPACK; File: RPACRI45.GPJ; 4/5/2000 PZ-02-40

URS Greiner Woodward Clyde

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Two aqueous samples, three soil samples, one aqueous field duplicate, one rinsate blank, and two trip blanks were collected on January 13 – February 17, 2000 at the RPAC Portland Site. Where sufficient sample volume was available, the laboratory performed matrix spike (MS)/ matrix spike duplicate (MSD) analyses. Otherwise, batch MS/MSD (i.e., results from a similar matrix, but from a different client) or blank spike/blank spike duplicate results were reported. The data packages were subject to a quality assurance/quality control (QA/QC) review that included an evaluation of analytical representativeness, accuracy, precision, and completeness. The data quality review process followed the procedures specified in the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (USEPA, October 1999) and Inorganic Data Review (USEPA, February 1994).* Representativeness is evaluated by examining chain of custody paperwork and verifying analysis was performed within allowable holding times; accuracy is evaluated using the analytical results for blanks, surrogates, matrix spikes and blank spikes; precision is evaluated by comparison of results for primary and sample duplicate analyses and laboratory duplicate analyses; and completeness is evaluated by calculating the percentage of acceptable data.

North Creek Analytical, Inc. (NCA) of Beaverton, Oregon analyzed all samples except for the chlorinated herbicide and dioxin/furan fractions, which were sent to NCA's Bothell, Washington laboratory and Columbia Analytical Services, Inc. of Houston, Texas, respectively. Samples were analyzed for one or more of the following methods: Metals by EPA SW-846 Method 6010/6020/7471A Series, Semivolatile Organic Compounds by EPA SW-846 Method 8270C, Volatile Organic Compounds by EPA SW-846 Method 8260B, Organochlorine Pesticides and Polychlorinated Biphenyls by EPA SW-846 Method 8081A/8082, Organophosphorus Pesticides by EPA SW8141A, Chlorinated Herbicides by EPA SW-846 Method 8151A, Polychlorinated Dibenzo-p-Dioxins/Polychlorinated Dibenzofurans by EPA SW-846 Method 8290, Phenols by EPA SW-8041, Isobutyl Alcohol by EPA SW-8015M, and Total Petroleum Hydrocarbons by NWTPH-Dx. Sample identification (ID), sample dates, and specific sample analyses are presented in the table below.

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Sample and Analysis Summary

Sample ID:	LWS-01-01	WWS-01-01	WWS-02-01	042-GG-01	043-GG-01	043-GG-02	042-GG-03
Matrix	Soil/Solid	Soil/Solid	Soil/Solid	Water	Water	Water	Water
Sample Date	1/13/00	2/17/00	2/17/00	1/17/00	1/17/00	1/17/00	1/17/00
Metals	X	--	--	X	X	X	X
SVOCs	X	X	X	--	--	--	--
VOCs	X	X	--	X	X	X	X
Organochlorine Pesticides	X	X	--	X	X	X	X
PCBs	X	X	--	X	X	X	X
Organophosphorus Pesticides	X	--	--	X	X	X	X
Chlorinated Herbicides	X	X	--	X	X	X	X
Phenols	X	X	--	X	X	X	X
Isobutyl Alcohol	--	--	--	X	X	X	X
TPH	X	--	--	--	--	--	--
Dioxins/Furans	X	--	--	X	X	X	X

All analytical data are usable as reported, with the exceptions noted in this review summary. Analytical deviations from the reference methods and the Quality Assurance Project Plan (QAPP, URSGWC, May 1999) are presented below. A tabulated summary of the qualification of data is presented at the end of this report.

REPRESENTATIVENESS

Chain of Custody and Holding Times

Sample custody was maintained under the chain of custody (COC) forms. Forms were signed on release and receipt of samples. Samples were properly preserved, except for the following (since temperatures are a function of preservation).

The chlorinated herbicide fraction of soil sample WWS-01-01 was received at the NCA-Bothell laboratory at 8°C. However, it is unlikely that there was any significant loss of target compounds at this temperature, and no data were qualified. All other samples and trip blanks were received at temperatures within 4° ± 2° C.

Extraction and analysis holding times were met for all samples.

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ACCURACY

Initial and Continuing Calibration

Initial and continuing instrument calibration verification (ICV or CCV) were analyzed at the proper frequency. Prior to samples and quality control samples being analyzed, the laboratory analyzed calibration standards at the concentrations required by the method. The continuing calibration standard acceptance criteria was reported as the response factor percent difference (%D) for various organic analyses or as the percent recovery (%R) for inorganic analyses. Except where noted below, the %Ds and %Rs were within the method control limits and USEPA validation criteria.

EPA SW-846 Method 8260B CCVs for carbon disulfide, 2,2-dichloropropane, trichlorofluoromethane, 1,1,1-trichloroethane, carbon tetrachloride, chloromethane, acetone, 2-butanone, 4-methyl-2-pentanone, trans-1,3-dichloropropene, 1,3-dichloropropane, styrene, isopropylbenzene, 1,1,2,2-tetrachloroethane, 1,2,3-trichloropropane, 1,3,5-trimethylbenzene, tertiary-butylbenzene, 1,2,4-trimethylbenzene, hexachlorobutadiene, and/or 1,2,3-trichlorobenzene exceeded the EPA control limit of 25% for one or more samples. All associated sample results for these compounds were non-detect; therefore, data were qualified as estimated "UJ".

Blanks

The laboratory analyzed one method blank with each analytical batch. Two trip blanks were analyzed for EPA SW-846 Method 8260B. Sample 042-GG-03 was collected as a rinsate blank. Frequency requirements for method, rinsate, and trip blanks were met.

Target analytes in the method, rinsate, and trip blanks were below method reporting limits, with the following exceptions. 2,3,7,8-TCDF was detected in the soil method blank. No further data qualification was required because the concentration of 2,3,7,8-TCDF in sample LWS-01-01 was greater than five times the method blank concentration. 2,3,7,8-TCDF and total-TCDF were detected in the rinsate blank (042-GG-03) associated with samples 042-GG-01, 043-GG-01, and 043-GG-02. The concentrations of 2,3,7,8-TCDF and total-TCDF reported in samples 042-GG-01 and 043-GG-01 were less than five times the concentrations in the rinsate blank. EPA validation criteria require that sample concentrations of compounds less than five times the associated blank concentration are to be qualified as non-detect "U". Therefore, the results for 2,3,7,8-TCDF and total-TCDF were qualified "U" in samples 042-GG-01 and 043-GG-01 at the concentrations reported by the laboratory.

Methylene chloride was detected in sample WWS-01-01 at a concentration below the reporting limit. However, the concentration was above the reporting limit when adjusted for percent moisture, and was therefore reported as present in the sample. EPA validation criteria require

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that sample concentrations of common laboratory contaminants (including methylene chloride) less than ten times the associated blank concentration are to be qualified as non-detect "ND". Methylene chloride was present in the associated method blank at a concentration below the reporting limit, but greater than 10% of that in sample WWS-01-01. Therefore, methylene chloride was qualified as not detected ("ND") in sample WWS-01-01 at the concentration reported by the laboratory.

Surrogate Recovery

One of the two organophosphorus pesticide surrogates was not detected in the analysis of sample LWS-01-01. The percent recovery of the second surrogate was within the control limits. The laboratory diluted this sample by a factor of 2x, and matrix interference may have precluded identification of the chromatographic peak representing the first surrogate. For qualitative purposes only, the laboratory performed a second analysis at further dilution. The surrogate peak was detected in this analysis, indicating that it was present in the sample extract. The results for all compounds in sample LWS-01-01 (all were non-detect) were qualified as estimated ("UJ").

The results for all compounds (all were non-detect) in the organochlorine pesticide/PCB analysis of sample 042-GG-01 were qualified as estimated ("UJ") due to surrogate recoveries below the control limits.

Many of the organic fractions of the samples required diluted analyses due to elevated levels of target compounds and/or matrix interference. In some instances, the dilutions were sufficiently high that the surrogates were not detected. No qualification of the data was made based solely on the lack of surrogate recovery information. All other surrogate recoveries for all fractions were within project-specific control limits and/or EPA validation criteria, and no other samples required qualification.

Internal Standard Recovery

The internal standard recovery of $^{13}C_{12}$-OCDD for sample LWS-01-01 exhibited a low recovery. The OCDD and OCDF results were qualified as estimated ("J"). It should be noted that the associated method blank and LCS exhibited the same results, which appears to reflect a systematic problem within the laboratory.

Blank Spike

Blank spikes (BS) were analyzed with each analytical batch, which meets the frequency requirement of five percent.

The percent recoveries for pentachlorphenol in the EPA Method SW-8041 blank spike/blank spike duplicate associated with sample LWS-01-01 were slightly below the project control limit.

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EPA validation criteria do not require qualification solely on spike results, and no data were qualified.

The BS recoveries for all other parameters were within project-specific control limits.

Matrix Spike/Matrix Spike Duplicate

Based on EPA Guidelines, no action is taken on MS/MSD organic data alone. In some instances, MS and/or MSD results were not within the project control limits. In most instances, this was due to matrix interference or sample dilution. Based on a review of the associated sample results, the MS/MSD outliers did not warrant any qualification of organic data.

The recoveries of lead, vanadium, and zinc were below the project control limit in the MS analysis associated with sample LWS-01-01. The results for these analytes in sample LWS-01-01 were qualified as estimated ("J").

No other sample results required qualification based on MS/MSD results.

Compound Quantitation

The reported 2,3,7,8-TCDF result for sample LWS-01-01 from the confirmation column (DB-225) exceeds the linear range of calibration. Therefore, the result should be considered an estimated value and has been qualified "J".

The 2,3,7,8-TCDF results for samples 042-GG-01, 043-GG-01, and 042-GG-03 were reported from the primary column (i.e., DB-5). Method 8290 requires that 2,3,7,8-TCDF must be confirmed and reported from a confirmatory column (i.e., DB-225). The laboratory did not perform confirmatory analyses. Therefore, the 2,3,7,8-TCDF results were qualified as estimated ("J").

PRECISION

Spike Duplicate

The laboratory analyzed matrix spike duplicates with each analytical batch for the organic fractions. In some instances, the MS/MSD relative percent differences (RPDs) were outside the project control limits. However, there are no EPA validation criteria for RPDs, and no qualification was made to the data.

Laboratory Duplicate

A laboratory duplicate was analyzed for the metals analyses. RPDs were within project-specific control limits.

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Field Duplicate

Sample 043-GG-02 was collected as a field duplicate of sample 043-GG-01. The table below summarizes the results of these samples.

Parameter	Sample Concentration	Field Duplicate Concentration	RPD*
Arsenic	0.0896 mg/L	0.0914 mg/L	2.0%
Mercury	0.000387 mg/L	0.000373 mg/L	3.7%
Vanadium	0.315 mg/L	0.366 mg/L	15%
Nickel	ND	0.0100 mg/L	NC
Chloroform	32.7 µg/L	48.8 µg/L	40%
Toluene	1.25 µg/L	ND	NC
OCDD	66 ppq	ND	NC
2,3,7,8-TCDF	12.7 ppq	ND	NC
total-TCDF	27.4 ppq	ND	NC

* Relative percent difference
ND = Not detected
NC = Not calculable

When a parameter was detected in only one of two analyses, the RPD was not calculated. The RPD criteria of 30% (for aqueous samples) specified in the QAPP was met for all parameters except chloroform. There are no EPA validation criteria for field duplicate precision, therefore the data were not qualified.

COMPLETENESS

The laboratory submitted all required deliverables for the requested analyses. The reported analytical results meet the project completeness goal of 95 percent. For all samples collected and analyzed, no data were judged to be invalid. No data were rejected, so completeness for this sampling event is 100 percent. It should be noted that matrix interference necessitated that many of the sample analyses be diluted. The resulting reporting limits for various samples and fractions are therefore elevated above those specified in the QAPP.

Based on the QA/QC review, some data were qualified as estimate ("J"/"UJ") due to analytical deviations with the representativeness, precision, and accuracy. The following table summarizes the sample IDs and qualified results for all samples covered by this review:

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METHOD	COC ID	ANALYTE	QUALIFIER	ANALYTICAL DEVIATIONS
6010/6020	LWS-01-01	Lead Vanadium Zinc	J	Matrix Spike Recovery
8141A	LWS-01-01	All organophosphorus pesticides	UJ	Surrogate Recovery
8260B	WWS-01-01 LWS-0101	Carbon Disulfide	UJ	Continuing Calibration
8260B	WWS-01-01	Acetone 2-Butanone tert-Butylbenzene 1,3-Dichloropropane trans-1,3-Dichloropropene Hexachlorobutadiene Isopropylbenzene 4-Methyl-2-pentanone Styrene 1,1,2,2,-Tetrachloroethane 1,2,3-Trichlorobenzene 1,2,3-Trichloropropane 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene	UJ	Continuing Calibration
8260B	042-GG-01 043-GG-01 043-GG-02 042-GG-03 WWS-01-01	Carbon Tetrachloride	UJ	Continuing Calibration
8260B	042-GG-01 043-GG-01 043-GG-02 042-GG-03	2,2-Dichloropropane 1,1,1-Trichloroethane	UJ	Continuing Calibration
8260B	043-GG-01 043-GG-02 042-GG-03	Chloromethane	UJ	Continuing Calibration
8260B	042-GG-01 043-GG-02 042-GG-03	Trichlorofluoromethane	UJ	Continuing Calibration
8290	042-GG-01 043-GG-01	2,3,7,8-TCDF total-TCDF	U	Rinsate Blank
8260B	WWS-01-01	Methylene Chloride	U	Method Blank
8081A/8082	042-GG-01 042-GG-03	All organochlorine pesticides and PCBs	UJ	Surrogate Recovery
8290	LWS-01-01	OCDD OCDF	J	Internal Standard Recovery
8290	042-GG-01 043-GG-01 042-GG-03 LWS-01-01	2,3,7,8-TCDF	J	Compound Quantitation

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Detection-Only Table
Groundwater Samples - NCA
RPAC

Site ID	Sample ID	Sample Type	Sample Depth	Sample Date
GGW-019	**042-GG-01**	Water	**35-38'**	01/17/00

Analyte	Concentration	RL	Units	Notes/Flags
Dissolved Metals				
Hg	0.000482	0.0002	mg/l	
As	0.0359	0.005	mg/l	
Cr	0.0152	0.005	mg/l	
Cu	0.0729	0.01	mg/l	
Ni	0.0395	0.01	mg/l	
V	0.234	0.025	mg/l	
Zn	0.101	0.025	mg/l	
Alcohols				
Isobutyl Alcohol	13.8	10	mg/l	
VOCs - 8260B				
Chloroform	24.2	1	ug/l	
cis-1,2-dichloroethane	2.41	1	ug/l	
trichloroethane	5.18	1	ug/l	

Site ID	Sample ID	Sample Type	Sample Depth	Sample Date
GGW-019	**043-GG-01**	Water	**47-50'**	01/17/00

Analyte	Concentration	RL	Units	Notes/Flags
Dissolved Metals				
Hg	0.000387	0.0002	mg/l	
As	0.0896	0.005	mg/l	
V	0.315	0.025	mg/l	
VOCs - 8260B				
Chloroform	32.7	1	ug/l	
Toluene	1.25	1	ug/l	

Site ID	Sample ID	Sample Type	Sample Depth	Sample Date
GGW-019	**043-GG-02**	Water	**47-50'**	01/17/00

Analyte	Concentration	RL	Units	Notes/Flags
Dissolved Metals				Duplicate of 043-GG-01
Hg	0.000373	0.0002	mg/l	
As	0.0914	0.005	mg/l	
Ni	0.01	0.01	mg/l	
V	0.366	0.025	mg/l	
VOCs - 8260B				
Chloroform	48.8	1	ug/l	

Detection-Only Table
Groundwater Samples - NCA
RPAC

Site ID	Sample ID	Sample Type	Sample Depth	Sample Date
na	**042-GG-03**	Water		01/17/00

No analytes were detected in this equipment blank.

Samples shown in this report were analyzed for the method groups:

8015 - IBA
8041
8081
8082
8141
8151
8260B
7470
6010/6020

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Detections-Only Table
Groundwater Samples - CAS
RPAC

Site ID	Sample ID	Sample Type	Sample Depth	Sample Date
GGW-019	042-GG-01	Water	35-38'	01/17/00

Analyte	Concentration	MDL	Units	Notes/Flags
OCDD	90.1	50.0	ppq	J
2,3,7,8-TCDF	19.9	10.0	ppq	UJ
Total TCDF	19.9	10.0	ppq	U

Site ID	Sample ID	Sample Type	Sample Depth	Sample Date
GGW-019	043-GG-01	Water	47-50'	01/17/00

Analyte	Concentration	MDL	Units	Notes/Flags
OCDD	66	50.0	ppq	J
2,3,7,8-TCDF	12.7	10.0	ppq	UJ
Total TCDF	27.4	10.0	ppq	U

Not Detected in Duplicate Sample (043-GG-02)

Site ID	Sample ID	Sample Type	Sample Depth	Sample Date
GGW-019	043-GG-02	Water	47-50'	01/17/00

Analyte	Concentration	MDL	Units	Notes/Flags
None				

Dupe of 043-GG-01

Site ID	Sample ID	Sample Type	Sample Depth	Sample Date
na	042-GG-03	Water		01/17/00

Analyte	Concentration	MDL	Units	Notes/Flags
2,3,7,8-TCDF	8.4	10.0	ppq	J

Equipment Blank

U - The compound was not detected at the concentration shown. Please refer to QA Report.
J - The analyte was detected at concentrations between the calibrated range and the detection limit.

Detections-Only Table
Soil Sample - NCA
RPAC

Site ID	Sample ID	Sample Type	Sample Depth	Sample Date
RP-04-15	LWS-01-01	Soil	11-15'	01/13/00

Analyte	Concentration	RL	Units	Notes/Flags
NWTPH-Dx				
Diesel Range Organics	929	25	mg/kg	1
Heavy Oil Range Organics	87.8	50	mg/kg	1
Total Metals				
Cr	12.7	0.5	mg/kg	
Cu	47.3	0.5	mg/kg	
Pb	262	10	mg/kg	J
Ni	15.3	1.25	mg/kg	
V	89.3	1	mg/kg	J
Zn	58.6	1	mg/kg	J
As	66.1	0.5	mg/kg	
Hg	0.151	0.05	mg/kg	
Phenols - 8041				
2,4-Dichlorophenol	30.3	5	mg/kg	2
2,6-dichlorophenol	10.9	5	mg/kg	2
2,4,6-trichlorophenol	10	5	mg/kg	2
Organochlorine Pesticides - 8081/8082 **Organophosphorus Pesticides - 8141A**	None detected/sample diluted[3]			
VOCs - 8260B				
benzene	4250	100	ug/kg	
n-butylbenzene	605	100	ug/kg	
sec-butylbenzene	356	100	ug/kg	
chlorobenzene	51300	1000	ug/kg	
4-chlorotoluene	555	100	ug/kg	
1,2-dichlorobenzene	817000	5000	ug/kg	
1,3-dichlorobenzene	33200	1000	ug/kg	
1,4-dichlorobenzene	330000	5000	ug/kg	
ethylbenzene	18000	100	ug/kg	
isopropylbenzene	1600	100	ug/kg	
p-isopropyltoluene	200	100	ug/kg	
naphthalene	289	100	ug/kg	
n-propylbenzene	940	100	ug/kg	
toluene	347	100	ug/kg	
1,2,3-trichlorobenzene	2300	100	ug/kg	
1,2,4-trichlorobenzene	159000	100	ug/kg	
1,2,4-trimethylbenzene	85400	1000	ug/kg	
1,3,5-trimethylbenzene	17200	100	ug/kg	
o-xylene	16300	100	ug/kg	
m,p-xylene	75000	2000	ug/kg	
SVOCs - 8270C				
1,2-dichlorobenzene	19.1	10	mg/kg	2

Detections-Only Table
Soil Sample - NCA
RPAC

Site ID	Sample ID	Sample Type	Sample Depth	Sample Date
RP-04-15	LWS-01-01	Soil	11-15'	01/13/00
Analyte	Concentration	RL	Units	Notes/Flags
2,4-Dichlorophenol	33.4	3.3	mg/kg	2
2,4,6-trichlorophenol	9.44	3.3	mg/kg	2
Chlorinated Herbicides - 8151A				
2,4-D	231000	40200	ug/kg	

1 - Detected hydrocarbons do not have pattern and range consistent with typical petroleum products and may be due to biogenic interference
2 - Reporting limits raised due to dilution necessary for analysis. Sample contains high levels of reported analyte, non-target analyte, and/or matrix interference.
3 - Estimated results ("J" Flag). Please refer to QA Report.

Detections-Only Table
Soil Sample - CAS
RPAC

Site ID	Sample ID	Sample Type	Sample Depth	Sample Date
RP-04-15	LWS-01-01	Soil	11-15'	01/13/00

Analyte	Concentration	EDL	Units	Notes/ Flags	Dilution Results	DR Notes/ Flags
Dioxin Furan - 8290						
2,3,7,8-TCDD	14242.5	1.0	ppt	E	7406.9	
1,2,3,7,8-PeCDD	153.8	1.0	ppt			U
1,2,3,4,7,8-HxCDD	31.4	2.5	ppt			U
1,2,3,6,7,8-HxCDD	126.9	2.5	ppt			U
1,2,3,7,8,9-HxCDD	36.2	2.5	ppt			U
1,2,3,4,6,7,8-HpCDD	391.8	2.5	ppt			U
OCDD	2744.9	5.0	ppt	J		UJ
2,3,7,8-TCDF	1343	1.7	ppt	EJ	1343	EJ
1,2,3,7,8-PeCDF	221.2	1.0	ppt	J		U
2,3,4,7,8-PeCDF	439.7	1.0	ppt			U
1,2,3,4,7,8-HxCDF	210.4	2.5	ppt			U
1,2,3,6,7,8-HxCDF	141.7	2.5	ppt			U
2,3,4,6,7,8-HxCDF	227.6	2.5	ppt			U
1,2,3,7,8,9-HxCDF		2.5	ppt	U		U
1,2,3,4,6,7,8-HpCDF	2658.4	2.5	ppt		586.7	
1,2,3,4,7,8,9-HpCDF	92.5	2.5	ppt			U
OCDF	6129.5	5.0	ppt	J	1113.7	J
Total TCDD	20384.5	1.0	ppt	E	27524	
Total PeCDD	1700.4	1.0	ppt			U
Total HxCDD	809.3	2.5	ppt			U
Total HpCDD	769.8	2.5	ppt			U
Total TCDF	3962.9	1.0	ppt	E	133788	E
Total PeCDF	9573.3	1.0	ppt	E	43803	
Total HxCDF	6286.8	2.5	ppt	E		U
Total HpCDF	5064.1	2.5	ppt	E	586.7	

E - The analyte was detected at concentrations greater than the calibrated range.
U - Not detected at or above the detection limit.
J - This result is an estimate. Please refer to QA Report.

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Detections-Only Table
Soil Sample - CAS
RPAC

Site ID	Sample ID	Sample Type	Sample Depth	Sample Date
RP-03-26	WWS-01-01	Soil	20-25'	02/18/00

Analyte	Concentration	EDL	Units	Notes/ Flags
Dioxin Furan - 8290				
2,3,7,8-TCDD	ND	1.0	ppt	U
1,2,3,7,8-PeCDD	ND	1.0	ppt	U
1,2,3,4,7,8-HxCDD	3	2.5	ppt	
1,2,3,6,7,8-HxCDD	13	2.5	ppt	
1,2,3,7,8,9-HxCDD	10	2.5	ppt	
1,2,3,4,6,7,8-HpCDD	250	2.5	ppt	
OCDD	1300	5.0	ppt	B
2,3,7,8-TCDF	7	1.0	ppt	
1,2,3,7,8-PeCDF	ND	1.0	ppt	U
2,3,4,7,8-PeCDF	ND	1.0	ppt	U
1,2,3,4,7,8-HxCDF	12	2.5	ppt	
1,2,3,6,7,8-HxCDF	6	2.5	ppt	
2,3,4,6,7,8-HxCDF	ND	2.5	ppt	U
1,2,3,7,8,9-HxCDF	ND	2.5	ppt	U
1,2,3,4,6,7,8-HpCDF	25	2.5	ppt	
1,2,3,4,7,8,9-HpCDF	ND	2.5	ppt	U
OCDF	37	5.0	ppt	
Total TCDD	13	1.0	ppt	
Total PeCDD	9	1.0	ppt	
Total HxCDD	160	2.5	ppt	
Total HpCDD	810	2.5	ppt	
Total TCDF	2500	1.0	ppt	
Total PeCDF	1100	1.0	ppt	
Total HxCDF	63	2.5	ppt	
Total HpCDF	91	2.5	ppt	

B - The analyte was detected in the laboratory blank.
U - Not detected at or above the detection limit.

Detections-Only Table
Soil Sample - NCA
RPAC

Site ID	Sample ID	Sample Type	Sample Depth	Sample Date
RP-03-26	WWS-01-01	Soil (Composite)	20-25'	02/18/00

Analyte	Concentration	RL	Units	Notes	QA Flag
VOCs - 8260B					
Methylene chloride	3810	2500	ug/kg	1	ND
naphthalene	254000	1000	ug/kg		
m,p-xylene	1830	1000	ug/kg		
SVOCs - 8270C					
Acenaphthene	248	16.5	mg/kg	2	
Anthracene	65.3	6.60	mg/kg	2	
Benzo (a) anthracene	38.8	6.60	mg/kg	2	
Benzo (a) pyrene	18.3	6.60	mg/kg	2	
Benzo (b) fluoranthene	17.3	6.60	mg/kg	2	
Benzo (ghi) perylene	6.8	6.60	mg/kg	2	
Benzo (k) fluoranthene	16.9	6.60	mg/kg	2	
Chrysene	46.6	6.60	mg/kg	2	
Dibenzofuran	175	16.5	mg/kg	2	
Fluoranthene	201	16.5	mg/kg	2	
Fluorene	197	16.5	mg/kg	2	
Indeno (1,2,3-cd) pyrene	6.65	6.60	mg/kg	2	
2-methylnaphthalene	192	16.5	mg/kg	2	
Naphthalene	628	33	mg/kg	2	
Phenanthrene	560	33	mg/kg	2	
Pyrene	126	6.60	mg/kg	2	

Site ID	Sample ID	Sample Type	Sample Depth	Sample Date
RP-03-26	WWS-02-01	Soil (Grab)	25-25.5'	02/18/00

Analyte	Concentration	RL	Units	Notes
SVOCs - 8270C				
Acenaphthene	143	16.5	mg/kg	2
Anthracene	30.5	6.60	mg/kg	2
Benzo (a) anthracene	28.8	6.60	mg/kg	2
Benzo (a) pyrene	12.7	6.60	mg/kg	2
Benzo (b) fluoranthene	12	6.60	mg/kg	2
Benzo (k) fluoranthene	12.8	6.60	mg/kg	2
Chrysene	28.7	6.60	mg/kg	2
Dibenzofuran	87.9	6.60	mg/kg	2
Fluoranthene	144	16.5	mg/kg	2
Fluorene	99.9	6.60	mg/kg	2
2-methylnaphthalene	92.4	6.60	mg/kg	2
Naphthalene	241	16.5	mg/kg	2
Phenanthrene	266	16.5	mg/kg	2
Pyrene	88.4	6.60	mg/kg	2

ND - Not Detected

Detections-Only Table
Soil Sample - NCA
RPAC

Site ID	Sample ID	Sample Type	Sample Depth	Sample Date
RP-03-26	WWS-01-01	Soil (Composite)	20-25'	02/18/00

Analyte	Concentration	RL	Units	Notes	QA Flag

1 - Compound present in method blank - please refer to QA Report.
2 - Reporting limits raised due to dilution necessary for analysis. Sample contains high levels of reported analyte, non-target analyte, and/or matrix interference.

SCOEPA000009700

SCOEPA00009701

WELL DEVELOPMENT

Instrument: Model/SN 990692841	Standard	Reading	Job No. 52-92C0804A.00
pH/T: HYDAC	7.4	7.4	Client: RPAC
Conductivity: HYDAC			Well ID: W-08-74
Turbidimeter: N/A			
Pump Type, SN: Whale			Page ___1___ of _____
Intake Depth 75' - 80'			Date: 2/24/00
Discharge Pipe: Norton	Type - Poly	Size - 3/8" i.d.	
Beginning Development Time:	11:52	Ending Development Time: 12:32	

Time	Rate	Total Gallons	Temp °F	pH	Conductivity µMho/cm²	Odor	Color	Clarity or Turbidity	Water Level from Sounding Tube
10:15		0	51.0	6.50	1.17		Brown	Cloudy	12.19
11:57	2 gpm	10	56.0	7.02	1.25		Brown	Cloudy	
12:02	2 gpm	20	55.7	6.92	1.71		Tan/ Brown	Cloudy	
12:07	2 gpm	30	55.4	6.92	1.60		Tan	Slightly Cloudy	
12:10	Pulled Pump Up 1 foot			6.91	1.47				
12:12	2 gpm	40	55.1	6.92	1.47		Tan	Slightly Cloudy	
12:17	2 gpm	50	55.2	6.91	1.39		Tan	Slightly Cloudy	
12:22	2 gpm	60	54.8	6.90	1.36		Tan	Slightly Cloudy	
12:27	2 gpm	70	56.2	6.88	1.34		Tan	Slightly Cloudy	
12:32	2 gpm	80	56.2	6.86	1.34		Clear	Clear	

SCOEPA00009702

WELL DEVELOPMENT

Instrument: Model/SN 990692841	Standard	Reading	Job No. 52-92C0804A.00
pH/T: HYDAC	7.4	7.4	Client: RPAC
Conductivity: HYDAC			Well ID: W-08-26
Turbidimeter: N/A			
Pump Type, SN: Whale			Page 1 of
Intake Depth 20'-25'			Date: 2/24/00
Discharge Pipe: Norton	Type - Poly	Size - 3/8" i.d.	
Beginning Development Time:	13:55	Ending Development Time: 3/1/00 @ 11:35	

Time	Rate	Total Gallons	Temp °F	pH	Conductivity µMho/cm²	Odor	Color	Clarity or Turbidity	Water Level from Sounding Tube
13:55	2 gpm	0	55.5	7.04	6.97		Gray	Cloudy Silty	16.10
14:00	2 gpm	10	55.0	6.80	6.79		Gray	Cloudy Silty	
14:01	Pumped Dry - Waiting for some recharge								25.30
14:15									23.35
14:25									21.40
14:37									20:00
14:40	Turned Pump back on; sucked well dry again								
14:56	Pulled 3 bailers out. Well went dry.								
9:20									8.82
9:35		20	49.0	5.43	7.21		Gray	Cloudy Silty	
9:40	Bailed dry.								26.52
3/10 10:32									8.62
10:34	Bailing with disposable Bailer.								
10:55	Bailed dry. Solid tag on bottom. Waiting for recharge.								
11:26	Bailing						Dark Gray	Cloud Very Fine Silt	
11:35	Bailed Dry.						Dark Gray	Cloud Very Fine Silt	

SCOEPA00009703

WELL DEVELOPMENT

Instrument: Model/SN 990692841	Standard	Reading	Job No. 52-92C0804A.00
pH/T: HYDAC	7.4	7.4	Client: RPAC
Conductivity: HYDAC			Well ID: W-09-116
Turbidimeter: N/A			
Pump Type, SN: Whale			Page 1 of
Intake Depth			Date: 2/25/00
Discharge Pipe: Norton	Type - Poly	Size - 3/8" i.d.	
Beginning Development Time:	10:28	Ending Development Time: 11:06	

Time	Rate	Total Gallons	Temp °F	pH	Conductivity µMho/cm²	Odor	Color	Clarity or Turbidity	Water Level from Sounding Tube
9:58									16.36
10:16	N/A	1	51.6	6.27	1.40		Tan	Slightly Cloudy	
10:28	2 gmp								
10:29	2 gpm	10	51.8	6.52	2.54		Tan	Cloudy	
10:37	1.5 gpm	20	51.7	6.55	2.78		Tan	Slightly Cloudy	
10:38	Well Dry.								
10:41	Started Pumping.								
10:48		30	52.4	6.57	3.32		Tan	Slightly Cloudy	
10:49	Stopped Pumping.								
10:52	Started Pumping.								
11:00	1	40	51.9	6.68	3.42		Clear	Slighty Turbid	
11:05	1	45	52.8	6.68	3.34		Clear		

SCOEPA00009704

WELL DEVELOPMENT

Instrument: Model/SN 990692841	Standard	Reading	Job No. 52-92C0804A.00
pH/T: HYDAC	7.4	7.4	Client: RPAC
Conductivity: HYDAC			Well ID: W-09-86
Turbidimeter: N/A			
Pump Type, SN: Whale			Page 1 of
Intake Depth 90 - 95			Date: 2/25/00
Discharge Pipe: Norton	Type - Poly	Size - 3/8" i.d.	
Beginning Development Time:	12:57	Ending Development Time: 13:42	

Time	Rate	Total Gallons	Temp °F	pH	Conductivity µMho/cm²	Odor	Color	Clarity or Turbidity	Water Level from Sounding Tube
12:30									16.88
12:57	1.5	0	52.1	8.54	1.13		Brown	Silty	
13:02	1.5	10	52.3	7.72	0.80		Tan	Slightly Cloudy	
13:11	1.5	20	52.4	7.47	0.88		Tan	Slightly Cloudy	
13:14	Ran Dry.								
13:25	Restarted Pump.								
13:32	1.5	30	52.4	7.47	0.99		Tan	Slightly Cloudy	
13:41	1.5	40	52.5	7.47	1.00		Clear		

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03/23/00 8:40 AM

WELL DEVELOPMENT

Instrument: Model/SN 990692841	Standard	Reading	Job No. 52-92C0804A.00
pH/T: HYDAC	7.4	7.4	Client: RPAC
Conductivity: HYDAC			Well ID: RP-05-16
Turbidimeter: N/A			
Pump Type, SN: N/A (Bailer)			Page __1____ of __1____
Intake Depth 10 - 15			Date: 2/25/00, 3/1/00
Discharge Pipe: Norton	Type - Poly	Size - 3/8" i.d.	
Beginning Development Time:	9:39	Ending Development Time: 10:18	

Time	Rate	Total Gallons	Temp °F	pH	Conductivity µMho/cm²	Odor	Color	Clarity or Turbidity	Water Level from Sounding Tube
2/25/00 14:36	Surged screen.								11:52
14:43	Bailed Dry.			5 gallons removed.			Dark Brown	Cloudy	
3/1/00 9:39									10.76
9:45	Bailing with disposal Bailer.						Dark Brown	Cloudy	
10:09	Bailed Dry. Solid tag on bottom.						Tan	Slightly Turbid.	
	Waiting for recharge.								
		8	Bailed 2nd day.						
	Total 13 gallons removed.								
10:18	Pulled Bailer. Water almost clear.								

SCOEPA00009706

WELL DEVELOPMENT

Instrument: Model/SN 990692841	Standard	Reading	Job No. 52-92C0804A.00
pH/T: HYDAC	7.4	7.4	Client: RPAC
Conductivity: HYDAC			Well ID: W-04-89
Turbidimeter: N/A			
Pump Type, SN: Whale			Page ___1___ of _____
Intake Depth			Date: 2/25/00
Discharge Pipe: Norton	Type - Poly	Size - 3/8" i.d.	
Beginning Development Time:	15:32	Ending Development Time: 16:02	

Time	Rate	Total Gallons	Temp °F	pH	Conductivity µMho/cm²	Odor	Color	Clarity or Turbidity	Water Level from Sounding Tube
15:05									9.53
15:17	Started Bailing						Dark Gray	Silty	
15:32	2 gpm	0	53.0	9.92	0.82		Gray	Silty	
15:37	2 gpm	10	54.5	9.09	0.81	Visible Sheen	Gray	Slightly Cloudy	
15:42	2 gpm	20	54.6	9.30	0.82		Gray	Slightly Cloudy	
15:47	2 gpm	30	55.3	8.84	0.81		Gray Milky	Slightly Cloudy	
15:52	2 gpm	40	55.3	9.14	0.84		Almost Clear	Slightly Cloudy	
15:57	2 gpm	50	55.5	8.72	0.84		Clear	Clear	
16:02	Off	60	55.4	8.81	0.84		Clear	Clear	

SCOEPA00009707

WELL DEVELOPMENT

Instrument: Model/SN 990692841	Standard	Reading	Job No. 52-92C0804A.00
pH/T: HYDAC	7.4	7.4	Client: RPAC
Conductivity: HYDAC			Well ID: RP-01-65 West
Turbidimeter: N/A			
Pump Type, SN: Whale			Page 1 of
Intake Depth	60 - 65		Date: 2/28/00
Discharge Pipe: Norton	Type - Poly	Size - 3/8" i.d.	
Beginning Development Time:	9:34	Ending Development Time: 9:50	

Time	Rate	Total Gallons	Temp °F	pH	Conductivity µMho/cm²	Odor	Color	Clarity or Turbidity	Water Level from Sounding Tube
9:16									23.60
9:27	Bailing						Reddish Brown	Cloudy	
9:35	2 gpm	2	52.4	6.17	5,040		Slightly Cloudy	Almost Clear	
9:39	2 gpm	10	53.3	6.23	5,160		Clear	Clear	
9:44	2 gpm	20	53.9	6.34	5,160		Clear	Clear	
9:49	2 gpm	30	53.9	6.39	5,230		Clear	Clear	
9:50	Stopped								

SCOEPA00009708

WELL DEVELOPMENT

Instrument: Model/SN 990692841	Standard	Reading	Job No. 52-92C0804A.00
pH/T: HYDAC	7.4	7.4	Client: RPAC
Conductivity: HYDAC			Well ID: RP-01-51
Turbidimeter: N/A			
Pump Type, SN: Whale			Page ___1___ of _____
Intake Depth 45 - 50			Date: 2/28/00
Discharge Pipe: Norton	Type - Poly	Size - 3/8" i.d.	
Beginning Development Time:	10:10	Ending Development Time: 11:06	

Time	Rate	Total Gallons	Temp °F	pH	Conductivity µMho/cm²	Odor	Color	Clarity or Turbidity	Water Level from Sounding Tube
9:53									23.87
10:10	2 gpm	0							
10:13	Off	6	51.2	6.55	4,590		Tan	Cloudy	
10:16	2 gpm	6							
10:20	Off	14	51.4	6.69	4,360		Tan	Cloudy	
10:25	2 gpm	14							
10:28	Off	20	52.4	6.67	4,320		Tan	Slightly Cloudy	
10:37	2 gpm	20							
10:41	Off								
10:50	2 gpm	22	52.2	6.60	4,420		Clear Colorless	Clear	
10:58	Off	38	52.6	6.69	4,220		Clear Colorless	Clear	
11:06	2 gpm	40	52.6	6.69	4,230		Clear Colorless	Clear	

SCOEPA00009709

WELL DEVELOPMENT

Instrument: Model/SN 990692841	Standard	Reading	Job No. 52-92C0804A.00
pH/T: HYDAC	7.4	7.4	Client: RPAC
Conductivity: HYDAC			Well ID: RP-01-31
Turbidimeter: N/A			
Pump Type, SN: Whale			Page 1 of
Intake Depth			Date: 2/28/00
Discharge Pipe: Norton	Type - Poly	Size - 3/8" i.d.	
Beginning Development Time:	11:10	Ending Development Time: 3/1/00 @ 15:39	

Time	Rate	Total Gallons	Temp °F	pH	Conductivity µMho/cm²	Odor	Color	Clarity or Turbidity	Water Level from Sounding Tube
11:10									23.74
11:12	Surging Well Screen								
11:19		2	Bailed Dry				Cloudy Brown		
3/1/00 15:25									23.90
15:39	Bailed	2.5 gallons. Bailed well dry.							

SCOEPA00009710

WELL DEVELOPMENT

Instrument: Model/SN 990692841	Standard	Reading	Job No. 52-92C0804A.00
pH/T: HYDAC	7.4	7.4	Client: RPAC
Conductivity: HYDAC			Well ID: RP-06-87
Turbidimeter: N/A			
Pump Type, SN: Whale			Page ___1___ of _____
Intake Depth 80			Date: 2/28/00
Discharge Pipe: Norton	Type - Poly	Size - 3/8" i.d.	
Beginning Development Time:	11:57	Ending Development Time: 12:25	

Time	Rate	Total Gallons	Temp °F	pH	Conductivity µMho/cm²	Odor	Color	Clarity or Turbidity	Water Level from Sounding Tube
11:35									24.22
11:46	Bailing								
11:57	2 gpm	0	53.6	7.11	3,640		Brown	Cloudy Silty	
12:02	2 gpm	10	54.3	6.99	4,060		Tan	Slightly Cloudy	
12:07	2 gpm	20	54.3	6.97	4,260		Clear Color-less	Clear	
12:12	2 gpm	30	54.6	6.86	4,280		Clear Color-less	Clear	
12:17	2 gpm	40	54.6	7.22	4,380		Clear Color-less	Clear	
12:22	2 gpm	50	54.6	7.00	4,180		Clear Color-less	Clear	
12:25	Off	56							

SCOEPA00009711

WELL DEVELOPMENT

Instrument: Model/SN 990692841	Standard	Reading	Job No. 52-92C0804A.00
pH/T: HYDAC	7.4	7.4	Client: RPAC
Conductivity: HYDAC			Well ID: RP-06-31
Turbidimeter: N/A			
Pump Type, SN: Whale			Page _____ of _____
Intake Depth			Date: 2/28/00
Discharge Pipe: Norton	Type - Poly	Size - 3/8" i.d.	
Beginning Development Time:	12:33	Ending Development Time: 12:47	

Time	Rate	Total Gallons	Temp °F	pH	Conductivity µMho/cm²	Odor	Color	Clarity or Turbidity	Water Level from Sounding Tube
12:33									17:22
12:34	Surging screened interval								
12:40	Started Bailing								
12:47	Bailed Dry. Pulled out 2.5 gallons total.								

SCOEPA00009712

WELL DEVELOPMENT

Instrument: Model/SN 990692841	Standard	Reading	Job No. 52-92C0804A.00
pH/T: HYDAC	7.4	7.4	Client: RPAC
Conductivity: HYDAC			Well ID: W-16-31
Turbidimeter: N/A			
Pump Type, SN: Whale			Page ___1___ of ___1___
Intake Depth			Date: 2/28/00
Discharge Pipe: Norton	Type - Poly	Size - 3/8" i.d.	
Beginning Development Time:	13:25	Ending Development Time: 14:22	

Time	Rate	Total Gallons	Temp °F	pH	Conductivity µMho/cm²	Odor	Color	Clarity or Turbidity	Water Level from Sounding Tube
13:25									5.63
13:48	Bailing								
14:02	Clear enough to pump. Water Level remaining fairly high.								
14:04	2 gpm	0	55.3	8.66	3,040	None	Brown	Cloudy	
14:09	2 gpm	10	55.7	7.70	2,760		Tan	Slightly Cloudy	
14:14	2 gpm	20	55.1	7.45	2,800		Tan	Slightly Cloudy	
14:19	2 gpm	30	55.4	7.13	2,770		Clear	Slightly Turbid	
14:21	2 gpm	32	55.1	7.13	2,710		Clear	Slightly Turbid	
14:22	Off	33					Clear	Clear	

SCOEPA00009713

WELL DEVELOPMENT

Instrument: Model/SN 990692841	Standard	Reading	Job No. 52-92C0804A.00
pH/T: HYDAC	7.4	7.4	Client: RPAC
Conductivity: HYDAC			Well ID: RP-02-66
Turbidimeter: N/A			
Pump Type, SN: Whale			Page 1 of
Intake Depth 60 - 65			Date: 2/28/00
Discharge Pipe: Norton	Type - Poly	Size - 3/8" i.d.	
Beginning Development Time:	14:51	Ending Development Time: 15:13	

Time	Rate	Total Gallons	Temp °F	pH	Conductivity µMho/cm²	Odor	Color	Clarity or Turbidity	Water Level from Sounding Tube
14:36									29.05
14:52	2 gpm	2	54.6	6.09	>1000		Tan	Cloudy	
14:58	2 gpm	14	55.3	5.96	>1000		Tan	Cloudy	
15:01	2 gpm	20	55.5	5.87	>1000		Tan	Slightly Cloudy	
15:06	2 gpm	30	55.6	5.73	>1000		Almost Clear	Slightly Turbid	
15:08	2 gpm	34	55.6	5.79	>1000		Clear	Clear	
15:11	2 gpm	40	55.6	5.84	>1000		Clear	Clear	
15:13	Off	44							

SCOEPA00009714

WELL DEVELOPMENT

Instrument: Model/SN 990692841	Standard	Reading	Job No. 52-92C0804A.00
pH/T: HYDAC	7.4	7.4	Client: RPAC
Conductivity: HYDAC			Well ID: RP-02-49
Turbidimeter: N/A			
Pump Type, SN: Whale			Page ___1___ of _____
Intake Depth			Date: 2/28/00
Discharge Pipe: Norton	Type - Poly	Size - 3/8" i.d.	
Beginning Development Time:	15:31	Ending Development Time: 16:14	

Time	Rate	Total Gallons	Temp °F	pH	Conductivity µMho/cm² x1000	Odor	Color	Clarity or Turbidity	Water Level from Sounding Tube
15:16									28.94
15:31	2 gpm	0	54.2	6.45	16.73		Brown	Cloudy Sioty	
15:36	2 gpm	10	55.7	6.29	>1000		Tan	Cloudy	
15:37	Pumped Dry								
15:45	2 gpm	10	55.3						
15:47	Off	15	55.3	5.97	>1000		Tan	Slightly Cloudy	
15:51	On	15							
15:54	Off	21							
15:54	On								
16:00	2 gpm	25	55.3	5.83	>1000		Tan	Slightly Turbid	
16:01	Off	27	54.9	5.75	>1000		Clear	Slightly Turbid	
16:11	On								
16:14	Off	32	54.9	5.81	>1000		Clear	Clear	

SCOEPA00009715

WELL DEVELOPMENT

Instrument: Model/SN 990692841	Standard	Reading	Job No. 52-92C0804A.00
pH/T: HYDAC	7.4	7.4	Client: RPAC
Conductivity: HYDAC			Well ID: RP-02-31
Turbidimeter: N/A			
Pump Type, SN: Whale			Page 1 of
Intake Depth			Date: 2/28/00
Discharge Pipe: Norton	Type - Poly	Size - 3/8" i.d.	
Beginning Development Time:	16:04	Ending Development Time: 16:14	

Time	Rate	Total Gallons	Temp °F	pH	Conductivity µMho/cm²	Odor	Color	Clarity or Turbidity	Water Level from Sounding Tube
16:04									29.23
16:05	Surging Well screen								
16:10	Bailing Well								
16:14	Bailed Dry								
		1.5							

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WELL DEVELOPMENT

Instrument: Model/SN 990692841	Standard	Reading	Job No. 52-92C0804A.00
pH/T: HYDAC	7.4	7.4	Client: RPAC
Conductivity: HYDAC			Well ID: MW-03-81
Turbidimeter: N/A			
Pump Type, SN: Whale			Page ___1___ of _____
Intake Depth 80 ; 85			Date: 2/29/00
Discharge Pipe: Norton	Type - Poly	Size - 3/8" i.d.	
Beginning Development Time:	10:09	Ending Development Time: 11:21	

Time	Rate	Total Gallons	Temp °F	pH	Conductivity µMho/cm² x1000	Odor	Color	Clarity or Turbidity	Water Level from Sounding Tube
9:40									17:35
9:42	Start Surging Well Screen								
10:09	2 gpm	0	51.8	5.85	2.50		Dark Brown	Cloudy Silty	
10:14	2 gpm	10	53.0	6.16	1.72		Tan	Cloudy Silty	
10:19	2 gpm	20	51.8	6.48	1.42		Tan	Cloudy	
10:20	Off	Pumped Dry							
10:31	2 gpm								
10:35	Off	25	51.3	6.50	1.94		Tan	Cloudy	
10:45	2 gpm	25							
10:49	Off								
11:16	2 gpm	30		6.70	2.01		Tan	Cloudy	
11:21	Pumped Dry		52.6	6.61	2.04		Tan	Cloudy	

SCOEPA00009717

WELL DEVELOPMENT

Instrument: Model/SN 990692841	Standard	Reading	Job No. 52-92C0804A.00
pH/T: HYDAC	7.4	7.4	Client: RPAC
Conductivity: HYDAC			Well ID: RP-03-63
Turbidimeter: N/A			
Pump Type, SN: Whale			Page ___1___ of _____
Intake Depth 22 - 27			Date: 2/29/00
Discharge Pipe: Norton	Type - Poly	Size - 3/8" i.d.	
Beginning Development Time:	14:50	Ending Development Time: 15:21	

Time	Rate	Total Gallons	Temp °F	pH	Conductivity µMho/cm²	Odor	Color	Clarity or Turbidity	Water Level from Sounding Tube
11:38									19.70
11:39	Surging Screen								
14:50	2 gpm								
14:55	2 gpm	10	55.9	7.10	1.87	Creosote -like	Tan/ Sheen	Cloudy Silty	
15:00	2 gpm	20	55.1	6.69	1.91	Creosote -like	Tan/ Sheen	Cloudy	
15:05	2 gpm	30	55.3	6.49	2.45	Creosote -like	Tan/ Sheen	Cloudy	
15:10	2 gpm	40	55.0	6.43	2.35	Creosote -like	Tan/ Sheen	Cloudy	
15.15	2 gpm	50	54.8	6.44	2.2'	Creosote -like	Tan/ Sheen	Slightly Cloudy	
15:20	2 gpm	60	54.3	6.50	1.79	Creosote -like	Clear/ Sheen	Clear	
15:21	Off								

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WELL DEVELOPMENT

Instrument: Model/SN 990692841	Standard	Reading	Job No. 52-92C0804A.00
pH/T: HYDAC	7.4	7.4	Client: RPAC
Conductivity: HYDAC			Well ID: PZ-02-40
Turbidimeter: N/A			
Pump Type, SN: Whale			Page 1 of _____
Intake Depth 37' bgs			Date: 3/15/00
Discharge Pipe: Norton	Type - Poly	Size - 3/8" i.d.	
Beginning Development Time:	11:35	Ending Development Time: 12:26	

Time	Rate	Total Gallons	Temp °F	pH	Conductivity µMho/cm²	Odor	Color	Clarity or Turbidity	Water Level from Sounding Tube
11:35	1 gpm	0	50.3	8.08	490	None	Brown	Silty	
11:38	1 gpm	3	51.2	8.01	378	None	Brown	Silty	
Well pumped dry									
11:42	1 gpm	4	52.0	7.55	352	None	Brown	Silty	
Well dry again									
12:05	1 gpm	4	52.1	7.42	325	None	Brown	Silty	
12:10	1 gpm	6	51.9	7.58	289	None	Brown	Silty	
Well dry									
12:26	1/2	7	52.2	7.45	326	None	Brown	Silty	
Well dry									

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WELL DEVELOPMENT

Instrument: Model/SN 990692841	Standard	Reading	Job No. 52-92C0804A.00
pH/T: HYDAC	7.4	7.4	Client: RPAC
Conductivity: HYDAC			Well ID: MW-05-70
Turbidimeter: N/A			
Pump Type, SN: Whale			Page 1 of
Intake Depth			Date: 3/1/00
Discharge Pipe: Norton	Type - Poly	Size - 3/8" i.d.	
Beginning Development Time:	13:45	Ending Development Time: 14:16	

Time	Rate	Total Gallons	Temp °F	pH	Conductivity µMho/cm² x1000	Odor	Color	Clarity or Turbidity	Water Level from Sounding Tube
13:13	Used interface Probe. No product detected (floating).								10.08
13:45							Brown ing Gray	Silty	
13:48	2 gpm	6	57.2	6.80	1.55		Gray	Silty	
13:53	2 gpm	16	57.4	7.30	1.42		Tan	Slightly Cloudy	
13:55	2 gpm	20	58.4	7.36	1.42		Tan	Slightly Cloudy	
14:00	2 gpm	30	56.7	7.47	1.45		Light Tan	Slightly Cloudy	
14:05	2 gpm	40	58.0	7.48	1.51		Clear	Clear	
14:15	2 gpm	50	58.0	7.48	1.52		Clear	Clear	

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APPENDIX F

[redacted]

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SCOEPA00009722

GROUNDWATER SAMPLING DATA SHEET

Well Number: GGW-019 Sample Number: 043-GG-01 Date: 01/17/00

Project: RPAC Project Number: 92C0804A.00 Task: 00045

Weather Conditions: Sunny, Cold Observations/Comments: TEG - Driller

PID/FID Backgd: ____/____ ppm In-pipe____ / _____ ppm

% LEL / % O_2 Backgd: ____/____% In-pipe____ / ___ %

P.I.D/FID Calibration Standard: _____

P.I.D./FID Calibration Date :_____

Well Depth: _____47_____feet bgs

Water Depth: _____40_____ feet bgs

Feet of Water: _____7_____ feet

Gallons per Foot: _____ gallons/feet

Well Volume: _____gallons

Purge Volume: _____gallons

Observation for sheen or LNAPL: _____None_____

Observation for DNAPL: _____None_____

Observation and condition of the well: poor satisfactory new

If poor, note deficiencies:_____NA_____

Pump hoses and/or bailer ropes were new, cleaned or dedicated?

_____NA_____

_____

Measuring Point (MP): _____ TOC gs; PVC or stainless

Elevation of MP: _____ feet

Elevation of Water: _____ feet

Well Diameter: _____inches

Well Diameter	Gallons per casing foot
2 inches	0.16
3 inches	0.367
4 inches	0.65

pH meter #: Hydak Calibration date: 01/17/00

Conductivity meter # Hydak Calibration date: 01/17/00

QA/QC samples: MS/MSD, Duplicate, Equipment Blank

Purge Method: _____

Sample Method: Parastaltic Pump

Water Disposal: RPAC Treatment Facility

Sampler(s): Chris Moody

General Comments: Sample Interval = 44 – 47 feet bgs, adequate recharge, collected duplicate, MS/MSD, and equipment blank

Field Parameters	Before Purging	Volume 1	Volume 2	Volume 3	Volume 4	Volume 5	Sample
Volume (gallons)							
24- hour Time							
pH	8.77						
Conductivity ( )	6,340						
Temp. °C or °F	58.4 F						
Turbidity/color	Brown / Cloudy						
Diss. Oxy. (mg/L)							
Eh ( )							

Analyses	Method	Bottle Type	Preservative	Number	Number MS/MSD

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GROUNDWATER SAMPLING DATA SHEET

Well Number: GGW-019 | Sample Number: 042-GG-01 | Date: 01/17/00

Project: RPAC | Project Number: 92C0804A.00 | Task: 00045

Weather Conditions: Sunny, Cold | Observations/Comments: TEG - Driller

PID/FID Backgd: ____/____ ppm In-pipe____ / _____ ppm

% LEL / % O_2 Backgd: ____/____% In-pipe____ / ___ %

P.I.D/FID Calibration Standard: _____

P.I.D./FID Calibration Date :_____

Well Depth: 35 feet bgs

Water Depth: 30 feet bgs

Feet of Water: 5 feet

Gallons per Foot: _____ gallons/feet

Well Volume: _____gallons

Purge Volume: _____gallons

Observation for sheen or LNAPL: None

Observation for DNAPL: None

Observation and condition of the well: poor satisfactory new

If poor, note deficiencies: NA

Pump hoses and/or bailer ropes were new, cleaned or dedicated?

NA

Measuring Point (MP): _____ TOC gs; PVC or stainless

Elevation of MP: _____ feet

Elevation of Water: _____ feet

Well Diameter: _____inches

Well Diameter	Gallons per casing foot
2 inches	0.16
3 inches	0.367
4 inches	0.65

pH meter #: Hydak Calibration date: 01/17/00

Conductivity meter # Hydak Calibration date: 01/17/00

QA/QC samples: None

Purge Method: _____

Sample Method: Parastaltic Pump

Water Disposal: RPAC Treatment Facility

Sampler(s): Chris Moody

General Comments: Sample Interval = 32 – 35 feet bgs, slow recharge

Field Parameters	Before Purging	Volume 1	Volume 2	Volume 3	Volume 4	Volume 5	Sample
Volume (gallons)							
24- hour Time							
pH	9.32						
Conductivity ( )	11,000						
Temp. °C or °F	49.4 F						
Turbidity/color	Brown / Cloudy						
Diss. Oxy. (mg/L)							
Eh ( )							

Analyses	Method	Bottle Type	Preservative	Number	Number MS/MSD

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Columbia Analytical Services, Inc.
An Employee-Owned Company

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Feb 12, 2000

Columbia Analytical Services-Houston Project E2000018
URS Greiner Woodward-Clyde Project Number: 92C0804A.00

Objective

One soil sample was analyzed for tetrachloro- through octachloro- dibenzo-p-dioxins and furans by EPA SW-846 Method 8290.

Sample Receiving

The laboratory received the samples on Jan 19, 2004. The samples were received in good condition. The following lab accession numbers were assigned:

Lab ID	Client ID
E2000018-001	LWS-01-01
EB60071-MB	Method Blank
EB6071-LS	Laboratory Spike

Extraction

The samples were extracted according to the requirements of the Method. No discrepancies were encountered during extraction and cleanup.

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ABBREVIATIONS AND FLAGS

Abbreviations and definitions

The following abbreviations and definitions are employed by Columbia Analytical Servces-Houston in its analytical reports for dioxin/furan analysis:

Cal	Calibration.
Conc	Concentration.
Dioxins	Polychlorinated dibenzo-p-dioxin(s).
EDL	Estimated detection limit.
EMPC	Estimated maximum possible concentration.
Flags	Data qualifiers.
Furans	Polychlorinated dibenzofuran(s).
g	Gram(s).
ID	Identifier.
Ions	Masses monitored for the analyte during data acquisition.
L	Liter(s).
LCS	Lab control sample.
MB	Method blank.
MDL	Method detection limit.
MS	Matrix spike.
MSD	Matrix spike duplicate.
NO	Number of peaks meeting all identification criteria
PCDD	Polychlorinated dibenzo-p-dioxin(s).
PCDF	Polychlorinated dibenzofuran(s).
ppb	Parts per billion.
ppq	Parts per quadrillion.
ppt	Parts per trillion.
QC	Quality control.
Ratio	Ratio of the areas from monitored ions for an analyte.
% Rec.	Percent recovery.
RRF	relative response factor.
RT	Retention time.
SDG	Sample Delivery Group.
S/N	Signal to noise ratio.
TEF	Toxicity equivalence factor.
TEQ	Toxicity equivalence.

Flags

The EPA qualifiers ("flags") for the Contract Laboratory Program are employed by Columbia Analytical Services. They are:

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Analysis

The samples were analyzed by GC-MS according to the Method. Data are reported for tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans. A dilution was performed on the sample due to saturated levels of 2,3,7,8-TCDD. A secondary confirmation analysis was also performed to quantitate 2,3,7,8-TCDF.

The following internal standard had recoveries outside the QC advisory limits:

Sample ID	*Internal Standard*	*Recovery (%)*
E2000018-001	13C12-OCDD	34.8

Quality Control

Laboratory Spike (LS) and Method Blank (MB) analyses were performed in the analytical batch

Respectfully submitted,

Amer M. Amer, Ph.D.
Laboratory Director

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B This flag is used when the analyte is found in the associated blank, as well as in the sample.

C Indicates that the value for the analyte was obtained by analysis using a DB-225 confirmation column.

D Indicates that the analysis was performed on a diluted extract. This is performed when the initial analysis indicates that one or more analytes are present at a concentration above theupper end of the linear calibration range.

E Indicates an estimated value. Employed when the analyte concentration is above the upper end of the linear calibration range.

J Indicates an estimated value. Employed when the analyte concentration is below the lower end of the linear calibration range, but above the detection limit.

M Indicates that the compound was quantified using a manual integration of the peak areas.

S Indicates that the analyte in question is, in the opinion of the GC-MS Interpretation Specialist, a PCDD/PCDF even though the [M-COCl]+ ion did not meet the requirement that the signal-to-noise be at least 2.5:1.

U Indicates that compound was analyzed for but not detected.

Y Indicates that recovery of labeled standard is outside the range specified by QA goals. These goals are not mandatory requirements.

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ION TABLE: METHODS 1613 & 8290

Group	Trace	m/z	Ion	Composition	Analyte
1	A	292.9825	Lock	C7.F11	PFK
1	B	303.9016	M	C12.H4.[35]Cl4.O	TCDF
1	C	305.8987	M+2	C12.H4.[35]Cl3.[37]Cl.O	TCDF
1	D	315.9419	M	[13]C12.H4.[35]Cl4.O	TCDF (LC)
1	E	317.9389	M+2	[13]C12.H4.[35]Cl3.[37]Cl.O	TCDF (LC)
1	F	319.8965	M	C12.H4.[35]Cl4.O2	TCDD
1	G	321.8936	M+2	C12H4[35]Cl3[37]ClO2	TCDD
1	H	327.8847	M	C12.H4.[37]Cl4.O2	TCDD (CS)
1	I	330.9792	QC	C7.F13	PFK
1	J	331.9368	M	13C12.H4.[35]Cl4.O2	TCDD (IS, LC)
1	K	333.9339	M+2	13C12.H4.[35]Cl3.[37]Cl.O2	TCDD (IS, LC)
1	L	339.8597	M+2	C12.H3.[35]Cl4.[37]Cl.O	PeCDF
1	M	341.8567	M+4	C12.H3.[35]Cl3.[37]Cl2.O	PeCDF
1	N	351.9000	M+2	[13]C12.H3.[35]Cl4.[37]Cl.O	PeCDF (LC)
1	O	353.8970	M+4	[13].C12.H3.[35]Cl3.[37]Cl2.O	PeCDF (LC)
1	P	354.9792	Lock	C9.F13	PFK
1	Q	355.8546	M+2	C12.H3.[35]Cl4.[37]Cl.O2	PeCDD
1	R	357.8516	M+4	C12.H3.[35]Cl3.[37]Cl2.O2	PeCDD
1	S	367.8949	M+2	[13]C12.H3.[35]Cl4.[37]Cl.O2	PeCDD (LC)
1	T	369.8919	M+4	[13]C12.H3.[35]Cl3.[37]Cl2.O2	PeCDD (LC)
1	U	375.8364	M+2	C12.H4.[35]Cl5.[37]Cl.O	HxCDPE
1	V	409.7974	M+2	C12.H3.[35]Cl6.[37]Cl.O	HpCDPE

ION TABLE: METHODS 1613 & 8290

Group	Trace	m/z	Ion	Composition	Analyte
2	A	373.8208	M+2	C12.H2.[35]Cl5.[37]Cl.O	HxCDF
2	B	375.8178	M+4	C12.H2.[35]Cl4.[37]Cl2.O	HxCDF
2	C	383.8639	M	13C12.H2.[35]Cl6.O	HxCDF (LC)
2	D	385.8610	M+2	13C12.H2.[35]Cl5.[37]Cl.O	HxCDF (LC)
2	E	389.8157	M+2	C12.H2.[35]Cl5.[37]Cl.O2	HxCDD
2	F	391.8127	M+4	C12.H2.[35]Cl4.[37]Cl2.O2	HxCDD

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2	G	392.9760	Lock	C9.F15	PFK
2	H	401.8559	M+2	[13]C12.H2.[35]Cl5.[37]Cl.O2	HxCDD (IS, LC)
2	I	403.8529	M+4	[13]C12.H2.[35]Cl4.[37]Cl2.O2	HxCDD (IS, LC)
2	J	407.7818	M+2	C12.H.[35]Cl6.[37]Cl.O	HpCDF
2	K	409.7789	M+4	C12.H.[35]Cl5.[37]Cl2.O	HpCDF
2	L	417.8253	M	[13]C12.H.[35]Cl7.O	HpCDF (LC)
2	M	419.8220	M+2	[13]C12H[35]Cl6[37]ClO	HpCDF (LC)
2	N	423.7766	M+2	C12.H.[35]Cl6.[37]Cl.O2	HpCDD
2	O	425.7737	M+4	C12.H.[35]Cl5.[37]Cl2.O2	HpCDD
2	P	430.9729	Lock	C9.F17	PFK
2	Q	435.8169	M+2	13C12.H.[35]Cl6.[37]Cl.O2	HpCDD (LC)
2	R	437.8140	M+4	13C12.H.[35]Cl5.[37]Cl2.O2	HpCDD (LC)
2	S	445.7555	M+4	C12.H2.[35]Cl6.[37]Cl2.O	OCDPE
2	T	479.7165	M+4	C12.H.[35]Cl7.[37]Cl2.O	NCDPE

ION TABLE: METHODS 1613 & 8290

Group	Trace	m/z	Ion	Composition	Analyte
3	A	441.7428	M+2	C12.[35]Cl7.[37]Cl.O	OCDF
3	B	442.9728	Lock	C10.F17	PFK
3	C	443.7399	M+4	C12.[35]Cl6.[37]Cl2.O	OCDF
3	D	457.7377	M+2	C12.[35]Cl7.[37]Cl.O2	OCDD
3	E	459.7348	M+4	C12.[35]Cl6.[37]Cl2.O2	OCDD
3	F	469.7779	M+2	13C12.[35]Cl7.[37]Cl.O2	OCDD (LC)
3	G	471.7750	M+4	13C12.[35]Cl6.[37]Cl2.O2	OCDD (LC)
3	H	513.6775	M+4	C12.[35]Cl8.[37]Cl2.O	DCDPE

TCDD = Tetrachlorodibenzo-p-dioxin
PeCD = Pentachlorodibenzo-p-dioxin
HxCD = Hexachlorodibenzo-p-dioxin
HpCD = Heptachlorodibenzo-p-dioxin
OCDD = Octachlorodibenzo-p-dioxin

TCDD = Tetrachlorodibenzofuran
PeCD = Pentachlorodibenzofuran

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HxCD	=	Hexachlorodibenzofuran
HpCD	=	Heptachlorodibenzofuran
OCDD	=	Octachlorodibenzofuran
HxCD	=	Hexachlorodiphenyl ether
HpCD	=	Heptachlorodiphenyl ether
OCDP	=	Octachlorodiphenyl ether
NCDP	=	Nonachlorodiphenyl ether
DCDP	=	Decachlorodiphenyl ether
PFK	=	Perfluorokerosene
CS	=	Cleanup standard
IS	=	Internal standard
LC	=	Labeled compound

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Precision and Recovery Spiking Solution

ANALYTES	Solution concentration (ng/mL)	Volume spiked (mL)	Total amount spiked (ng)
2378-TCDD	2	0.100	0.2
12378-PeCDD	10	0.100	1.0
123478-HxCDD	10	0.100	1.0
123678-HxCDD	10	0.100	1.0
123789-HxCDD	10	0.100	1.0
1234678-HpCDD	10	0.100	1.0
OCDD	20	0.100	2.0
2378-TCDF	2	0.100	0.2
12378-PeCDF	10	0.100	1.0
23478-PeCDF	10	0.100	1.0
123478-HxCDF	10	0.100	1.0
123678-HxCDF	10	0.100	1.0
234678-HxCDF	10	0.100	1.0
123789-HxCDF	10	0.100	1.0
1234678-HpCDF	10	0.100	1.0
1234789-HpCDF	10	0.100	1.0
OCDF	20	0.100	2.0

Labeled Compound Spiking Solution

LABELED COMPOUNDS	Solution concentration (ng/mL)	Volume spiked (mL)	Total amount spiked (ng)
13C12-2378-TCDD	20	0.100	2.0
13C12-12378-PeCDD	20	0.100	2.0
13C12-123478-HxCDD	20	0.100	2.0
13C12-123678-HxCDD	20	0.100	2.0
13C12-1234678-HpCDD	20	0.100	2.0
13C12-OCDD	40	0.100	4.0
13C12-2378-TCDF	20	0.100	2.0
13C12-12378-PeCDF	20	0.100	2.0
13C12-23478-PeCDF	20	0.100	2.0
13C12-123478-HxCDF	20	0.100	2.0
13C12-123678-HxCDF	20	0.100	2.0
13C12-234678-HxCDF	20	0.100	2.0
13C12-123789-HxCDF	20	0.100	2.0
12C12-1234678-HpCDF	20	0.100	2.0
13C12-1234789-HpCDF	20	0.100	2.0

Cleanup Standard Spiking Solution

CLEANUP STANDARD	Solution concentration (ng/mL)	Volume spiked (mL)	Total amount spiked (ng)
37Cl4-2378-TCDD	8	0.100	0.8

Internal Standard Spiking Solution

INTERNAL STANDARDS	Solution concentration (ng/mL)	Volume spiked (mL)	Total amount spiked (ng)
13C12-1234-TCDD	80	0.025	2.0
13C12-123789-HxCDD	80	0.025	2.0

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EXAMPLE CALCULATIONS

For the initial calibration, the following equation is used to determine the relative response factor for an analyte at a given concentration:

$$RRFx = \frac{Ax \times Qis}{Ais \times Qx}$$

where

RRFx	=	relative response factor for the analyte
Ax	=	sum of the areas for monitored ions of the analyte
Ais	=	sum of the areas for monitored ions of the internal standar
Qx	=	quantity of the analyte
Qis	=	quantity of the internal standard

let

Ax	=	[760 + 1000]
Ais	=	[700 + 940]
Qx	=	2000 pg
Qis	=	2000 pg

then

$$RRFx = \frac{[760 + 1000] \times 2000}{[700 + 940] \times 2000}$$

$$= 1.073$$

The mean relative response factor used for calculating analyte concentrations from a sample analysis is determined as follows:

$$\overline{RRFx} = \frac{\sum_{i=1}^{5} RRFxi}{5}$$

where

$\overline{RRFx}$	=	mean RRFx
i	=	the calibration level (from 1 to 5)

thus if

RRFx1	1.1
RRFx2	1.11
RRFx3	1.05
RRFx4	1
RRFx5	1.2

then

$$\overline{RRFx} = \frac{[1.100+1.110+1.050+1.000+1.200]}{5}$$

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= 1.092

Percent relative standard deviation can then be calculated as follows:

$$\%RSD = \frac{(\text{standard deviation} \times 100)}{\overline{RRFX}}$$

thus for the RRF data presented above:

$$\%RSD = (.0746 \times 100, 1.092)$$

$$= 6.80\%$$

When calculating the percent difference between the daily calibration value and initial calibration response factors, the following formula applies:

$$\%D = \frac{[RRFi - RRFc] \times 100}{RRFi}$$

where
- %D = relative percent difference
- RRFi = mean RRF from initial calibration
- RRFc = RRF from daily calibration

Thus if
- RRFi = 1.092
- RRFc = 1.21

then

$$\%D = \frac{=[1.092\text{-}1.210] \times 100}{1.092}$$

$$= \text{-}10.8\%$$

Concentration for an analyte is determined using the following equation:

$$Cx = \frac{Ax \times Qis}{Ais \times \overline{RRFx} \times W}$$

where
- Cx = Concentration of the analyte
- W = weight (Kg) or Volume (Liters)

thus if
- Ax = [760 + 1000]
- Ais = [1500 + 1800]
- Qis = 2000 pg
- $\overline{RRFx}$ = 1.2

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W = 1 L

then $Cx = \frac{[760 + 1000] \times 2000}{[1500 + 1800] \times 1.200 \times 1}$

= 888.9 pg/L (ppq)

Determination of internal standard recovery is made using the formula:

$$Ris = \frac{Ais \times Qrs \times 100}{Ars \times RRFis \times Qis}$$

where
- Ris = percent recovery of the internal standard
- Ais = sum of the areas for monitored ions of the internal standar
- Ars = sum of the areas for monitored ions of the recovery standar
- Qis = quantity of the internal standard
- Qrs = quantity of the recovery standard
- RRFis = mean relative response factor from the initial calibration for the internal standard

Therefore if
- Ais = [760 + 1000]
- Ars = [1500 + 1800]
- Qis = 2000
- Qrs = 2000
- RRFis = 1.15

then $Ris = \frac{[760 + 1000] \times 2000 \times 100}{[1500 + 1800] \times 1.150 \times 2000}$

=46.40%

The estimated detection limit is determined from the following formula:

$$EDL = \frac{2.5 \times Hx \times Qis}{His \times \overline{RRFx} \times W}$$

where
- EDL = estimated detection limit
- Hx = sum of noise heighths from the analyte channels
- His = sum of the heighths of the internal standard peaks
- Qis = 2000 pg
- $\overline{RRFx}$ = mean RRF of analyte from initial calibration
- W = weight (Kg) or Volume (L)

thus if
- Hx = [1.1+ 1.3]
- His = [500 + 600]
- $\overline{RRFx}$ = 1.092

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W = 1 L

then EDL $= \frac{2.5 \times [1.1 + 1.3] \times 2000}{[500 + 600] \times 1.092 \times 1}$

= 10.0 pg/L (ppq)

When a peak does not meet the ratio criterion for identification, the EMPC may be calulated using the following equation:

$$EMPC = \frac{Ax \times Qis}{Ais \times \overline{RRFx} \times W}$$

where the variable definitions are the same as those for calculating Cx above, except that

Ax = sum of:
1) the smallest of the two peak areas for the analyte plus
2) a calculated peak area for the larger peak determined by the theoretical chlorine isotope ratio

thus if
Ax = [950+ 1000]
Ais = [1500 + 1800]
Qis = 2000 pg
$\overline{RRFx}$ = 1.2
W = 1 L

and the analyte is 2,3,7,8-TCDD (having a theoretical chlorine isotope ratio of 0.77), the smallest peak area is 950 area counts, and the calulated area of the larger peak would be 950/0.77 or 1234

then EMPC $= \frac{[950 + 1234] \times 2000}{[1500 + 1800] \times 1.200 \times 1}$

= 1103 pg/L (ppq)

Relative percent difference between the matrix spike and matrix spike duplicate is determined using the following formula:

$$RPD = \frac{|S1 - S2| \times 100}{[S1 + S2]/2}$$

where S1 = MS Concentration

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S2 = MSD Concentration

thus if S1 = 200
S2 = 220

then RPD $= \frac{|200\text{-}220| \times 100}{[200 + 220]/2}$

$= 9.5\%$

SCOEPA00009739

SUMMARY REPORT

SCOEPA00009740

URS Greiner Woodward-Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E2000018 **REFERENCE: 92C0804A.00**
FILE: A15824 **SAMPLE: LWS-01-01**
LAB ID.: E2000018-001

Project ID/P.O	92C0804A.00	Date collected:	1/13/00	RTWin / Col Pfm:	A15820
Sample origin:	RPAC Task #44	Date received:	1/18/00	Beginning CCAL:	A15820
Sample matrix	Soil	Date extracted:	1/18/00	Ending CCAL:	A15831
Sample size:	5.64 g	Date analyzed:	1/21/00	Initial CAL:	A092899
		Date processed:	1/24/00	Batch Number:	EB60071

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPT)	EDL (PPT)	BLANK (PPT)	LS (PPT)	LS (%)	QC Limits
2,3,7,8-TCDD	14242.5 J	1.0	ND	20.2	101%	50-150
1,2,3,7,8-PeCDD	153.8	1.0	ND	84.2	84%	50-150
1,2,3,4,7,8-HxCDD	31.4	2.5	ND	85.2	85%	50-150
1,2,3,6,7,8-HxCDD	126.9	2.5	ND	92.0	92%	50-150
1,2,3,7,8,9-HxCDD	36.2	2.5	ND	97.5	97%	50-150
1,2,3,4,6,7,8-HpCDD	391.8	2.5	ND	92.8	93%	50-150
OCDD	2744.9 J	5.0	ND	183.6	92%	50-150
2,3,7,8-TCDF	6615.0 J	1.0	~~ND~~ 1,2	17.5	87%	50-150
1,2,3,7,8-PeCDF	221.2	1.0	ND	82.7	83%	50-150
2,3,4,7,8-PeCDF	439.7	1.0	ND	81.9	82%	50-150
1,2,3,4,7,8-HxCDF	210.4	2.5	ND	79.8	80%	50-150
1,2,3,6,7,8-HxCDF	141.7	2.5	ND	86.0	86%	50-150
2,3,4,6,7,8-HxCDF	227.6	2.5	ND	79.3	79%	50-150
1,2,3,7,8,9-HxCDF	-	2.5	ND	86.1	86%	50-150
1,2,3,4,6,7,8-HpCDF	2658.4	2.5	ND	96.3	96%	50-150
1,2,3,4,7,8,9-HpCDF	92.5	2.5	ND	91.1	91%	50-150
OCDF	6129.5 J	5.0	ND	186.8	93%	50-150

3/31/00 RC

TOTAL ANALYTES	CONC (PPT)	EDL (PPT)
TOTAL TCDD	20384.8	1.0
TOTAL PeCDD	1700.4	1.0
TOTAL HxCDD	809.3	2.5
TOTAL HpCDD	769.8	2.5
TOTAL OCDD	2744.9	5.0
TOTAL TCDF	10577.9	1.0
TOTAL PeCDF	9573.3	1.0
TOTAL HxCDF	6286.8	2.5
TOTAL HpCDF	5064.1	2.5
TOTAL OCDF	6129.5	5.0

Definitions:

CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).

EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).

BLANK — The concentration of the blank.

MS (PPQ) — The concentration of Matrix Spike recovered.

MS (%) — The percent recovery of the Matrix Spike.

ND — (Non-Detect) The concentration of the analyte is less than the detection limit.

NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 64040.88 PPT

TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 15329.55 PPT

SCOEPA00009741

URS Greiner Woodward-Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E2000018 **REFERENCE: 92C0804A.00**
FILE: A15836 **SAMPLE: LWS-01-01**
LAB ID.: E2000018-001DIL

Project ID/P.O	92C0804A.00	Date collected:	1/13/00	RTWin / Col Pfm:	A15833
Sample origin:	RPAC Task #44	Date received:	1/18/00	Beginning CCAL:	A15833
Sample matrix	Soil	Date extracted:	1/18/00	Ending CCAL:	A15846
Sample size:	5.64 g	Date analyzed:	~~1/24/00~~ 1/24/00	Initial CAL:	A092899
		Date processed:	1/25/00	Batch Number:	EB60071

3/31/00

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPT)	EDL (PPT)	BLANK (PPT)	LS (PPT)	LS (%)	QC Limits
2,3,7,8-TCDD	7406.9	51.3	ND	20.2	101%	50-150
1,2,3,7,8-PeCDD	-	185.9	ND	84.2	84%	50-150
1,2,3,4,7,8-HxCDD	-	143.3	ND	85.2	85%	50-150
1,2,3,6,7,8-HxCDD	-	175.8	ND	92.0	92%	50-150
1,2,3,7,8,9-HxCDD	-	157.9	ND	97.5	97%	50-150
1,2,3,4,6,7,8-HpCDD	-	276.7	ND	92.8	93%	50-150
OCDD	-	229.3	ND	183.6	92%	50-150
2,3,7,8-TCDF	44418.4	63.7	~~ND~~ 1.2	17.5	87%	50-150
1,2,3,7,8-PeCDF	-	80.7	ND	82.7	83%	50-150
2,3,4,7,8-PeCDF	-	75.2	ND	81.9	82%	50-150
1,2,3,4,7,8-HxCDF	-	91.8	ND	79.8	80%	50-150
1,2,3,6,7,8-HxCDF	-	95.5	ND	86.0	86%	50-150
2,3,4,6,7,8-HxCDF	-	99.7	ND	79.3	79%	50-150
1,2,3,7,8,9-HxCDF	-	90.7	ND	86.1	86%	50-150
1,2,3,4,6,7,8-HpCDF	586.7	145.4	ND	96.3	96%	50-150
1,2,3,4,7,8,9-HpCDF	-	148.7	ND	91.1	91%	50-150
OCDF	1113.7	137.7	ND	186.8	93%	50-150

TOTAL ANALYTES	CONC (PPT)	EDL (PPT)
TOTAL TCDD	27523.5	51.3
TOTAL PeCDD	-	185.9
TOTAL HxCDD	-	175.8
TOTAL HpCDD	-	276.7
TOTAL OCDD	-	229.3
TOTAL TCDF	133787.8	63.7
TOTAL PeCDF	43802.7	80.7
TOTAL HxCDF	-	99.7
TOTAL HpCDF	586.7	148.7
TOTAL OCDF	1113.7	137.7

Definitions:

CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).

EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).

BLANK — The concentration of the blank.

MS (PPQ) — The concentration of Matrix Spike recovered.

MS (%) — The percent recovery of the Matrix Spike.

ND — (Non-Detect) The concentration of the analyte is less than the detection limit.

NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 206814.52 PPT
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 11855.76 PPT

SCOEPA00009742

ANALYSIS REPORT

SCOEPA00009743

URS Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E2000018 **REFERENCE: 92C0804A.00**
FILE: A15824 **SAMPLE: LWS-01-01**
LAB ID.: E2000018-001

Project ID/P.O.:	92C0804A.00	Date collected:	1/13/00	RTWin / Col Pfm:	A15820
Sample origin:	RPAC Task #44	Date received:	1/18/00	Beginning CCAL:	A15820
Sample matrix:	Soil	Date extracted:	1/18/00	Ending CCAL:	A15831
Sample size:	5.64 g	Date analyzed:	1/21/00	Initial CAL:	A092899
		Date processed:	1/24/00	Batch Number:	EB60071

SPECIFIC ANALYTES	EMPC (PPT)	CONC (PPT)	EDL (PPT)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	14242.5	1.0	0.89	23:35	E
1,2,3,7,8-PeCDD	-	153.8	1.0	1.55	28:22	
1,2,3,4,7,8-HxCDD	-	31.4	2.5	1.20	32:53	
1,2,3,6,7,8-HxCDD	-	126.9	2.5	1.38	33:01	
1,2,3,7,8,9-HxCDD	-	36.2	2.5	1.39	33:27	
1,2,3,4,6,7,8-HpCDD	-	391.8	2.5	1.02	37:37	
OCDD	-	2744.9	5.0	0.87	42:14	J
2,3,7,8-TCDF	-	1343.0	1.7	0.83	19:59	EC J
1,2,3,7,8-PeCDF	-	221.2	1.0	1.45	27:06	
2,3,4,7,8-PeCDF	-	439.7	1.0	1.58	27:58	
1,2,3,4,7,8-HxCDF	-	210.4	2.5	1.12	31:50	
1,2,3,6,7,8-HxCDF	-	141.7	2.5	1.16	31:59	
2,3,4,6,7,8-HxCDF	-	227.6	2.5	1.09	32:44	
1,2,3,7,8,9-HxCDF	-	-	2.5	-		U
1,2,3,4,6,7,8-HpCDF	-	2658.4	2.5	1.05	36:12	
1,2,3,4,7,8,9-HpCDF	-	92.5	2.5	1.01	38:15	
OCDF	-	6129.5	5.0	0.91	42:27	J

3/31/00 HF

TOTAL ANALYTES	NO	CONC (PPT)	EDL (PPT)	FLAGS
TOTAL TCDD	4	20384.8	1.0	E J
TOTAL PeCDD	9	1700.4	1.0	
TOTAL HxCDD	7	809.3	2.5	
TOTAL HpCDD	2	769.8	2.5	
TOTAL TCDF	10	10577.9	1.0	E J
TOTAL PeCDF	9	9573.3	1.0	E
TOTAL HxCDF	8	6286.8	2.5	E
TOTAL HpCDF	3	5064.1	2.5	E

DATA REVIEWER: AMA 2/8/00

SCOEPA00009744

URS Greiner Woodward-Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E2000018 **REFERENCE: 92C0804A.00**
FILE: A15824 **SAMPLE: LWS-01-01**
LAB ID.: E2000018-001

Project ID/P.O.:	92C0804A.00	Date collected:	1/13/00	RTWin / Col Pfm:	A15820
Sample origin:	RPAC Task #44	Date received:	1/18/00	Beginning CCAL:	A15820
Sample matrix:	Soil	Date extracted:	1/18/00	Ending CCAL:	A15831
Sample size:	5.64 g	Date analyzed:	1/21/00	Initial CAL:	A092899
		Date processed:	1/24/00	Batch Number:	EB60071

LABELED COMPOUNDS	CONC (PPT)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	308.8	87.1	0.83	23:35	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	472.4	133.2	1.58	28:21	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	366.5	103.4	1.21	32:52	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	324.7	91.6	1.25	33:00	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	373.1	105.2	1.07	37:36	-
$^{13}C_{12}$-OCDD	246.9	34.8	0.91	42:12	Y
$^{13}C_{12}$-2,3,7,8-TCDF	430.1	121.3	1.36	22:58	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	379.1	106.9	1.58	27:06	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	365.2	103.0	1.62	27:57	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	356.0	100.4	0.50	31:49	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	247.8	69.9	0.51	31:58	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	282.2	79.6	0.52	32:43	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	283.6	80.0	0.50	33:47	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	306.6	86.5	0.46	36:11	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	299.6	84.5	0.44	38:14	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.80	23:24	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.27	33:26	-

CLEANUP STANDARD	CONC (PPT)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	232.1	163.7	23:35	Y

SCOEPA00009745

URS Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E2000018 **REFERENCE: 92C0804A.00**
FILE: A15836 **SAMPLE: LWS-01-01**
LAB ID.: E2000018-001DIL

Dilution 1:45

Project ID/P.O.:	92C0804A.00	Date collected:	1/13/00	RTWin / Col Pfm:	A15833
Sample origin:	RPAC Task #44	Date received:	1/18/00	Beginning CCAL:	A15833
Sample matrix:	Soil	Date extracted:	1/18/00	Ending CCAL:	A15846
Sample size:	5.64 g	Date analyzed:	~~1/21/00~~ 1/24/00	Initial CAL:	A092899
		Date processed:	1/25/00	Batch Number:	EB60071

SPECIFIC ANALYTES	EMPC (PPT)	CONC (PPT)	EDL (PPT)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	7406.9	51.3	0.77	22:39	
1,2,3,7,8-PeCDD	-	-	185.9	-		U
1,2,3,4,7,8-HxCDD	-	-	143.3	-		U
1,2,3,6,7,8-HxCDD	-	-	175.8	-		U
1,2,3,7,8,9-HxCDD	-	-	157.9	-		U
1,2,3,4,6,7,8-HpCDD	-	-	276.7	-		U
OCDD	-	-	229.3	-		U
2,3,7,8-TCDF	-	44418.4	1.7	0.83	19:59	E J
1,2,3,7,8-PeCDF	-	-	80.7	-		U
2,3,4,7,8-PeCDF	-	-	75.2	-		U
1,2,3,4,7,8-HxCDF	-	-	91.8	-		U
1,2,3,6,7,8-HxCDF	-	-	95.5	-		U
2,3,4,6,7,8-HxCDF	-	-	99.7	-		U
1,2,3,7,8,9-HxCDF	-	-	90.7	-		U
1,2,3,4,6,7,8-HpCDF	-	586.7	145.4	0.98	35:04	
1,2,3,4,7,8,9-HpCDF	-	-	148.7	-		U
OCDF	-	1113.7	137.7	0.89	41:10	

TOTAL ANALYTES	NO	CONC (PPT)	EDL (PPT)	FLAGS
TOTAL TCDD	4	27523.5	51.3	
TOTAL PeCDD	0	-	185.9	U
TOTAL HxCDD	0	-	175.8	U
TOTAL HpCDD	0	-	276.7	U
TOTAL TCDF	8	133787.8	63.7	E
TOTAL PeCDF	9	43802.7	80.7	
TOTAL HxCDF	0	-	99.7	U
TOTAL HpCDF	1	586.7	148.7	

DATA REVIEWER: AMA 2/8/00

SCOEPA00009746

TOXICITY EQUIVALENCE REPORT

SCOEPA00009747

URS Greiner Woodward-Clyde

PCDD/PCDF TOXICITY EQUIVALENCE REPORT
Method 8290

PROJECT: E2000018 **REFERENCE: 92C0804A.00**
FILE: A15824 **SAMPLE: LWS-01-01**
LAB ID.: E2000018-001

Project ID/P.O.:	92C0804A.00	Date collected:	1/13/00	RTWin / Col Pfm:	A15820
Sample origin:	RPAC Task #44	Date received:	1/18/00	Beginning CCAL:	A15820
Sample matrix:	Soil	Date extracted:	1/18/00	Ending CCAL:	A15831
Sample size:	5.64 g	Date analyzed:	1/21/00	Initial CAL:	A092899
		Date processed:	1/24/00	Batch Number:	EB60071

SPECIFIC ANALYTES	CONC (PPT)		TEF		TEF CONC (PPT)
2,3,7,8-TCDD	14242.5	x	1	=	14242.5
1,2,3,7,8-PeCDD	153.8	x	0.5	=	76.9
1,2,3,4,7,8-HxCDD	31.4	x	0.1	=	3.14
1,2,3,6,7,8-HxCDD	126.9	x	0.1	=	12.69
1,2,3,7,8,9-HxCDD	36.2	x	0.1	=	3.62
1,2,3,4,6,7,8-HpCDD	391.8	x	0.01	=	3.92
OCDD	2744.9	x	0.001	=	2.74
2,3,7,8-TCDF	6615.0	x	0.1	=	661.5
1,2,3,7,8-PeCDF	221.2	x	0.05	=	11.06
2,3,4,7,8-PeCDF	439.7	x	0.5	=	219.87
1,2,3,4,7,8-HxCDF	210.4	x	0.1	=	21.04
1,2,3,6,7,8-HxCDF	141.7	x	0.1	=	14.17
2,3,4,6,7,8-HxCDF	227.6	x	0.1	=	22.76
1,2,3,7,8,9-HxCDF	0.0	x	0.1	=	-
1,2,3,4,6,7,8-HpCDF	2658.4	x	0.01	=	26.58
1,2,3,4,7,8,9-HpCDF	92.5	x	0.01	=	0.93
OCDF	6129.5	x	0.001	=	6.13

TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 15329.55 PPT

SCOEPA00009748

URS Greiner Woodward-Clyde

PCDD/PCDF TOXICITY EQUIVALENCE REPORT
Method 8290

PROJECT: E2000018 **REFERENCE: 92C0804A.00**
FILE: A15836 **SAMPLE: LWS-01-01**
LAB ID.: E2000018-001DIL

Dilution 1:45

Project ID/P.O.:	92C0804A.00	Date collected:	1/13/00	RTWin / Col Pfm:	A15833
Sample origin:	RPAC Task #44	Date received:	1/18/00	Beginning CCAL:	A15833
Sample matrix:	Soil	Date extracted:	1/18/00	Ending CCAL:	A15846
Sample size:	5.64 g	Date analyzed:	1/21/00	Initial CAL:	A092899
		Date processed:	1/25/00	Batch Number:	EB60071

SPECIFIC ANALYTES	CONC (PPT)		TEF		TEF CONC (PPT)
2,3,7,8-TCDD	7406.9	x	1	=	7406.94
1,2,3,7,8-PeCDD	0.0	x	0.5	=	-
1,2,3,4,7,8-HxCDD	0.0	x	0.1	=	-
1,2,3,6,7,8-HxCDD	0.0	x	0.1	=	-
1,2,3,7,8,9-HxCDD	0.0	x	0.1	=	-
1,2,3,4,6,7,8-HpCDD	0.0	x	0.01	=	-
OCDD	0.0	x	0.001	=	-
2,3,7,8-TCDF	44418.4	x	0.1	=	4441.84
1,2,3,7,8-PeCDF	0.0	x	0.05	=	-
2,3,4,7,8-PeCDF	0.0	x	0.5	=	-
1,2,3,4,7,8-HxCDF	0.0	x	0.1	=	-
1,2,3,6,7,8-HxCDF	0.0	x	0.1	=	-
2,3,4,6,7,8-HxCDF	0.0	x	0.1	=	-
1,2,3,7,8,9-HxCDF	0.0	x	0.1	=	-
1,2,3,4,6,7,8-HpCDF	586.7	x	0.01	=	5.87
1,2,3,4,7,8,9-HpCDF	0.0	x	0.01	=	-
OCDF	1113.7	x	0.001	=	1.11

TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 11855.76 PPT

SCOEPA00009749

TCDF CONFIRMATION

SCOEPA00009750

URS Greiner Woodward-Clyde

TCDF CONFIRMATION REPORT

Method 8290

PROJECT: E2000018 **REFERENCE: 92C0804A.00**
FILE: A15853 **SAMPLE: LWS-01-01**
LAB ID.: E2000018-001

Project ID/P.O.:	92C0804A.00	Date collected:	1/13/00	RTWin / Col Pfm:	A15847
Sample origin:	RPAC Task #44	Date received:	1/18/00	Beginning CCAL:	A15848
Sample matrix:	Soil	Date extracted:	1/18/00	Ending CCAL:	A15854
Sample size:	5.64 g	Date analyzed:	1/25/00	Initial CAL:	A060998
GC Column:	DB-225	Date processed:	1/25/00		

SPECIFIC ANALYTES	CONC (PPT)	DL (PPT)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDF	1343.0	1.7	0.83	19:59	E J

3/31/00

SCOEPA00009751

URS Greiner Woodward-Clyde

TCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E2000018 **REFERENCE: 92C0804A.00**
FILE: A15853 **SAMPLE: LWS-01-01**
LAB ID.: E2000018-001

Project ID/P.O.:	92C0804A.00	Date collected:	1/13/00	RTWin / Col Pfm:	A15847
Sample origin:	RPAC Task #44	Date received:	1/18/00	Beginning CCAL:	A15848
Sample matrix:	Soil	Date extracted:	1/18/00	Ending CCAL:	A15854
Sample size:	5.64 g	Date analyzed:	1/25/00	Initial CAL:	A060998
GC Column:	DB-225	Date processed:	1/25/00		

INTERNAL STANDARDS	CONC (PPT)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDF	437.5	123.4	0.71	19:58	-

RECOVERY STANDARD	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.74	17:33	

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QUALITY ASSURANCE DATA

SCOEPA00009753

URS Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E2000018 **REFERENCE: 92C0804A.00**
FILE: A15823 **SAMPLE: Method Blank**
LAB ID.: EB60071-MB

Project ID/P.O.:	92C0804A.00	Date collected:	NA	RTWin / Col Pfm:	A15820
Sample origin:	RPAC Task #44	Date received:	NA	Beginning CCAL:	A15820
Sample matrix:	Quartz Sand	Date extracted:	1/18/00	Ending CCAL:	A15831
Sample size:	10 g	Date analyzed:	1/21/00	Initial CAL:	A092899
		Date processed:	2/4/00	Batch Number:	EB60071

SPECIFIC ANALYTES	EMPC (PPT)	CONC (PPT)	EDL (PPT)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	0.6	-		U
1,2,3,7,8-PeCDD	-	-	1.2	-		U
1,2,3,4,7,8-HxCDD	-	-	1.9	-		U
1,2,3,6,7,8-HxCDD	-	-	2.4	-		U
1,2,3,7,8,9-HxCDD	-	-	2.1	-		U
1,2,3,4,6,7,8-HpCDD	-	-	1.1	-		U
OCDD	-	-	0.6	-		U J
2,3,7,8-TCDF	-	1.2	0.3	0.68	22:51	
1,2,3,7,8-PeCDF	-	-	0.6	-		U
2,3,4,7,8-PeCDF	-	-	0.5	-		U
1,2,3,4,7,8-HxCDF	-	-	1.0	-		U
1,2,3,6,7,8-HxCDF	-	-	1.1	-		U
2,3,4,6,7,8-HxCDF	-	-	1.1	-		U
1,2,3,7,8,9-HxCDF	-	-	1.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	1.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	1.0	-		U
OCDF	-	-	0.5	-		U J

TOTAL ANALYTES	NO	CONC (PPT)	EDL (PPT)	FLAGS
TOTAL TCDD	0	-	0.6	U
TOTAL PeCDD	0	-	1.2	U
TOTAL HxCDD	0	-	2.4	U
TOTAL HpCDD	0	-	1.1	U
TOTAL TCDF	3	3.5	0.3	
TOTAL PeCDF	0	-	0.6	U
TOTAL HxCDF	0	-	1.1	U
TOTAL HpCDF	0	-	1.0	U

DATA REVIEWER: AMA 2/8/00

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URS Greiner Woodward-Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E2000018 **REFERENCE: 92C0804A.00**
FILE: A15823 **SAMPLE: Method Blank**
LAB ID.: EB60071-MB

Project ID/P.O.:	92C0804A.00	Date collected:	NA	RTWin / Col Pfm:	A15820
Sample origin:	RPAC Task #44	Date received:	NA	Beginning CCAL:	A15820
Sample matrix:	Quartz Sand	Date extracted:	1/18/00	Ending CCAL:	A15831
Sample size:	10 g	Date analyzed:	1/21/00	Initial CAL:	A092899
		Date processed:	2/4/00	Batch Number:	EB60071

LABELED COMPOUNDS	CONC (PPT)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	128.8	64.4	0.84	23:27	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	252.4	126.2	1.57	28:12	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	158.1	79.0	1.23	32:39	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	120.0	60.0	1.26	32:46	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	150.6	75.3	1.07	37:27	-
$^{13}C_{12}$-OCDD	127.9	32.0	0.89	42:00	Y
$^{13}C_{12}$-2,3,7,8-TCDF	105.8	52.9	0.81	22:49	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	187.7	93.8	1.52	26:57	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	194.2	97.1	1.60	27:48	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	119.5	59.8	0.49	31:37	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	109.2	54.6	0.51	31:45	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	113.1	56.5	0.48	32:29	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	105.5	52.8	0.48	33:38	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	130.3	65.2	0.44	36:00	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	137.6	68.8	0.45	38:06	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.83	23:17	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.25	33:15	-

CLEANUP STANDARD	CONC (PPT)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	46.8	58.4	23:28	-

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URS Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E2000018
FILE: A15830
LAB ID.: EB6071-LS

REFERENCE: 92C0804A.00
SAMPLE: Laboratory Spike

Project ID/P.O.:	92C0804A.00	Date collected:	NA	RTWin / Col Pfm:	A15820
Sample origin:	RPAC Task #44	Date received:	NA	Beginning CCAL:	A15820
Sample matrix:	Soil	Date extracted:	1/18/00	Ending CCAL:	A15831
Sample size:	10 g	Date analyzed:	1/21/00	Initial CAL:	A092899
		Date processed:	1/24/00	Batch Number:	EB60071

SPECIFIC ANALYTES	EMPC (PPT)	CONC (PPT)	MDL (PPT)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	·	20.2	0.0	0.77	23:37	
1,2,3,7,8-PeCDD	·	84.2	0.0	1.50	28:14	
1,2,3,4,7,8-HxCDD	·	85.2	0.0	1.27	32:43	
1,2,3,6,7,8-HxCDD	·	92.0	0.0	1.28	32:50	
1,2,3,7,8,9-HxCDD	·	97.5	0.0	1.31	33:18	
1,2,3,4,6,7,8-HpCDD	·	92.8	0.0	1.04	37:29	
OCDD	·	183.6	0.0	0.83	42:05	
2,3,7,8-TCDF	·	17.5	0.0	0.77	22:57	
1,2,3,7,8-PeCDF	·	82.7	0.0	1.61	26:59	
2,3,4,7,8-PeCDF	·	81.9	0.0	1.45	27:50	
1,2,3,4,7,8-HxCDF	·	79.8	0.0	1.15	31:39	
1,2,3,6,7,8-HxCDF	·	86.0	0.0	1.09	31:48	
2,3,4,6,7,8-HxCDF	·	79.3	0.0	1.10	32:33	
1,2,3,7,8,9-HxCDF	·	86.1	0.0	1.11	33:41	
1,2,3,4,6,7,8-HpCDF	·	96.3	0.0	1.06	36:02	
1,2,3,4,7,8,9-HpCDF	·	91.1	0.0	1.05	38:08	
OCDF	·	186.8	0.0	0.93	42:19	

TOTAL ANALYTES	NO	CONC (PPT)	MDL (PPT)	FLAGS
TOTAL TCDD	1	20.2	0.0	
TOTAL PeCDD	1	84.5	0.0	
TOTAL HxCDD	3	275.0	0.0	
TOTAL HpCDD	1	93.3	0.0	
TOTAL TCDF	2	19.9	0.0	
TOTAL PeCDF	2	166.8	0.0	
TOTAL HxCDF	4	331.1	0.0	
TOTAL HpCDF	2	194.7	0.0	

DATA REVIEWER: AMA 2/8/00

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URS Greiner Woodward-Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E2000018 **REFERENCE: 92C0804A.00**
FILE: A15830 **SAMPLE: Laboratory Spike**
LAB ID.: EB6071-LS

Project ID/P.O.:	92C0804A.00	Date collected:	NA	RTWin / Col Pfm:	A15820
Sample origin:	RPAC Task #44	Date received:	NA	Beginning CCAL:	A15820
Sample matrix:	Soil	Date extracted:	1/18/00	Ending CCAL:	A15831
Sample size:	10 g	Date analyzed:	1/21/00	Initial CAL:	A092899
		Date processed:	1/24/00	Batch Number:	EB60071

LABELED COMPOUNDS	CONC (PPT)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	126.8	63.4	0.80	23:36	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	246.8	123.4	1.58	28:13	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	202.6	101.3	1.25	32:42	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	163.3	81.6	1.29	32:49	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	193.6	96.8	1.10	37:28	-
$^{13}C_{12}$-OCDD	138.7	34.7	0.93	42:04	Y
$^{13}C_{12}$-2,3,7,8-TCDF	106.3	53.1	0.78	22:56	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	188.1	94.0	1.59	26:58	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	178.6	89.3	1.59	27:49	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	152.9	76.5	0.52	31:38	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	148.3	74.1	0.50	31:48	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	143.1	71.5	0.48	32:32	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	147.6	73.8	0.51	33:40	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	179.8	89.9	0.44	36:01	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	161.6	80.8	0.43	38:07	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.82	23:25	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.24	33:17	-

CLEANUP STANDARD	CONC (PPT)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	48.6	60.7	23:37	-

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Feb 15, 2000

Columbia Analytical Services-Houston Project E2000019
URS Greiner Woodward-Clyde Project Number: 92C0804A.00

Objective

Six water samples were analyzed for tetrachloro- through octachloro- dibenzo-p-dioxins and furans by EPA SW-846 Method 8290.

Sample Receiving

The laboratory received the samples on Jan 20, 2004. The samples were received in good condition. The following lab accession numbers were assigned:

Lab ID	Client ID
E2000019-001	042-GG-01
E2000019-002	043-GG-01
E2000019-003	043-GG-02
E2000019-004MS	043-GG-01MS
E2000019-005MSD	043-GG-01MSD
E2000019-006	042-GG-03
EB60072-LS	Lab Spike
EB60072-MB	Method Blank

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Extraction

The samples were extracted according to the requirements of the Method. No discrepancies were encountered during extraction and cleanup.

Analysis

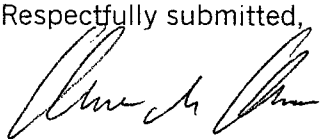
The samples were analyzed by GC-MS according to the Method. Data are reported for tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans.

None of the internal standards had recoveries outside the QC advisory limits.

Quality Control

A Method Blank (MB), Laboratory Spike (LS), Matrix Spike (MS), and Matrix Spike Duplicate (MSD) were analyzed in the sample batch. All QC recovery limits were met.

Respectfully submitted,



Amer M. Amer, Ph.D.
Laboratory Director

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ABBREVIATIONS AND FLAGS

Abbreviations and definitions

The following abbreviations and definitions are employed by Columbia Analytical Servces-Houston in its analytical reports for dioxin/furan analysis:

Cal	Calibration.
Conc	Concentration.
Dioxins	Polychlorinated dibenzo-p-dioxin(s).
EDL	Estimated detection limit.
EMPC	Estimated maximum possible concentration.
Flags	Data qualifiers.
Furans	Polychlorinated dibenzofuran(s).
g	Gram(s).
ID	Identifier.
Ions	Masses monitored for the analyte during data acquisition.
L	Liter(s).
LCS	Lab control sample.
MB	Method blank.
MDL	Method detection limit.
MS	Matrix spike.
MSD	Matrix spike duplicate.
NO	Number of peaks meeting all identification criteria
PCDD	Polychlorinated dibenzo-p-dioxin(s).
PCDF	Polychlorinated dibenzofuran(s).
ppb	Parts per billion.
ppq	Parts per quadrillion.
ppt	Parts per trillion.
QC	Quality control.
Ratio	Ratio of the areas from monitored ions for an analyte.
% Rec.	Percent recovery.
RRF	relative response factor.
RT	Retention time.
SDG	Sample Delivery Group.
S/N	Signal to noise ratio.
TEF	Toxicity equivalence factor.
TEQ	Toxicity equivalence.

Flags

The EPA qualifiers ("flags") for the Contract Laboratory Program are employed by Columbia Analytical Services. They are:

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B This flag is used when the analyte is found in the associated blank, as well as in the sample.

C Indicates that the value for the analyte was obtained by analysis using a DB-225 confirmation column.

D Indicates that the analysis was performed on a diluted extract. This is performed when the initial analysis indicates that one or more analytes are present at a concentration above theupper end of the linear calibration range.

E Indicates an estimated value. Employed when the analyte concentration is above the upper end of the linear calibration range.

J Indicates an estimated value. Employed when the analyte concentration is below the lower end of the linear calibration range, but above the detection limit.

M Indicates that the compound was quantified using a manual integration of the peak areas.

S Indicates that the analyte in question is, in the opinion of the GC–MS Interpretation Specialist, a PCDD/PCDF even though the [M–COCl]+ ion did not meet the requirement that the signal-to-noise be at least 2.5:1.

U Indicates that compound was analyzed for but not detected.

Y Indicates that recovery of labeled standard is outside the range specified by QA goals. These goals are not mandatory requirements.

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ION TABLE: METHODS 1613 & 8290

Group	Trace	m/z	Ion	Composition	Analyte
1	A	292.9825	Lock	C7.F11	PFK
1	B	303.9016	M	C12.H4.[35]Cl4.O	TCDF
1	C	305.8987	M+2	C12.H4.[35]Cl3.[37]Cl.O	TCDF
1	D	315.9419	M	[13]C12.H4.[35]Cl4.O	TCDF (LC)
1	E	317.9389	M+2	[13]C12.H4.[35]Cl3.[37]Cl.O	TCDF (LC)
1	F	319.8965	M	C12.H4.[35]Cl4.O2	TCDD
1	G	321.8936	M+2	C12H4[35]Cl3[37]ClO2	TCDD
1	H	327.8847	M	C12.H4.[37]Cl4.O2	TCDD (CS)
1	I	330.9792	QC	C7.F13	PFK
1	J	331.9368	M	13C12.H4.[35]Cl4.O2	TCDD (IS, LC)
1	K	333.9339	M+2	13C12.H4.[35]Cl3.[37]Cl.O2	TCDD (IS, LC)
1	L	339.8597	M+2	C12.H3.[35]Cl4.[37]Cl.O	PeCDF
1	M	341.8567	M+4	C12.H3.[35]Cl3.[37]Cl2.O	PeCDF
1	N	351.9000	M+2	[13]C12.H3.[35]Cl4.[37]Cl.O	PeCDF (LC)
1	O	353.8970	M+4	[13].C12.H3.[35]Cl3.[37]Cl2.O	PeCDF (LC)
1	P	354.9792	Lock	C9.F13	PFK
1	Q	355.8546	M+2	C12.H3.[35]Cl4.[37]Cl.O2	PeCDD
1	R	357.8516	M+4	C12.H3.[35]Cl3.[37]Cl2.O2	PeCDD
1	S	367.8949	M+2	[13]C12.H3.[35]Cl4.[37]Cl.O2	PeCDD (LC)
1	T	369.8919	M+4	[13]C12.H3.[35]Cl3.[37]Cl2.O2	PeCDD (LC)
1	U	375.8364	M+2	C12.H4.[35]Cl5.[37]Cl.O	HxCDPE
1	V	409.7974	M+2	C12.H3.[35]Cl6.[37]Cl.O	HpCDPE

ION TABLE: METHODS 1613 & 8290

Group	Trace	m/z	Ion	Composition	Analyte
2	A	373.8208	M+2	C12.H2.[35]Cl5.[37]Cl.O	HxCDF
2	B	375.8178	M+4	C12.H2.[35]Cl4.[37]Cl2.O	HxCDF
2	C	383.8639	M	13C12.H2.[35]Cl6.O	HxCDF (LC)
2	D	385.8610	M+2	13C12.H2.[35]Cl5.[37]Cl.O	HxCDF (LC)
2	E	389.8157	M+2	C12.H2.[35]Cl5.[37]Cl.O2	HxCDD
2	F	391.8127	M+4	C12.H2.[35]Cl4.[37]Cl2.O2	HxCDD

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2	G	392.9760	Lock	C9.F15	PFK
2	H	401.8559	M+2	[13]C12.H2.[35]Cl5.[37]Cl.O2	HxCDD (IS, LC)
2	I	403.8529	M+4	[13]C12.H2.[35]Cl4.[37]Cl2.O2	HxCDD (IS, LC)
2	J	407.7818	M+2	C12.H.[35]Cl6.[37]Cl.O	HpCDF
2	K	409.7789	M+4	C12.H.[35]Cl5.[37]Cl2.O	HpCDF
2	L	417.8253	M	[13]C12.H.[35]Cl7.O	HpCDF (LC)
2	M	419.8220	M+2	[13]C12H[35]Cl6[37]ClO	HpCDF (LC)
2	N	423.7766	M+2	C12.H.[35]Cl6.[37]Cl.O2	HpCDD
2	O	425.7737	M+4	C12.H.[35]Cl5.[37]Cl2.O2	HpCDD
2	P	430.9729	Lock	C9.F17	PFK
2	Q	435.8169	M+2	13C12.H.[35]Cl6.[37]Cl.O2	HpCDD (LC)
2	R	437.8140	M+4	13C12.H.[35]Cl5.[37]Cl2.O2	HpCDD (LC)
2	S	445.7555	M+4	C12.H2.[35]Cl6.[37]Cl2.O	OCDPE
2	T	479.7165	M+4	C12.H.[35]Cl7.[37]Cl2.O	NCDPE

ION TABLE: METHODS 1613 & 8290

Group	Trace	m/z	Ion	Composition	Analyte
3	A	441.7428	M+2	C12.[35]Cl7.[37]Cl.O	OCDF
3	B	442.9728	Lock	C10.F17	PFK
3	C	443.7399	M+4	C12.[35]Cl6.[37]Cl2.O	OCDF
3	D	457.7377	M+2	C12.[35]Cl7.[37]Cl.O2	OCDD
3	E	459.7348	M+4	C12.[35]Cl6.[37]Cl2.O2	OCDD
3	F	469.7779	M+2	13C12.[35]Cl7.[37]Cl.O2	OCDD (LC)
3	G	471.7750	M+4	13C12.[35]Cl6.[37]Cl2.O2	OCDD (LC)
3	H	513.6775	M+4	C12.[35]Cl8.[37]Cl2.O	DCDPE

TCDD = Tetrachlorodibenzo-p-dioxin
PeCD = Pentachlorodibenzo-p-dioxin
HxCD = Hexachlorodibenzo-p-dioxin
HpCD = Heptachlorodibenzo-p-dioxin
OCDD = Octachlorodibenzo-p-dioxin

TCDD = Tetrachlorodibenzofuran
PeCD = Pentachlorodibenzofuran

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HxCD = Hexachlorodibenzofuran
HpCD = Heptachlorodibenzofuran
OCDD = Octachlorodibenzofuran

HxCD = Hexachlorodiphenyl ether
HpCD = Heptachlorodiphenyl ether
OCDP = Octachlorodiphenyl ether
NCDP = Nonachlorodiphenyl ether
DCDP = Decachlorodiphenyl ether

PFK = Perfluorokerosene

CS = Cleanup standard
IS = Internal standard
LC = Labeled compound

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Precision and Recovery Spiking Solution

ANALYTES	Solution concentration (ng/mL)	Volume spiked (mL)	Total amount spiked (ng)
2378-TCDD	2	0.100	0.2
12378-PeCDD	10	0.100	1.0
123478-HxCDD	10	0.100	1.0
123678-HxCDD	10	0.100	1.0
123789-HxCDD	10	0.100	1.0
1234678-HpCDD	10	0.100	1.0
OCDD	20	0.100	2.0
2378-TCDF	2	0.100	0.2
12378-PeCDF	10	0.100	1.0
23478-PeCDF	10	0.100	1.0
123478-HxCDF	10	0.100	1.0
123678-HxCDF	10	0.100	1.0
234678-HxCDF	10	0.100	1.0
123789-HxCDF	10	0.100	1.0
1234678-HpCDF	10	0.100	1.0
1234789-HpCDF	10	0.100	1.0
OCDF	20	0.100	2.0

Labeled Compound Spiking Solution

LABELED COMPOUNDS	Solution concentration (ng/mL)	Volume spiked (mL)	Total amount spiked (ng)
13C12-2378-TCDD	20	0.100	2.0
13C12-12378-PeCDD	20	0.100	2.0
13C12-123478-HxCDD	20	0.100	2.0
13C12-123678-HxCDD	20	0.100	2.0
13C12-1234678-HpCDD	20	0.100	2.0
13C12-OCDD	40	0.100	4.0
13C12-2378-TCDF	20	0.100	2.0
13C12-12378-PeCDF	20	0.100	2.0
13C12-23478-PeCDF	20	0.100	2.0
13C12-123478-HxCDF	20	0.100	2.0
13C12-123678-HxCDF	20	0.100	2.0
13C12-234678-HxCDF	20	0.100	2.0
13C12-123789-HxCDF	20	0.100	2.0
12C12-1234678-HpCDF	20	0.100	2.0
13C12-1234789-HpCDF	20	0.100	2.0

Cleanup Standard Spiking Solution

CLEANUP STANDARD	Solution concentration (ng/mL)	Volume spiked (mL)	Total amount spiked (ng)
37Cl4-2378-TCDD	8	0.100	0.8

Internal Standard Spiking Solution

INTERNAL STANDARDS	Solution concentration (ng/mL)	Volume spiked (mL)	Total amount spiked (ng)
13C12-1234-TCDD	80	0.025	2.0
13C12-123789-HxCDD	80	0.025	2.0

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EXAMPLE CALCULATIONS

For the initial calibration, the following equation is used to determine the relative response factor for an analyte at a given concentration:

$$RRFx = \frac{Ax \times Qis}{Ais \times Qx}$$

where
- RRFx = relative response factor for the analyte
- Ax = sum of the areas for monitored ions of the analyte
- Ais = sum of the areas for monitored ions of the internal standar
- Qx = quantity of the analyte
- Qis = quantity of the internal standard

let
- Ax = [760 + 1000]
- Ais = [700 + 940]
- Qx = 2000 pg
- Qis = 2000 pg

then

$$RRFx = \frac{[760 + 1000] \times 2000}{[700 + 940] \times 2000}$$

$$= 1.073$$

The mean relative response factor used for calculating analyte concentrations from a sample analysis is determined as follows:

$$\overline{RRFx} = \frac{\sum_{i=1}^{5} RRFxi}{5}$$

where
- $\overline{RRFx}$ = mean RRFx
- i = the calibration level (from 1 to 5)

thus if

RRFx1	1.1
RRFx2	1.11
RRFx3	1.05
RRFx4	1
RRFx5	1.2

then

$$\overline{RRFx} = \frac{[1.100+1.110+1.050+1.000+1.200]}{5}$$

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= 1.092

Percent relative standard deviation can then be calculated as follows:

$$\%RSD = \frac{(\text{standard deviation} \times 100)}{\overline{RRFX}}$$

thus for the RRF data presented above:

$$\%RSD = (.0746 \times 100, 1.092)$$

$$= 6.80\%$$

When calculating the percent difference between the daily calibration value and initial calibration response factors, the following formula applies:

$$\%D = \frac{[RRFi - RRFc] \times 100}{RRFi}$$

where
- %D = relative percent difference
- RRFi = mean RRF from initial calibration
- RRFc = RRF from daily calibration

Thus if
- RRFi = 1.092
- RRFc = 1.21

then

$$\%D = \frac{=[1.092\text{-}1.210] \times 100}{1.092}$$

$$=\text{-}10.8\%$$

Concentration for an analyte is determined using the following equation:

$$Cx = \frac{Ax \times Qis}{Ais \times \overline{RRFx} \times W}$$

where
- Cx = Concentration of the analyte
- W = weight (Kg) or Volume (Liters)

thus if
- Ax = [760 + 1000]
- Ais = [1500 + 1800]
- Qis = 2000 pg
- $\overline{RRFx}$ = 1.2

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W = 1 L

then $Cx = \frac{[760 + 1000] \times 2000}{[1500 + 1800] \times 1.200 \times 1}$

$= 888.9$ pg/L (ppq)

Determination of internal standard recovery is made using the formula:

$$Ris = \frac{Ais \times Qrs \times 100}{Ars \times RRFis \times Qis}$$

where
- Ris = percent recovery of the internal standard
- Ais = sum of the areas for monitored ions of the internal standar
- Ars = sum of the areas for monitored ions of the recovery standar
- Qis = quantity of the internal standard
- Qrs = quantity of the recovery standard
- RRFis = mean relative response factor from the initial calibration for the internal standard

Therefore if
- Ais = [760 + 1000]
- Ars = [1500 + 1800]
- Qis = 2000
- Qrs = 2000
- RRFis = 1.15

then $Ris = \frac{[760 + 1000] \times 2000 \times 100}{[1500 + 1800] \times 1.150 \times 2000}$

$= 46.40\%$

The estimated detection limit is determined from the following formula:

$$EDL = \frac{2.5 \times Hx \times Qis}{His \times \overline{RRFx} \times W}$$

where
- EDL = estimated detection limit
- Hx = sum of noise heighths from the analyte channels
- His = sum of the heighths of the internal standard peaks
- Qis = 2000 pg
- $\overline{RRFx}$ = mean RRF of analyte from initial calibration
- W = weight (Kg) or Volume (L)

thus if
- Hx = [1.1+ 1.3]
- His = [500 + 600]
- $\overline{RRFx}$ = 1.092

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W = 1 L

then EDL $= \frac{2.5 \text{ X } [1.1 + 1.3] \text{ X } 2000}{[500 + 600] \text{ X } 1.092 \text{ X } 1}$

= 10.0 pg/L (ppq)

When a peak does not meet the ratio criterion for identification, the EMPC may be calulated using the following equation:

$$\text{EMPC} = \frac{Ax \text{ X } Qis}{Ais \text{ X } \overline{RRFx} \text{ X } W}$$

where the variable definitions are the same as those for calculating Cx above, except that

Ax = sum of:
1) the smallest of the two peak areas for the analyte plus
2) a calculated peak area for the larger peak determined by the theoretical chlorine isotope ratio

thus if
Ax = [950+ 1000]
Ais = [1500 + 1800]
Qis = 2000 pg
$\overline{RRFx}$ = 1.2
W = 1 L

and the analyte is 2,3,7,8-TCDD (having a theoretical chlorine isotope ratio of 0.77), the smallest peak area is 950 area counts, and the calulated area of the larger peak would be 950/0.77 or 1234

then EMPC $= \frac{[950 + 1234] \text{ X } 2000}{[1500 + 1800] \text{ X } 1.200 \text{ X } 1}$

= 1103 pg/L (ppq)

Relative percent difference between the matrix spike and matrix spike duplicate is determined using the following formula:

$$\text{RPD} = \frac{|S1 - S2| \text{ X } 100}{[S1 + S2]/2}$$

where S1 = MS Concentration

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S2 = MSD Concentration

thus if S1 = 200
S2 = 220

then RPD $= \frac{|200\text{-}220| \times 100}{[200 + 220]/2}$

$= 9.5\%$

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SUMMARY REPORT

SCOEPA00009771

URS Greiner Woodward-Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E2000019 **REFERENCE: 92C0804A.00**
FILE: A15869 **SAMPLE: 042-GG-01**
LAB ID.: E2000019-001

Project ID/P.O	92C0804A.00	Date collected:	1/17/00	RTWin / Col Pfm:	A15867
Sample origin:	RPAC Task #44	Date received:	1/19/00	Beginning CCAL:	A15867
Sample matrix	Water	Date extracted:	1/20/00	Ending CCAL:	A15876
Sample size:	0.96 L	Date analyzed:	1/27/00	Initial CAL:	A092899
		Date processed:	1/27/00	Batch Number:	EB60072

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	10.0	ND	146.8	73%	50-150
1,2,3,7,8-PeCDD	-	10.0	ND	796.7	80%	50-150
1,2,3,4,7,8-HxCDD	-	25.0	ND	804.1	80%	50-150
1,2,3,6,7,8-HxCDD	-	25.0	ND	847.5	85%	50-150
1,2,3,7,8,9-HxCDD	-	25.0	ND	917.6	92%	50-150
1,2,3,4,6,7,8-HpCDD	-	25.0	ND	775.4	78%	50-150
OCDD	90.1	50.0	ND	1673.2	84%	50-150
2,3,7,8-TCDF	19.9 J	10.0	ND	155.7	78%	50-150
1,2,3,7,8-PeCDF	-	10.0	ND	817.0	82%	50-150
2,3,4,7,8-PeCDF	-	10.0	ND	778.9	78%	50-150
1,2,3,4,7,8-HxCDF	-	25.0	ND	807.6	81%	50-150
1,2,3,6,7,8-HxCDF	- 4/3/00	25.0	ND	768.9	77%	50-150
2,3,4,6,7,8-HxCDF	-	25.0	ND	802.6	80%	50-150
1,2,3,7,8,9-HxCDF	-	25.0	ND	788.1	79%	50-150
1,2,3,4,6,7,8-HpCDF	-	25.0	ND	888.5	89%	50-150
1,2,3,4,7,8,9-HpCDF	-	25.0	ND	894.0	89%	50-150
OCDF	-	50.0	ND	1617.8	81%	50-150

TOTAL ANALYTES	CONC (PPQ)	MDL (PPQ)
TOTAL TCDD	-	10.0
TOTAL PeCDD	-	10.0
TOTAL HxCDD	-	25.0
TOTAL HpCDD	-	25.0
TOTAL OCDD	90.1	50.0
TOTAL TCDF	19.9	10.0
TOTAL PeCDF	-	10.0
TOTAL HxCDF	-	25.0
TOTAL HpCDF	-	25.0
TOTAL OCDF	-	50.0

Definitions:

CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).

EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).

BLANK — The concentration of the blank.

MS (PPQ) — The concentration of Matrix Spike recovered.

MS (%) — The percent recovery of the Matrix Spike.

ND — (Non-Detect) The concentration of the analyte is less than the detection limit.

NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 109.95 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 2.08 PPQ

SCOEPA00009772

URS Greiner Woodward-Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E2000019
FILE: A15870
LAB ID.: E2000019-002

REFERENCE: 92C0804A.00
SAMPLE: 043-GG-01

Project ID/P.O	92C0804A.00	Date collected:	1/17/00	RTWin / Col Pfm:	A15867
Sample origin:	RPAC Task #44	Date received:	1/19/00	Beginning CCAL:	A15867
Sample matrix	Water	Date extracted:	1/20/00	Ending CCAL:	A15876
Sample size:	0.69 L	Date analyzed:	1/27/00	Initial CAL:	A092899
		Date processed:	1/27/00	Batch Number:	EB60072

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	10.0	ND	146.8	51%	50-150
1,2,3,7,8-PeCDD	-	10.0	ND	796.7	55%	50-150
1,2,3,4,7,8-HxCDD	-	25.0	ND	804.1	55%	50-150
1,2,3,6,7,8-HxCDD	-	25.0	ND	847.5	58%	50-150
1,2,3,7,8,9-HxCDD	-	25.0	ND	917.6	63%	50-150
1,2,3,4,6,7,8-HpCDD	-	25.0	ND	775.4	54%	50-150
OCDD	66.0	50.0	ND	1673.2	58%	50-150
2,3,7,8-TCDF	12.7 J	10.0	ND	155.7	54%	50-150
1,2,3,7,8-PeCDF	-	10.0	ND	817.0	56%	50-150
2,3,4,7,8-PeCDF	-	10.0	ND	778.9	54%	50-150
1,2,3,4,7,8-HxCDF	-	25.0	ND	807.6	56%	50-150
1,2,3,6,7,8-HxCDF	-	25.0	ND	768.9	53%	50-150
2,3,4,6,7,8-HxCDF	-	25.0	ND	802.6	55%	50-150
1,2,3,7,8,9-HxCDF	-	25.0	ND	788.1	54%	50-150
1,2,3,4,6,7,8-HpCDF	-	25.0	ND	888.5	61%	50-150
1,2,3,4,7,8,9-HpCDF	-	25.0	ND	894.0	62%	50-150
OCDF	-	50.0	ND	1617.8	56%	50-150

TOTAL ANALYTES	CONC (PPQ)	MDL (PPQ)
TOTAL TCDD	-	10.0
TOTAL PeCDD	-	10.0
TOTAL HxCDD	-	25.0
TOTAL HpCDD	-	25.0
TOTAL OCDD	66.0	50.0
TOTAL TCDF	27.4	10.0
TOTAL PeCDF	-	10.0
TOTAL HxCDF	-	25.0
TOTAL HpCDF	-	25.0
TOTAL OCDF	-	50.0

Definitions:

- **CONC** — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
- **EDL** — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
- **BLANK** — The concentration of the blank.
- **MS (PPQ)** — The concentration of Matrix Spike recovered.
- **MS (%)** — The percent recovery of the Matrix Spike.
- **ND** — (Non-Detect) The concentration of the analyte is less than the detection limit.
- **NR** — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 93.46 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 1.34 PPQ

SCOEPA00009773

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PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E2000019 **REFERENCE: 92C0804A.00**
FILE: A15871 **SAMPLE: 043-GG-02**
LAB ID.: E2000019-003

Project ID/P.O	92C0804A.00	Date collected:	1/17/00	RTWin / Col Pfm:	A15867
Sample origin:	RPAC Task #44	Date received:	1/19/00	Beginning CCAL:	A15867
Sample matrix	Water	Date extracted:	1/20/00	Ending CCAL:	A15876
Sample size:	1 L	Date analyzed:	1/27/00	Initial CAL:	A092899
		Date processed:	1/27/00	Batch Number:	EB60072

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	10.0	ND	146.8	73%	50-150
1,2,3,7,8-PeCDD	-	10.0	ND	796.7	80%	50-150
1,2,3,4,7,8-HxCDD	-	25.0	ND	804.1	80%	50-150
1,2,3,6,7,8-HxCDD	-	25.0	ND	847.5	85%	50-150
1,2,3,7,8,9-HxCDD	-	25.0	ND	917.6	92%	50-150
1,2,3,4,6,7,8-HpCDD	-	25.0	ND	775.4	78%	50-150
OCDD	-	50.0	ND	1673.2	84%	50-150
2,3,7,8-TCDF	-	10.0	ND	155.7	78%	50-150
1,2,3,7,8-PeCDF	-	10.0	ND	817.0	82%	50-150
2,3,4,7,8-PeCDF	-	10.0	ND	778.9	78%	50-150
1,2,3,4,7,8-HxCDF	-	25.0	ND	807.6	81%	50-150
1,2,3,6,7,8-HxCDF	-	25.0	ND	768.9	77%	50-150
2,3,4,6,7,8-HxCDF	-	25.0	ND	802.6	80%	50-150
1,2,3,7,8,9-HxCDF	-	25.0	ND	788.1	79%	50-150
1,2,3,4,6,7,8-HpCDF	-	25.0	ND	888.5	89%	50-150
1,2,3,4,7,8,9-HpCDF	-	25.0	ND	894.0	89%	50-150
OCDF	-	50.0	ND	1617.8	81%	50-150

TOTAL ANALYTES	CONC (PPQ)	MDL (PPQ)
TOTAL TCDD	-	10.0
TOTAL PeCDD	-	10.0
TOTAL HxCDD	-	25.0
TOTAL HpCDD	-	25.0
TOTAL OCDD	-	50.0
TOTAL TCDF	-	10.0
TOTAL PeCDF	-	10.0
TOTAL HxCDF	-	25.0
TOTAL HpCDF	-	25.0
TOTAL OCDF	-	50.0

Definitions:

CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).

EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).

BLANK — The concentration of the blank.

MS (PPQ) — The concentration of Matrix Spike recovered.

MS (%) — The percent recovery of the Matrix Spike.

ND — (Non-Detect) The concentration of the analyte is less than the detection limit.

NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: ND

TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: ND

SCOEPA00009774

URS Greiner Woodward-Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E2000019 **REFERENCE: 92C0804A.00**
FILE: A15873 **SAMPLE: 043-GG-01MS**
LAB ID.: E2000019-004MS

Project ID/P.O	92C0804A.00	Date collected:	1/17/00	RTWin / Col Pfm:	A15867
Sample origin:	RPAC Task #44	Date received:	1/19/00	Beginning CCAL:	A15867
Sample matrix	Water	Date extracted:	1/20/00	Ending CCAL:	A15876
Sample size:	1 L	Date analyzed:	1/27/00	Initial CAL:	A092899
		Date processed:	1/27/00	Batch Number:	EB60072

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MDL (PPQ)	BLANK (PPQ)	MS (PPQ)	MS (%)	QC Limits
2,3,7,8-TCDD	139.2	10.0	ND	139.2	70%	50-150
1,2,3,7,8-PeCDD	738.6	10.0	ND	738.6	74%	50-150
1,2,3,4,7,8-HxCDD	760.0	25.0	ND	760.0	76%	50-150
1,2,3,6,7,8-HxCDD	825.0	25.0	ND	825.0	82%	50-150
1,2,3,7,8,9-HxCDD	934.9	25.0	ND	934.9	93%	50-150
1,2,3,4,6,7,8-HpCDD	733.9	25.0	ND	733.9	73%	50-150
OCDD	1561.6	50.0	ND	1561.6	78%	50-150
2,3,7,8-TCDF	149.1	10.0	ND	149.1	75%	50-150
1,2,3,7,8-PeCDF	781.9	10.0	ND	781.9	78%	50-150
2,3,4,7,8-PeCDF	748.6	10.0	ND	748.6	75%	50-150
1,2,3,4,7,8-HxCDF	757.1	25.0	ND	757.1	76%	50-150
1,2,3,6,7,8-HxCDF	772.1	25.0	ND	772.1	77%	50-150
2,3,4,6,7,8-HxCDF	745.4	25.0	ND	745.4	75%	50-150
1,2,3,7,8,9-HxCDF	756.3	25.0	ND	756.3	76%	50-150
1,2,3,4,6,7,8-HpCDF	828.3	25.0	ND	828.3	83%	50-150
1,2,3,4,7,8,9-HpCDF	812.6	25.0	ND	812.6	81%	50-150
OCDF	1537.5	50.0	ND	1537.5	77%	50-150

TOTAL ANALYTES	CONC (PPQ)	MDL (PPQ)
TOTAL TCDD	145.7	10.0
TOTAL PeCDD	738.6	10.0
TOTAL HxCDD	2519.9	25.0
TOTAL HpCDD	733.9	25.0
TOTAL OCDD	1561.6	50.0
TOTAL TCDF	163.2	10.0
TOTAL PeCDF	1541.1	10.0
TOTAL HxCDF	3030.8	25.0
TOTAL HpCDF	1651.8	25.0
TOTAL OCDF	1537.5	50.0

Definitions:

- **CONC** — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
- **EDL** — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
- **BLANK** — The concentration of the blank.
- **MS (PPQ)** — The concentration of Matrix Spike recovered.
- **MS (%)** — The percent recovery of the Matrix Spike.
- **ND** — (Non-Detect) The concentration of the analyte is less than the detection limit.
- **NR** — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 13624.16 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 1518.7 PPQ

SCOEPA00009775

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PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E2000019 **REFERENCE: 92C0804A.00**
FILE: A15874 **SAMPLE: 043-GG-01MSD**
LAB ID.: E2000019-005MSD

Project ID/P.O	92C0804A.00	Date collected:	1/17/00	RTWin / Col Pfm:	A15867
Sample origin:	RPAC Task #44	Date received:	1/19/00	Beginning CCAL:	A15867
Sample matrix	Water	Date extracted:	1/20/00	Ending CCAL:	A15876
Sample size:	1 L	Date analyzed:	1/27/00	Initial CAL:	A092899
		Date processed:	1/27/00	Batch Number:	EB60072

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MDL (PPQ)	BLANK (PPQ)	MSD (PPQ)	MSD (%)	QC Limits
2,3,7,8-TCDD	152.2	10.0	ND	152.2	76%	50-150
1,2,3,7,8-PeCDD	839.8	10.0	ND	839.8	84%	50-150
1,2,3,4,7,8-HxCDD	821.3	25.0	ND	821.3	82%	50-150
1,2,3,6,7,8-HxCDD	897.8	25.0	ND	897.8	90%	50-150
1,2,3,7,8,9-HxCDD	937.9	25.0	ND	937.9	94%	50-150
1,2,3,4,6,7,8-HpCDD	795.7	25.0	ND	795.7	80%	50-150
OCDD	1688.8	50.0	ND	1688.8	84%	50-150
2,3,7,8-TCDF	156.7	10.0	ND	156.7	78%	50-150
1,2,3,7,8-PeCDF	838.9	10.0	ND	838.9	84%	50-150
2,3,4,7,8-PeCDF	799.7	10.0	ND	799.7	80%	50-150
1,2,3,4,7,8-HxCDF	828.6	25.0	ND	828.6	83%	50-150
1,2,3,6,7,8-HxCDF	829.2	25.0	ND	829.2	83%	50-150
2,3,4,6,7,8-HxCDF	828.3	25.0	ND	828.3	83%	50-150
1,2,3,7,8,9-HxCDF	804.2	25.0	ND	804.2	80%	50-150
1,2,3,4,6,7,8-HpCDF	890.2	25.0	ND	890.2	89%	50-150
1,2,3,4,7,8,9-HpCDF	909.7	25.0	ND	909.7	91%	50-150
OCDF	1662.0	50.0	ND	1662.0	83%	50-150

TOTAL ANALYTES	CONC (PPQ)	MDL (PPQ)
TOTAL TCDD	158.4	10.0
TOTAL PeCDD	847.3	10.0
TOTAL HxCDD	2676.9	25.0
TOTAL HpCDD	795.7	25.0
TOTAL OCDD	1688.8	50.0
TOTAL TCDF	174.3	10.0
TOTAL PeCDF	1656.6	10.0
TOTAL HxCDF	3290.3	25.0
TOTAL HpCDF	1800.0	25.0
TOTAL OCDF	1662.0	50.0

Definitions:

CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).

EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).

BLANK — The concentration of the blank.

MS (PPQ) — The concentration of Matrix Spike recovered.

MS (%) — The percent recovery of the Matrix Spike.

ND — (Non-Detect) The concentration of the analyte is less than the detection limit.

NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 14750.32 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 1653.63 PPQ

SCOEPA00009776

URS Greiner Woodward-Clyde

PCDD/PCDF SUMMARY REPORT

Method 8290

PROJECT: E2000019 **REFERENCE: 92C0804A.00**
FILE: A15872 **SAMPLE: 042-GG-03**
LAB ID.: E2000019-006

Project ID/P.O	92C0804A.00	Date collected:	1/17/00	RTWin / Col Pfm:	A15867
Sample origin:	RPAC Task #44	Date received:	1/19/00	Beginning CCAL:	A15867
Sample matrix	Water	Date extracted:	1/20/00	Ending CCAL:	A15876
Sample size:	1 L	Date analyzed:	1/27/00	Initial CAL:	A092899
		Date processed:	1/27/00	Batch Number:	EB60072

	SAMPLE DATA		QUALITY ASSURANCE DATA			
SPECIFIC ANALYTES	CONC (PPQ)	MDL (PPQ)	BLANK (PPQ)	LS (PPQ)	LS (%)	QC Limits
2,3,7,8-TCDD	-	10.0	ND	146.8	73%	50-150
1,2,3,7,8-PeCDD	-	10.0	ND	796.7	80%	50-150
1,2,3,4,7,8-HxCDD	-	25.0	ND	804.1	80%	50-150
1,2,3,6,7,8-HxCDD	-	25.0	ND	847.5	85%	50-150
1,2,3,7,8,9-HxCDD	-	25.0	ND	917.6	92%	50-150
1,2,3,4,6,7,8-HpCDD	-	25.0	ND	775.4	78%	50-150
OCDD	-	50.0	ND	1673.2	84%	50-150
2,3,7,8-TCDF	8.4 J	10.0	ND	155.7	78%	50-150
1,2,3,7,8-PeCDF	-	10.0	ND	817.0	82%	50-150
2,3,4,7,8-PeCDF	-	10.0	ND	778.9	78%	50-150
1,2,3,4,7,8-HxCDF	-	25.0	ND	807.6	81%	50-150
1,2,3,6,7,8-HxCDF	-	25.0	ND	768.9	77%	50-150
2,3,4,6,7,8-HxCDF	-	25.0	ND	802.6	80%	50-150
1,2,3,7,8,9-HxCDF	-	25.0	ND	788.1	79%	50-150
1,2,3,4,6,7,8-HpCDF	-	25.0	ND	888.5	89%	50-150
1,2,3,4,7,8,9-HpCDF	-	25.0	ND	894.0	89%	50-150
OCDF	-	50.0	ND	1617.8	81%	50-150

TOTAL ANALYTES	CONC (PPQ)	MDL (PPQ)
TOTAL TCDD	-	10.0
TOTAL PeCDD	-	10.0
TOTAL HxCDD	-	25.0
TOTAL HpCDD	-	25.0
TOTAL OCDD	-	50.0
TOTAL TCDF	16.9	10.0
TOTAL PeCDF	-	10.0
TOTAL HxCDF	-	25.0
TOTAL HpCDF	-	25.0
TOTAL OCDF	-	50.0

Definitions:

CONC — The concentration, given in parts per trillion (ppt) or parts per quadrillion (ppq).
EDL — The estimated detection limit, given in parts per trillion (ppt), parts per quadrillion (ppq), or in picograms (pg).
BLANK — The concentration of the blank.
MS (PPQ) — The concentration of Matrix Spike recovered.
MS (%) — The percent recovery of the Matrix Spike.
ND — (Non-Detect) The concentration of the analyte is less than the detection limit.
NR — (Not Reportable) The spike concentration is less than the concentration in the unspiked matrix sample.

TOTAL DIOXINS/FURANS: 16.9 PPQ
TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 0.84 PPQ

SCOEPA00009777

ANALYSIS REPORT

SCOEPA00009778

URS Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

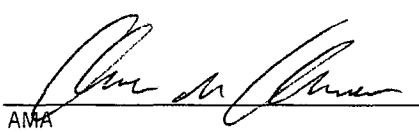
Method 8290

PROJECT: E2000019 **REFERENCE: 92C0804A.00**
FILE: A15869 **SAMPLE: 042-GG-01**
LAB ID.: E2000019-001

Project ID/P.O.:	92C0804A.00	Date collected:	1/17/00	RTWin / Col Pfm:	A15867
Sample origin:	RPAC Task #44	Date received:	1/19/00	Beginning CCAL:	A15867
Sample matrix:	Water	Date extracted:	1/20/00	Ending CCAL:	A15876
Sample size:	0.96 L	Date analyzed:	1/27/00	Initial CAL:	A092899
		Date processed:	1/27/00	Batch Number:	EB60072

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	90.1	50.0	0.80	38:52	J
2,3,7,8-TCDF	-	19.9	10.0	0.70	20:16	J
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	MDL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	1	19.9	10.0	
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER:  2/15/00
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URS Greiner Woodward-Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E2000019 **REFERENCE: 92C0804A.00**
FILE: A15869 **SAMPLE: 042-GG-01**
LAB ID.: E2000019-001

Project ID/P.O.:	92C0804A.00	Date collected:	1/17/00	RTWin / Col Pfm:	A15867
Sample origin:	RPAC Task #44	Date received:	1/19/00	Beginning CCAL:	A15867
Sample matrix:	Water	Date extracted:	1/20/00	Ending CCAL:	A15876
Sample size:	0.96 L	Date analyzed:	1/27/00	Initial CAL:	A092899
		Date processed:	1/27/00	Batch Number:	EB60072

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1152.6	55.3	0.81	20:51	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	1815.7	87.2	1.60	25:25	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1232.3	59.2	1.25	29:46	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1128.0	54.1	1.28	29:53	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1373.1	65.9	1.13	34:28	-
$^{13}C_{12}$-OCDD	1706.9	41.0	0.88	38:50	-
$^{13}C_{12}$-2,3,7,8-TCDF	864.3	41.5	0.78	20:13	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1368.6	65.7	1.75	24:10	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1418.4	68.1	1.65	25:01	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	973.7	46.7	0.47	28:43	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	943.5	45.3	0.49	28:51	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	914.3	43.9	0.48	29:35	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	958.0	46.0	0.47	30:40	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1083.5	52.0	0.45	33:02	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1289.2	61.9	0.44	35:04	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.82	20:40	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.27	30:19	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	516.9	62.0	20:52	-

SCOEPA00009780

URS Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E2000019 **REFERENCE: 92C0804A.00**
FILE: A15870 **SAMPLE: 043-GG-01**
LAB ID.: E2000019-002

Project ID/P.O.:	92C0804A.00	Date collected:	1/17/00	RTWin / Col Pfm:	A15867
Sample origin:	RPAC Task #44	Date received:	1/19/00	Beginning CCAL:	A15867
Sample matrix:	Water	Date extracted:	1/20/00	Ending CCAL:	A15876
Sample size:	0.69 L	Date analyzed:	1/27/00	Initial CAL:	A092899
		Date processed:	1/27/00	Batch Number:	EB60072

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	66.0	50.0	0.92	38:50	J
2,3,7,8-TCDF	-	12.7	10.0	0.78	20:12	J
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	MDL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	2	27.4	10.0	
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 2/15/00

SCOEPA00009781

URS Greiner Woodward-Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E2000019 **REFERENCE: 92C0804A.00**
FILE: A15870 **SAMPLE: 043-GG-01**
LAB ID.: E2000019-002

Project ID/P.O.:	92C0804A.00	Date collected:	1/17/00	RTWin / Col Pfm:	A15867
Sample origin:	RPAC Task #44	Date received:	1/19/00	Beginning CCAL:	A15867
Sample matrix:	Water	Date extracted:	1/20/00	Ending CCAL:	A15876
Sample size:	0.69 L	Date analyzed:	1/27/00	Initial CAL:	A092899
		Date processed:	1/27/00	Batch Number:	EB60072

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	2132.3	73.6	0.79	20:48	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	3426.7	118.2	1.61	25:23	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	2818.0	97.2	1.26	29:44	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1805.8	62.3	1.28	29:51	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2292.4	79.1	1.08	34:27	-
$^{13}C_{12}$-OCDD	2424.0	41.8	0.89	38:49	-
$^{13}C_{12}$-2,3,7,8-TCDF	1590.9	54.9	0.76	20:11	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	2402.4	82.9	1.74	24:08	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	2593.0	89.5	1.70	24:59	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	2164.2	74.7	0.48	28:41	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1521.7	52.5	0.48	28:50	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1814.5	62.6	0.47	29:33	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1816.3	62.7	0.48	30:39	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1784.5	61.6	0.45	33:01	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	2129.8	73.5	0.44	35:03	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.83	20:38	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.28	30:18	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	734.4	63.3	20:49	-

SCOEPA00009782

URS Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E2000019
FILE: A15871
LAB ID.: E2000019-003

REFERENCE: 92C0804A.00
SAMPLE: 043-GG-02

Project ID/P.O.:	92C0804A.00	Date collected:	1/17/00	RTWin / Col Pfm:	A15867
Sample origin:	RPAC Task #44	Date received:	1/19/00	Beginning CCAL:	A15867
Sample matrix:	Water	Date extracted:	1/20/00	Ending CCAL:	A15876
Sample size:	1 L	Date analyzed:	1/27/00	Initial CAL:	A092899
		Date processed:	1/27/00	Batch Number:	EB60072

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	-	50.0	-		U
2,3,7,8-TCDF	-	-	10.0	-		U
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	MDL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	0	-	10.0	U
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 2/15/00

SCOEPA00009783

URS Greiner Woodward-Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E2000019 **REFERENCE: 92C0804A.00**
FILE: A15871 **SAMPLE: 043-GG-02**
LAB ID.: E2000019-003

Project ID/P.O.:	92C0804A.00	Date collected:	1/17/00	RTWin / Col Pfm:	A15867
Sample origin:	RPAC Task #44	Date received:	1/19/00	Beginning CCAL:	A15867
Sample matrix:	Water	Date extracted:	1/20/00	Ending CCAL:	A15876
Sample size:	1 L	Date analyzed:	1/27/00	Initial CAL:	A092899
		Date processed:	1/27/00-	Batch Number:	EB60072

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1508.5	75.4	0.80	20:53	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2518.4	125.9	1.61	25:26	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1827.6	91.4	1.28	29:47	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1600.5	80.0	1.28	29:53	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1839.3	92.0	1.08	34:29	-
$^{13}C_{12}$-OCDD	2079.0	52.0	0.91	38:50	-
$^{13}C_{12}$-2,3,7,8-TCDF	1036.9	51.8	0.75	20:16	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1848.3	92.4	1.74	24:12	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1933.6	96.7	1.62	25:03	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1384.2	69.2	0.48	28:44	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1354.0	67.7	0.49	28:53	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1280.1	64.0	0.48	29:36	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1457.6	72.9	0.48	30:41	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1382.3	69.1	0.45	33:03	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1763.5	88.2	0.43	35:05	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.81	20:42	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.28	30:20	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	488.8	61.1	20:53	-

SCOEPA00009784

URS Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

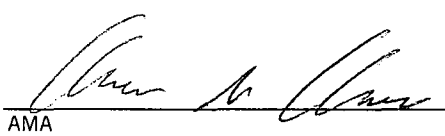
Method 8290

PROJECT: E2000019 **REFERENCE: 92C0804A.00**
FILE: A15873 **SAMPLE: 043-GG-01MS**
LAB ID.: E2000019-004MS

Project ID/P.O.:	92C0804A.00	Date collected:	1/17/00	RTWin / Col Pfm:	A15867
Sample origin:	RPAC Task #44	Date received:	1/19/00	Beginning CCAL:	A15867
Sample matrix:	Water	Date extracted:	1/20/00	Ending CCAL:	A15876
Sample size:	1 L	Date analyzed:	1/27/00	Initial CAL:	A092899
		Date processed:	1/27/00	Batch Number:	EB60072

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	139.2	10.0	0.80	20:44	
1,2,3,7,8-PeCDD	-	738.6	10.0	1.53	25:19	
1,2,3,4,7,8-HxCDD	-	760.0	25.0	1.35	29:39	
1,2,3,6,7,8-HxCDD	-	825.0	25.0	1.27	29:46	
1,2,3,7,8,9-HxCDD	-	934.9	25.0	1.27	30:13	
1,2,3,4,6,7,8-HpCDD	-	733.9	25.0	1.07	34:22	
OCDD	-	1561.6	50.0	0.89	38:44	
2,3,7,8-TCDF	-	149.1	10.0	0.80	20:08	
1,2,3,7,8-PeCDF	-	781.9	10.0	1.54	24:04	
2,3,4,7,8-PeCDF	-	748.6	10.0	1.56	24:56	
1,2,3,4,7,8-HxCDF	-	757.1	25.0	1.18	28:37	
1,2,3,6,7,8-HxCDF	-	772.1	25.0	1.12	28:46	
2,3,4,6,7,8-HxCDF	-	745.4	25.0	1.19	29:29	
1,2,3,7,8,9-HxCDF	-	756.3	25.0	1.12	30:34	
1,2,3,4,6,7,8-HpCDF	-	828.3	25.0	1.10	32:56	
1,2,3,4,7,8,9-HpCDF	-	812.6	25.0	1.07	34:58	
OCDF	-	1537.5	50.0	0.89	38:55	

TOTAL ANALYTES	NO	CONC (PPQ)	MDL (PPQ)	FLAGS
TOTAL TCDD	2	145.7	10.0	
TOTAL PeCDD	1	738.6	10.0	
TOTAL HxCDD	3	2519.9	25.0	
TOTAL HpCDD	1	733.9	25.0	
TOTAL TCDF	3	163.2	10.0	
TOTAL PeCDF	3	1541.1	10.0	
TOTAL HxCDF	4	3030.8	25.0	
TOTAL HpCDF	3	1651.8	25.0	

DATA REVIEWER:  2/15/00
AMA

SCOEPA00009785

URS Greiner Woodward-Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E2000019 **REFERENCE: 92C0804A.00**
FILE: A15873 **SAMPLE: 043-GG-01MS**
LAB ID.: E2000019-004MS

Project ID/P.O.:	92C0804A.00	Date collected:	1/17/00	RTWin / Col Pfm:	A15867
Sample origin:	RPAC Task #44	Date received:	1/19/00	Beginning CCAL:	A15867
Sample matrix:	Water	Date extracted:	1/20/00	Ending CCAL:	A15876
Sample size:	1 L	Date analyzed:	1/27/00	Initial CAL:	A092899
		Date processed:	1/27/00	Batch Number:	EB60072

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1501.9	75.1	0.80	20:43	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2419.8	121.0	1.66	25:18	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1751.4	87.6	1.27	29:39	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1381.6	69.1	1.29	29:45	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1815.0	90.8	1.08	34:21	-
$^{13}C_{12}$-OCDD	1933.7	48.3	0.90	38:43	-
$^{13}C_{12}$-2,3,7,8-TCDF	1064.7	53.2	0.76	20:07	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1759.9	88.0	1.71	24:03	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1803.3	90.2	1.71	24:55	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1346.1	67.3	0.49	28:36	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1180.4	59.0	0.49	28:45	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1289.4	64.5	0.49	29:28	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1365.9	68.3	0.47	30:33	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1535.3	76.8	0.45	32:55	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1759.4	88.0	0.45	34:58	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.80	20:33	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.29	30:13	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	493.9	61.7	20:44	-

SCOEPA00009786

URS Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E2000019 **REFERENCE: 92C0804A.00**
FILE: A15874 **SAMPLE: 043-GG-01MSD**
LAB ID.: E2000019-005MSD

Project ID/P.O.:	92C0804A.00	Date collected:	1/17/00	RTWin / Col Pfm:	A15867
Sample origin:	RPAC Task #44	Date received:	1/19/00	Beginning CCAL:	A15867
Sample matrix:	Water	Date extracted:	1/20/00	Ending CCAL:	A15876
Sample size:	1 L	Date analyzed:	1/27/00	Initial CAL:	A092899
		Date processed:	1/27/00	Batch Number:	EB60072

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	152.2	10.0	0.79	20:45	
1,2,3,7,8-PeCDD	-	839.8	10.0	1.54	25:20	
1,2,3,4,7,8-HxCDD	-	821.3	25.0	1.29	29:40	
1,2,3,6,7,8-HxCDD	-	897.8	25.0	1.31	29:47	
1,2,3,7,8,9-HxCDD	-	937.9	25.0	1.32	30:14	
1,2,3,4,6,7,8-HpCDD	-	795.7	25.0	1.03	34:23	
OCDD	-	1688.8	50.0	0.90	38:45	
2,3,7,8-TCDF	-	156.7	10.0	0.81	20:09	
1,2,3,7,8-PeCDF	-	838.9	10.0	1.55	24:06	
2,3,4,7,8-PeCDF	-	799.7	10.0	1.56	24:56	
1,2,3,4,7,8-HxCDF	-	828.6	25.0	1.17	28:38	
1,2,3,6,7,8-HxCDF	-	829.2	25.0	1.16	28:46	
2,3,4,6,7,8-HxCDF	-	828.3	25.0	1.14	29:30	
1,2,3,7,8,9-HxCDF	-	804.2	25.0	1.13	30:35	
1,2,3,4,6,7,8-HpCDF	-	890.2	25.0	1.10	32:57	
1,2,3,4,7,8,9-HpCDF	-	909.7	25.0	1.07	34:59	
OCDF	-	1662.0	50.0	0.90	38:55	

TOTAL ANALYTES	NO	CONC (PPQ)	MDL (PPQ)	FLAGS
TOTAL TCDD	2	158.4	10.0	
TOTAL PeCDD	2	847.3	10.0	
TOTAL HxCDD	4	2676.9	25.0	
TOTAL HpCDD	1	795.7	25.0	
TOTAL TCDF	3	174.3	10.0	
TOTAL PeCDF	5	1656.6	10.0	
TOTAL HxCDF	4	3290.3	25.0	
TOTAL HpCDF	2	1800.0	25.0	

DATA REVIEWER: AMA 2/15/00

SCOEPA00009787

URS Greiner Woodward-Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E2000019 **REFERENCE: 92C0804A.00**
FILE: A15874 **SAMPLE: 043-GG-01MSD**
LAB ID.: E2000019-005MSD

Project ID/P.O.:	92C0804A.00	Date collected:	1/17/00	RTWin / Col Pfm:	A15867
Sample origin:	RPAC Task #44	Date received:	1/19/00	Beginning CCAL:	A15867
Sample matrix:	Water	Date extracted:	1/20/00	Ending CCAL:	A15876
Sample size:	1 L	Date analyzed:	1/27/00	Initial CAL:	A092899
		Date processed:	1/27/00	Batch Number:	EB60072

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1503.2	75.2	0.81	20:44	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2523.2	126.2	1.60	25:19	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1994.9	99.7	1.27	29:39	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1507.8	75.4	1.28	29:46	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2040.3	102.0	1.07	34:22	-
$^{13}C_{12}$-OCDD	1973.1	49.3	0.90	38:44	-
$^{13}C_{12}$-2,3,7,8-TCDF	1107.2	55.4	0.76	20:08	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1855.4	92.8	1.75	24:04	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1913.7	95.7	1.68	24:55	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1424.4	71.2	0.47	28:37	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1259.1	63.0	0.48	28:45	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1411.7	70.6	0.49	29:29	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1394.3	69.7	0.48	30:34	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1427.8	71.4	0.45	32:56	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1645.4	82.3	0.45	34:59	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.83	20:34	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.26	30:13	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	482.5	60.3	20:45	-

SCOEPA00009788

PERCENT DIFFERENCE

FOR

MATRIX SPIKE / MATRIX SPIKE DUPLICATE

Specific analytes	E2000019-004MS/005MSD				Percent Difference	Range
	Conc (ppt)	Rec (%)	Conc (ppt)	Rec (%)		
2,3,7,8-TCDD	139.16	70%	152.22	76%	9%	50
1,2,3,7,8-PeCDD	738.59	74%	839.81	84%	13%	50
1,2,3,4,7,8-HxCDD	759.97	76%	821.27	82%	8%	50
1,2,3,6,7,8-HxCDD	825.00	82%	897.79	90%	8%	50
1,2,3,7,8,9-HxCDD	934.89	93%	937.90	94%	0%	50
1,2,3,4,6,7,8-HpCDD	733.90	73%	795.68	80%	8%	50
OCDD	1561.60	78%	1688.77	84%	8%	50
2,3,7,8-TCDF	149.06	75%	156.70	78%	5%	50
1,2,3,7,8-PeCDF	781.89	78%	838.90	84%	7%	50
2,3,4,7,8-PeCDF	748.63	75%	799.70	80%	7%	50
1,2,3,4,7,8-HxCDF	757.05	76%	828.60	83%	9%	50
1,2,3,6,7,8-HxCDF	772.10	77%	829.24	83%	7%	50
2,3,4,6,7,8-HxCDF	745.41	75%	828.27	83%	11%	50
1,2,3,7,8,9-HxCDF	756.28	76%	804.22	80%	6%	50
1,2,3,4,6,7,8-HpCDF	828.29	83%	890.22	89%	7%	50
1,2,3,4,7,8,9-HpCDF	812.60	81%	909.73	91%	11%	50
OCDF	1537.46	77%	1662.04	83%	8%	50

SCOEPA00009789

URS Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E2000019 **REFERENCE: 92C0804A.00**
FILE: A15872 **SAMPLE: 042-GG-03**
LAB ID.: E2000019-006

Project ID/P.O.:	92C0804A.00	Date collected:	1/17/00	RTWin / Col Pfm:	A15867
Sample origin:	RPAC Task #44	Date received:	1/19/00	Beginning CCAL:	A15867
Sample matrix:	Water	Date extracted:	1/20/00	Ending CCAL:	A15876
Sample size:	1 L	Date analyzed:	1/27/00	Initial CAL:	A092899
		Date processed:	1/27/00	Batch Number:	EB60072

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	MDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	-	50.0	-		U
2,3,7,8-TCDF	-	8.4	10.0	0.71	20:11	J
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	MDL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	2	16.9	10.0	
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 2/15/00

SCOEPA00009790

URS Greiner Woodward-Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E2000019 **REFERENCE: 92C0804A.00**
FILE: A15872 **SAMPLE: 042-GG-03**
LAB ID.: E2000019-006

Project ID/P.O.:	92C0804A.00	Date collected:	1/17/00	RTWin / Col Pfm:	A15867
Sample origin:	RPAC Task #44	Date received:	1/19/00	Beginning CCAL:	A15867
Sample matrix:	Water	Date extracted:	1/20/00	Ending CCAL:	A15876
Sample size:	1 L	Date analyzed:	1/27/00	Initial CAL:	A092899
		Date processed:	1/27/00	Batch Number:	EB60072

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1436.8	71.8	0.81	20:46	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2238.9	111.9	1.63	25:20	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	2002.9	100.1	1.27	29:41	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1542.8	77.1	1.29	29:47	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1830.6	91.5	1.08	34:23	-
$^{13}C_{12}$-OCDD	1739.3	43.5	0.89	38:44	-
$^{13}C_{12}$-2,3,7,8-TCDF	1033.8	51.7	0.78	20:09	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1638.9	81.9	1.73	24:06	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1671.7	83.6	1.65	24:57	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1386.9	69.3	0.53	28:38	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1285.1	64.3	0.44	28:47	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1317.3	65.9	0.49	29:30	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1399.2	70.0	0.49	30:35	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1365.5	68.3	0.44	32:57	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1617.8	80.9	0.44	34:59	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.80	20:35	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.25	30:14	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	507.9	63.5	20:46	-

SCOEPA00009791

TOXICITY EQUIVALENCE REPORT

SCOEPA00009792

URS Greiner Woodward-Clyde

PCDD/PCDF TOXICITY EQUIVALENCE REPORT
Method 8290

PROJECT: E2000019 **REFERENCE: 92C0804A.00**
FILE: A15869 **SAMPLE: 042-GG-01**
LAB ID.: E2000019-001

Project ID/P.O.:	92C0804A.00	Date collected:	1/17/00	RTWin / Col Pfm:	A15867
Sample origin:	RPAC Task #44	Date received:	1/19/00	Beginning CCAL:	A15867
Sample matrix:	Water	Date extracted:	1/20/00	Ending CCAL:	A15876
Sample size:	0.96 L	Date analyzed:	1/27/00	Initial CAL:	A092899
		Date processed:	1/27/00	Batch Number:	EB60072

SPECIFIC ANALYTES	CONC (PPQ)		TEF		TEF CONC (PPQ)
2,3,7,8-TCDD	0.0	x	1	=	-
1,2,3,7,8-PeCDD	0.0	x	0.5	=	-
1,2,3,4,7,8-HxCDD	0.0	x	0.1	=	-
1,2,3,6,7,8-HxCDD	0.0	x	0.1	=	-
1,2,3,7,8,9-HxCDD	0.0	x	0.1	=	-
1,2,3,4,6,7,8-HpCDD	0.0	x	0.01	=	-
OCDD	90.1	x	0.001	=	0.09
2,3,7,8-TCDF	19.9	x	0.1	=	1.99
1,2,3,7,8-PeCDF	0.0	x	0.05	=	-
2,3,4,7,8-PeCDF	0.0	x	0.5	=	-
1,2,3,4,7,8-HxCDF	0.0	x	0.1	=	-
1,2,3,6,7,8-HxCDF	0.0	x	0.1	=	-
2,3,4,6,7,8-HxCDF	0.0	x	0.1	=	-
1,2,3,7,8,9-HxCDF	0.0	x	0.1	=	-
1,2,3,4,6,7,8-HpCDF	0.0	x	0.01	=	-
1,2,3,4,7,8,9-HpCDF	0.0	x	0.01	=	-
OCDF	0.0	x	0.001	=	-

TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 2.08 PPQ

SCOEPA00009793

URS Greiner Woodward-Clyde

PCDD/PCDF TOXICITY EQUIVALENCE REPORT
Method 8290

PROJECT: E2000019
FILE: A15870
LAB ID.: E2000019-002

REFERENCE: 92C0804A.00
SAMPLE: 043-GG-01

Project ID/P.O.:	92C0804A.00	Date collected:	1/17/00	RTWin / Col Pfm:	A15867
Sample origin:	RPAC Task #44	Date received:	1/19/00	Beginning CCAL:	A15867
Sample matrix:	Water	Date extracted:	1/20/00	Ending CCAL:	A15876
Sample size:	0.69 L	Date analyzed:	1/27/00	Initial CAL:	A092899
		Date processed:	1/27/00	Batch Number:	EB60072

SPECIFIC ANALYTES	CONC (PPQ)		TEF		TEF CONC (PPQ)
2,3,7,8-TCDD	0.0	x	1	=	-
1,2,3,7,8-PeCDD	0.0	x	0.5	=	-
1,2,3,4,7,8-HxCDD	0.0	x	0.1	=	-
1,2,3,6,7,8-HxCDD	0.0	x	0.1	=	-
1,2,3,7,8,9-HxCDD	0.0	x	0.1	=	-
1,2,3,4,6,7,8-HpCDD	0.0	x	0.01	=	-
OCDD	66.0	x	0.001	=	0.07
2,3,7,8-TCDF	12.7	x	0.1	=	1.27
1,2,3,7,8-PeCDF	0.0	x	0.05	=	-
2,3,4,7,8-PeCDF	0.0	x	0.5	=	-
1,2,3,4,7,8-HxCDF	0.0	x	0.1	=	-
1,2,3,6,7,8-HxCDF	0.0	x	0.1	=	-
2,3,4,6,7,8-HxCDF	0.0	x	0.1	=	-
1,2,3,7,8,9-HxCDF	0.0	x	0.1	=	-
1,2,3,4,6,7,8-HpCDF	0.0	x	0.01	=	-
1,2,3,4,7,8,9-HpCDF	0.0	x	0.01	=	-
OCDF	0.0	x	0.001	=	-

TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 1.34 PPQ

SCOEPA00009794

URS Greiner Woodward-Clyde

PCDD/PCDF TOXICITY EQUIVALENCE REPORT
Method 8290

PROJECT: E2000019 **REFERENCE: 92C0804A.00**
FILE: A15871 **SAMPLE: 043-GG-02**
LAB ID.: E2000019-003

Project ID/P.O.:	92C0804A.00	Date collected:	1/17/00	RTWin / Col Pfm:	A15867
Sample origin:	RPAC Task #44	Date received:	1/19/00	Beginning CCAL:	A15867
Sample matrix:	Water	Date extracted:	1/20/00	Ending CCAL:	A15876
Sample size:	1 L	Date analyzed:	1/27/00	Initial CAL:	A092899
		Date processed:	1/27/00	Batch Number:	EB60072

SPECIFIC ANALYTES	CONC (PPQ)		TEF		TEF CONC (PPQ)
2,3,7,8-TCDD	0.0	x	1	=	-
1,2,3,7,8-PeCDD	0.0	x	0.5	=	-
1,2,3,4,7,8-HxCDD	0.0	x	0.1	=	-
1,2,3,6,7,8-HxCDD	0.0	x	0.1	=	-
1,2,3,7,8,9-HxCDD	0.0	x	0.1	=	-
1,2,3,4,6,7,8-HpCDD	0.0	x	0.01	=	-
OCDD	0.0	x	0.001	=	-
2,3,7,8-TCDF	0.0	x	0.1	=	-
1,2,3,7,8-PeCDF	0.0	x	0.05	=	-
2,3,4,7,8-PeCDF	0.0	x	0.5	=	-
1,2,3,4,7,8-HxCDF	0.0	x	0.1	=	-
1,2,3,6,7,8-HxCDF	0.0	x	0.1	=	-
2,3,4,6,7,8-HxCDF	0.0	x	0.1	=	-
1,2,3,7,8,9-HxCDF	0.0	x	0.1	=	-
1,2,3,4,6,7,8-HpCDF	0.0	x	0.01	=	-
1,2,3,4,7,8,9-HpCDF	0.0	x	0.01	=	-
OCDF	0.0	x	0.001	=	-

TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: ND

SCOEPA00009795

URS Greiner Woodward-Clyde

PCDD/PCDF TOXICITY EQUIVALENCE REPORT
Method 8290

PROJECT: E2000019 **REFERENCE: 92C0804A.00**
FILE: A15873 **SAMPLE: 043-GG-01MS**
LAB ID.: E2000019-004MS

Project ID/P.O.:	92C0804A.00	Date collected:	1/17/00	RTWin / Col Pfm:	A15867
Sample origin:	RPAC Task #44	Date received:	1/19/00	Beginning CCAL:	A15867
Sample matrix:	Water	Date extracted:	1/20/00	Ending CCAL:	A15876
Sample size:	1 L	Date analyzed:	1/27/00	Initial CAL:	A092899
		Date processed:	1/27/00	Batch Number:	EB60072

SPECIFIC ANALYTES	CONC (PPQ)		TEF		TEF CONC (PPQ)
2,3,7,8-TCDD	139.2	x	1	=	139.16
1,2,3,7,8-PeCDD	738.6	x	0.5	=	369.3
1,2,3,4,7,8-HxCDD	760.0	x	0.1	=	76
1,2,3,6,7,8-HxCDD	825.0	x	0.1	=	82.5
1,2,3,7,8,9-HxCDD	934.9	x	0.1	=	93.49
1,2,3,4,6,7,8-HpCDD	733.9	x	0.01	=	7.34
OCDD	1561.6	x	0.001	=	1.56
2,3,7,8-TCDF	149.1	x	0.1	=	14.91
1,2,3,7,8-PeCDF	781.9	x	0.05	=	39.09
2,3,4,7,8-PeCDF	748.6	x	0.5	=	374.31
1,2,3,4,7,8-HxCDF	757.1	x	0.1	=	75.71
1,2,3,6,7,8-HxCDF	772.1	x	0.1	=	77.21
2,3,4,6,7,8-HxCDF	745.4	x	0.1	=	74.54
1,2,3,7,8,9-HxCDF	756.3	x	0.1	=	75.63
1,2,3,4,6,7,8-HpCDF	828.3	x	0.01	=	8.28
1,2,3,4,7,8,9-HpCDF	812.6	x	0.01	=	8.13
OCDF	1537.5	x	0.001	=	1.54

TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 1518.7 PPQ

SCOEPA00009796

URS Greiner Woodward-Clyde

PCDD/PCDF TOXICITY EQUIVALENCE REPORT
Method 8290

PROJECT: E2000019
FILE: A15874
LAB ID.: E2000019-005MSD

REFERENCE: 92C0804A.00
SAMPLE: 043-GG-01MSD

Project ID/P.O.:	92C0804A.00	Date collected:	1/17/00	RTWin / Col Pfm:	A15867
Sample origin:	RPAC Task #44	Date received:	1/19/00	Beginning CCAL:	A15867
Sample matrix:	Water	Date extracted:	1/20/00	Ending CCAL:	A15876
Sample size:	1 L	Date analyzed:	1/27/00	Initial CAL:	A092899
		Date processed:	1/27/00	Batch Number:	EB60072

SPECIFIC ANALYTES	CONC (PPQ)		TEF		TEF CONC (PPQ)
2,3,7,8-TCDD	152.2	x	1	=	152.22
1,2,3,7,8-PeCDD	839.8	x	0.5	=	419.9
1,2,3,4,7,8-HxCDD	821.3	x	0.1	=	82.13
1,2,3,6,7,8-HxCDD	897.8	x	0.1	=	89.78
1,2,3,7,8,9-HxCDD	937.9	x	0.1	=	93.79
1,2,3,4,6,7,8-HpCDD	795.7	x	0.01	=	7.96
OCDD	1688.8	x	0.001	=	1.69
2,3,7,8-TCDF	156.7	x	0.1	=	15.67
1,2,3,7,8-PeCDF	838.9	x	0.05	=	41.95
2,3,4,7,8-PeCDF	799.7	x	0.5	=	399.85
1,2,3,4,7,8-HxCDF	828.6	x	0.1	=	82.86
1,2,3,6,7,8-HxCDF	829.2	x	0.1	=	82.92
2,3,4,6,7,8-HxCDF	828.3	x	0.1	=	82.83
1,2,3,7,8,9-HxCDF	804.2	x	0.1	=	80.42
1,2,3,4,6,7,8-HpCDF	890.2	x	0.01	=	8.9
1,2,3,4,7,8,9-HpCDF	909.7	x	0.01	=	9.1
OCDF	1662.0	x	0.001	=	1.66

TOTAL 2,3,7,8-TCDD TOXICITY (1989 ITEF) EQUIVALENTS: 1653.63 PPQ

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QUALITY ASSURANCE DATA

SCOEPA00009798

URS Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E2000019
FILE: A15875
LAB ID.: EB60072-LS

REFERENCE: 92C0804A.00
SAMPLE: Lab Spike

Project ID/P.O.:	92C0804A.00	Date collected:	NA	RTWin / Col Pfm:	A15867
Sample origin:	RPAC Task #44	Date received:	NA	Beginning CCAL:	A15867
Sample matrix:	Water	Date extracted:	1/20/00	Ending CCAL:	A15876
Sample size:	1 L	Date analyzed:	1/27/00	Initial CAL:	A092899
		Date processed:	2/2/00	Batch Number:	EB60072

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	EDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	146.8	10.0	0.80	20:45	
1,2,3,7,8-PeCDD	-	796.7	10.0	1.56	25:19	
1,2,3,4,7,8-HxCDD	-	804.1	25.0	1.31	29:40	
1,2,3,6,7,8-HxCDD	-	847.5	25.0	1.32	29:47	
1,2,3,7,8,9-HxCDD	-	917.6	25.0	1.29	30:14	
1,2,3,4,6,7,8-HpCDD	-	775.4	25.0	1.09	34:23	
OCDD	-	1673.2	50.0	0.89	38:45	
2,3,7,8-TCDF	-	155.7	10.0	0.82	20:08	
1,2,3,7,8-PeCDF	-	817.0	10.0	1.60	24:04	
2,3,4,7,8-PeCDF	-	778.9	10.0	1.55	24:56	
1,2,3,4,7,8-HxCDF	-	807.6	25.0	1.11	28:38	
1,2,3,6,7,8-HxCDF	-	768.9	25.0	1.15	28:46	
2,3,4,6,7,8-HxCDF	-	802.6	25.0	1.11	29:29	
1,2,3,7,8,9-HxCDF	-	788.1	25.0	1.15	30:35	
1,2,3,4,6,7,8-HpCDF	-	888.5	25.0	1.10	32:57	
1,2,3,4,7,8,9-HpCDF	-	894.0	25.0	1.09	34:59	
OCDF	-	1617.8	50.0	0.89	38:55	

TOTAL ANALYTES	NO	CONC (PPQ)	EDL (PPQ)	FLAGS
TOTAL TCDD	1	146.8	10.0	
TOTAL PeCDD	1	796.7	10.0	
TOTAL HxCDD	3	2569.1	25.0	
TOTAL HpCDD	1	775.4	25.0	
TOTAL TCDF	1	155.7	10.0	
TOTAL PeCDF	2	1596.0	10.0	
TOTAL HxCDF	4	3167.2	25.0	
TOTAL HpCDF	2	1782.4	25.0	

DATA REVIEWER: AMA 2/15/00

SCOEPA00009799

URS Greiner Woodward-Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E2000019 **REFERENCE: 92C0804A.00**
FILE: A15875 **SAMPLE: Lab Spike**
LAB ID.: EB60072-LS

Project ID/P.O.:	92C0804A.00	Date collected:	NA	RTWin / Col Pfm:	A15867
Sample origin:	RPAC Task #44	Date received:	NA	Beginning CCAL:	A15867
Sample matrix:	Water	Date extracted:	1/20/00	Ending CCAL:	A15876
Sample size:	1 L	Date analyzed:	1/27/00	Initial CAL:	A092899
		Date processed:	2/2/00	Batch Number:	EB60072

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1367.7	68.4	0.80	20:44	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2315.8	115.8	1.63	25:18	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1996.4	99.8	1.28	29:40	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1393.7	69.7	1.28	29:46	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	1773.1	88.7	1.09	34:22	-
$^{13}C_{12}$-OCDD	1687.0	42.2	0.90	38:44	-
$^{13}C_{12}$-2,3,7,8-TCDF	948.9	47.4	0.75	20:07	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1654.4	82.7	1.66	24:03	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1737.7	86.9	1.68	24:55	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1420.9	71.0	0.48	28:37	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1143.1	57.2	0.47	28:45	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1265.7	63.3	0.49	29:29	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1349.9	67.5	0.47	30:35	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1390.2	69.5	0.45	32:56	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1637.5	81.9	0.44	34:58	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.81	20:34	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.26	30:13	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	466.2	58.3	20:45	-

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URS Greiner Woodward-Clyde

PCDD/PCDF ANALYSIS REPORT

Method 8290

PROJECT: E2000019 **REFERENCE: 92C0804A.00**
FILE: A15868 **SAMPLE: Method Blank**
LAB ID.: EB60072-MB

Project ID/P.O.:	92C0804A.00	Date collected:	NA	RTWin / Col Pfm:	A15867
Sample origin:	RPAC Task #44	Date received:	NA	Beginning CCAL:	A15867
Sample matrix:	Water	Date extracted:	1/20/00	Ending CCAL:	A15876
Sample size:	1 L	Date analyzed:	1/27/00	Initial CAL:	A092899
		Date processed:	2/2/00	Batch Number:	EB60072

SPECIFIC ANALYTES	EMPC (PPQ)	CONC (PPQ)	EDL (PPQ)	RATIO	RT (min)	FLAGS
2,3,7,8-TCDD	-	-	10.0	-		U
1,2,3,7,8-PeCDD	-	-	10.0	-		U
1,2,3,4,7,8-HxCDD	-	-	25.0	-		U
1,2,3,6,7,8-HxCDD	-	-	25.0	-		U
1,2,3,7,8,9-HxCDD	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDD	-	-	25.0	-		U
OCDD	-	-	50.0	-		U
2,3,7,8-TCDF	-	-	10.0	-		U
1,2,3,7,8-PeCDF	-	-	10.0	-		U
2,3,4,7,8-PeCDF	-	-	10.0	-		U
1,2,3,4,7,8-HxCDF	-	-	25.0	-		U
1,2,3,6,7,8-HxCDF	-	-	25.0	-		U
2,3,4,6,7,8-HxCDF	-	-	25.0	-		U
1,2,3,7,8,9-HxCDF	-	-	25.0	-		U
1,2,3,4,6,7,8-HpCDF	-	-	25.0	-		U
1,2,3,4,7,8,9-HpCDF	-	-	25.0	-		U
OCDF	-	-	50.0	-		U

TOTAL ANALYTES	NO	CONC (PPQ)	EDL (PPQ)	FLAGS
TOTAL TCDD	0	-	10.0	U
TOTAL PeCDD	0	-	10.0	U
TOTAL HxCDD	0	-	25.0	U
TOTAL HpCDD	0	-	25.0	U
TOTAL TCDF	0	-	10.0	U
TOTAL PeCDF	0	-	10.0	U
TOTAL HxCDF	0	-	25.0	U
TOTAL HpCDF	0	-	25.0	U

DATA REVIEWER: AMA 2/15/00

SCOEPA00009801

URS Greiner Woodward-Clyde

PCDD/PCDF QUALITY CONTROL REPORT

Method 8290

PROJECT: E2000019 **REFERENCE: 92C0804A.00**
FILE: A15868 **SAMPLE: Method Blank**
LAB ID.: EB60072-MB

Project ID/P.O.:	92C0804A.00	Date collected:	NA	RTWin / Col Pfm:	A15867
Sample origin:	RPAC Task #44	Date received:	NA	Beginning CCAL:	A15867
Sample matrix:	Water	Date extracted:	1/20/00	Ending CCAL:	A15876
Sample size:	1 L	Date analyzed:	1/27/00	Initial CAL:	A092899
		Date processed:	2/2/00	Batch Number:	EB60072

LABELED COMPOUNDS	CONC (PPQ)	% REC.	RATIO	RT	FLAGS
$^{13}C_{12}$-2,3,7,8-TCDD	1468.0	73.4	0.77	20:48	-
$^{13}C_{12}$-1,2,3,7,8-PeCDD	2515.7	125.8	1.62	25:21	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDD	1802.4	90.1	1.27	29:41	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDD	1548.1	77.4	1.26	29:48	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDD	2033.3	101.7	1.11	34:23	-
$^{13}C_{12}$-OCDD	2282.7	57.1	0.89	38:45	-
$^{13}C_{12}$-2,3,7,8-TCDF	1019.0	51.0	0.81	20:10	-
$^{13}C_{12}$-1,2,3,7,8-PeCDF	1969.7	98.5	1.56	24:07	-
$^{13}C_{12}$-2,3,4,7,8-PeCDF	1839.0	92.0	1.55	24:57	-
$^{13}C_{12}$-1,2,3,4,7,8-HxCDF	1363.6	68.2	0.48	28:39	-
$^{13}C_{12}$-1,2,3,6,7,8-HxCDF	1456.3	72.8	0.52	28:48	-
$^{13}C_{12}$-2,3,4,6,7,8-HxCDF	1392.9	69.6	0.49	29:31	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDF	1436.9	71.8	0.48	30:36	-
$^{13}C_{12}$-1,2,3,4,6,7,8-HpCDF	1616.6	80.8	0.44	32:58	-
$^{13}C_{12}$-1,2,3,4,7,8,9-HpCDF	1718.2	85.9	0.44	35:00	-

INTERNAL STANDARDS	RATIO	RT	FLAGS
$^{13}C_{12}$-1,2,3,4-TCDD	0.80	20:38	-
$^{13}C_{12}$-1,2,3,7,8,9-HxCDD	1.27	30:15	-

CLEANUP STANDARD	CONC (PPQ)	% REC.	RT	FLAGS
$^{37}Cl_4$-TCDD	474.5	59.3	20:49	-

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Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Case Narrative

CLIENT: URS Greiner Woodward Clyde
PROJECT: RPAC
PROJECT #: 92C0804A/45

February 11, 2000
NCA #: P001195

1.0 DESCRIPTION OF CASE

North Creek Analytical, Beaverton received one soil sample on 1/13/00 from URS Greiner Woodward Clyde for analysis by the following EPA Methods: 6010/6020 Total Metals, 7471A Total Mercury, 8041 Phenols, 8081A/8082 Pesticides/PCBs, 8141A Organophosphorous Pesticides, 8260B Volatile Organics, 8270C Semivolatile Organics, 8151A Chlorinated Herbicides and, Diesel and Heavy Range Hydrocarbons by NWTPH-Dx. 8151A Chlorinated Herbicides analysis was subcontracted to NCA, Bothell. A separate *Case Narrative* and raw data package for the subcontracted analysis are contained in Appendix I of this data package.

2.0 SAMPLE LIST

Refer to the *Chain of Custody* documents for a summary of sample information.

Each group of samples received is given an NCA #, proceeded by a "P" for Portland. This number consists of a one-digit code for the year, a two-digit code for the month and a sequential number for the group within the month. Each sample within the sub-group is numbered sequentially by placing a dash after the NCA#.

3.0 COMMENTS ON ANALYSIS

3.1 Sample Receipt

The sample was received intact from URS Greiner Woodward Clyde. The cooler was hand delivered by NCA courier, custody seals were present and intact. The sample was clearly labeled and matched the chain of custody. Sample temperature (3.6°C) was measured upon receipt using a Raytek Thermometer and recorded with sample log-in information.

3.2 Analysis

The sample was analyzed following the procedures outlined in the applicable methods. The sample was refrigerated at ~ 4 °C and extracted and analyzed within the EPA recommended holding times without incident; any exceptions are footnoted and described in the *Notes and Definitions* section of the *Analytical Report*. Exceptions requiring more detail are as follows:

Total Mercury

The calculated MRL for the analysis is as follows: 0.5g sample weight digested, taken to 100 mL final volume X 0.0005 ppm MDL = 0.10 mg/kg. However the project specific data quality objective MRL (0.05mg/kg) was reported since the instrument result for the batch method blank was less than half the MDL. The sample result is greater than 0.10 mg/kg and is therefore not affected.

Pesticides/PCBs by 8081A/8082

High dilution of the sample, 50X for pesticides and 20X for PCBs, was necessary for analysis due to high concentration of non-target analytes and/or matrix interference. Florisil clean up of the extract as performed for PCB analysis.

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503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Case Narrative

Organophosphorus Pesticides by 8141
Dilution of the sample was necessary for analysis due to high concentration of non-target analytes and/or matrix interference.

4.0 QC RESULTS

Surrogate and quality control parameters that were outside control limits are noted on the appropriate pages of the *Analytical Report*. Additional Quality Control issues are as follows:

Phenols by 8041
Recoveries of Pentachlorophenol in the BS/BSD QC samples were below the acceptance limit. The low bias did not negatively impact the sample data since Pentachlorophenol was not detected above the MDL. Additionally, reported acceptance criteria are project specific data quality objective limits, rather statistically derived by the laboratory.

Sample surrogate recoveries are flagged as estimated values because they are calculated from below the calibration curve due to dilution of the sample. No MS/MSD analysis of the sample was performed due to the limited amount of sample available. Precision data for the batch is provided as BS/BSD.

Pesticides/PCBs by 8081A/8082
Surrogate recoveries for the sample were not obtainable due to the high dilution required for analysis. No MS/MSD analysis of the sample was performed due to the limited amount of sample available. Pesticide precision data for the batch is provided as BS1/BSD1.

Organophosphorus Pesticides by 8141
One surrogate recovery for the sample was not obtainable due to matrix interference. No MS/MSD analysis of the sample was performed due to the limited amount of sample available. Precision data for the batch is provided as BS1/BSD1.

Semivolatile Organics by 8270C
One sample surrogate recovery is flagged as an estimated value because it is calculated from below the calibration curve due to dilution of the sample. No MS/MSD analysis of the sample was performed due to the limited amount of sample available. Precision data for the batch is provided as BS/BSD.

All quality control parameters other than those noted above or on the *Analytical Report* were within established control limits.

5.0 SAMPLE RESULTS

Where applicable, qualifiers have been added to sample results as footnotes and are detailed in the *Notes and Definitions* section of the analytical report. Factors impacting reported sample results and requiring a

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Case Narrative

CLIENT: URS Greiner Woodward Clyde
PROJECT: RPAC
PROJECT #: 92C0804A/45

February 11, 2000
NCA #: P001195

more detailed explanation than available in the *Notes and Definitions* section of the *Analytical Report* are as follows:

Total Mercury
Low recoveries of Lead, Vanadium and Zinc in the MS/MSD of the sample indicate that the matrix interferes with the quantitation of the analytes. Results for these analytes may therefore be biased low.

Phenols by 8041
Pentachlorophenol was not detected above the MDL in the sample. The sample result for this analyte was therefore not affected by the low recovery in the QC samples.

Pesticides/PCBs by 8081A/8082
Although supported by acceptable batch QC, sample data integrity is indeterminate when surrogate recoveries are unavailable due to dilution or matrix interference.

Volatile Organics by 8260B
Sample results, including MRLs for "ND", are reported from analysis of the sample at three different dilutions.

Percent Dry Weight Determinations
Percent dry weight determinations were performed twice; once by NCA-Portland and once by NCA-Bothell for subcontracted chlorinated herbicide analysis by EPA 8151A. Results of both determinations are presented in the *Analytical Report.* The NCA-Bothell value is used only in the calculation of chlorinated herbicide results.

The dilution factor for a sample, if applicable, is depicted on the *Analytical Report* as the MRL(s) for the quantitated analytes being raised by the dilution factor. The method blank sample may be referenced for the initial MRL. Reported MRL values for the sample are not adjusted for the percent dry weight of the sample unless it is less than 50%.

" I certify that this data package is in compliance with the method, both technically and for completeness, for all conditions other than those listed above. Release of the data in this hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature."

Susan Schimelfining, QA Manager
North Creek Analytical, Beaverton

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111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 1/13/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 1/28/00 16:15

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
LWS-01-01	P001195-01	Soil	1/10/00

The results in this report apply to the samples analyzed in accordance with the chain of custody docume
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Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
LWS-01-01			**P001195-01**				**Soil**	**1**
Diesel Range Organics	0100369	1/18/00	1/19/00		25.0	**929**	mg/kg dry	
Heavy Oil Range Hydrocarbons	"	"	"		50.0	**87.8**	"	
Surrogate: 1-Chlorooctadecane	"	"	"	*50.0-150*		*73.5*	*%*	

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Total Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
LWS-01-01			**P001195-01**				**Soil**	
Cadmium	0100465	1/20/00	1/27/00	EPA 6010A	0.500	ND	mg/kg dry	
Chromium	"	"	"	EPA 6010A	0.500	**12.7**	"	
Copper	"	"	"	EPA 6010A	0.500	**47.3**	"	
Lead	"	"	"	EPA 6010A	10.0	**262**	"	
Nickel	"	"	"	EPA 6010A	1.25	**15.3**	"	
Vanadium	"	"	"	EPA 6010A	1.00	**89.3**	"	
Zinc	"	"	"	EPA 6010A	1.00	**58.6**	"	
Arsenic	"	"	1/28/00	EPA 6020	0.500	**66.1**	"	
Mercury	0100462	1/25/00	1/25/00	EPA 7471A	0.0500	**0.151**	"	

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Phenols per EPA Method 8041
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
LWS-01-01			**P001195-01**				**Soil**	**2**
4-Chloro-3-methylphenol	0100351	1/17/00	1/24/00		5.00	ND	mg/kg dry	
2-Chlorophenol	"	"	"		5.00	ND	"	
Cresols	"	"	"		10.0	ND	"	
2,4-Dichlorophenol	"	"	"		5.00	**30.3**	"	
2,6-Dichlorophenol	"	"	"		5.00	**10.9**	"	
2,4-Dimethylphenol	"	"	"		5.00	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		5.00	ND	"	
2,4-Dinitrophenol	"	"	"		12.5	ND	"	
Dinoseb	"	"	"		5.00	ND	"	
2-Nitrophenol	"	"	"		5.00	ND	"	
4-Nitrophenol	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		5.00	ND	"	
Phenol	"	"	"		5.00	ND	"	
[illegible]4,6-Tetrachlorophenol	"	"	"		5.00	ND	"	
[illegible]5-Trichlorophenol	"	"	"		5.00	ND	"	
2,4,6-Trichlorophenol	"	"	"		5.00	**10.0**	"	
Surrogate: 2-Fluorophenol	"	"	"	*70.0-130*		*77.0*	*%*	*J*
Surrogate: 2,4,6-Tribromophenol	"	"	"	*70.0-130*		*94.0*	"	*J*

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Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
LWS-01-01			**P001195-01**				**Soil**	**2**
Aldrin	0100352	1/17/00	1/20/00		335	ND	ug/kg dry	
alpha-BHC	"	"	"		335	ND	"	
beta-BHC	"	"	"		335	ND	"	
delta-BHC	"	"	"		335	ND	"	
gamma-BHC (Lindane)	"	"	"		335	ND	"	
alpha-Chlordane	"	"	"		335	ND	"	
gamma-Chlordane	"	"	"		335	ND	"	
Chlordane (tech)	"	"	"		7500	ND	"	
4,4'-DDD	"	"	"		335	ND	"	
4,4'-DDE	"	"	"		335	ND	"	
4,4'-DDT	"	"	"		335	ND	"	
Dieldrin	"	"	"		335	ND	"	
Endosulfan I	"	"	"		335	ND	"	
Endosulfan II	"	"	"		335	ND	"	
Endosulfan sulfate	"	"	"		335	ND	"	
Endrin	"	"	"		335	ND	"	
Endrin aldehyde	"	"	"		335	ND	"	
Endrin ketone	"	"	"		335	ND	"	
Heptachlor	"	"	"		335	ND	"	
Heptachlor epoxide	"	"	"		335	ND	"	
Hexachlorobenzene	"	"	"		500	ND	"	
Methoxychlor	"	"	"		335	ND	"	
Toxaphene	"	"	"		10000	ND	"	
Aroclor 1016	"	"	1/21/00		1340	ND	"	
Aroclor 1221	"	"	"		2680	ND	"	
Aroclor 1232	"	"	"		1340	ND	"	
Aroclor 1242	"	"	"		1340	ND	"	
Aroclor 1248	"	"	"		1340	ND	"	
Aroclor 1254	"	"	"		1340	ND	"	
Aroclor 1260	"	"	"		1340	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*1/20/00*	*63.0-119*		*NR*	*%*	*4*
Surrogate: Decachlorobiphenyl	"	"	*1/21/00*	*52.0-131*		*NR*	"	*4*

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Organophosphorus Pesticides per EPA Method 8141A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
LWS-01-01			**P001195-01**				**Soil**	**2**
Azinphos methyl	0100353	1/17/00	1/18/00		80.0	ND	ug/kg dry	
Bolstar	"	"	"		80.0	ND	"	
Chlorpyrifos	"	"	"		80.0	ND	"	
Coumaphos	"	"	"		80.0	ND	"	
Demeton	"	"	"		80.0	ND	"	
Diazinon	"	"	"		80.0	ND	"	
Dichlorvos	"	"	"		80.0	ND	"	
Disulfoton	"	"	"		80.0	ND	"	
EPN	"	"	"		80.0	ND	"	
Ethoprop	"	"	"		80.0	ND	"	
Fensulfothion	"	"	"		80.0	ND	"	
Fenthion	"	"	"		80.0	ND	"	
Malathion	"	"	"		80.0	ND	"	
[illegible]vinphos	"	"	"		80.0	ND	"	
[illegible]ed	"	"	"		80.0	ND	"	
Parathion-ethyl	"	"	"		80.0	ND	"	
Parathion-methyl	"	"	"		80.0	ND	"	
Phorate	"	"	"		80.0	ND	"	
Ronnel	"	"	"		80.0	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		80.0	ND	"	
Tokuthion (Prothiofos)	"	"	"		80.0	ND	"	
Trichloronate	"	"	"		80.0	ND	"	
Surrogate: TBP	"	"	"	*47.0-155*		*NR*	*%*	*5,6*
Surrogate: TPP	"	"	"	*48.0-156*		*88.2*	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 1/28/00 16:15

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
LWS-01-01			**P001195-01**				**Soil**	
Acetone	0100342	1/17/00	1/17/00		2500	ND	ug/kg dry	
Benzene	"	"	"		100	**4250**	"	
Bromobenzene	"	"	"		100	ND	"	
Bromochloromethane	"	"	"		100	ND	"	
Bromodichloromethane	"	"	"		100	ND	"	
Bromoform	"	"	"		100	ND	"	
Bromomethane	"	"	"		1000	ND	"	
2-Butanone	"	"	"		2500	ND	"	
n-Butylbenzene	"	"	"		100	**605**	"	
sec-Butylbenzene	"	"	"		100	**356**	"	
tert-Butylbenzene	"	"	"		100	ND	"	
Carbon disulfide	"	"	"		1000	ND	"	
Carbon tetrachloride	"	"	"		100	ND	"	
Chlorobenzene	"	"	1/18/00		1000	**51300**	"	
Chloroethane	"	"	1/17/00		500	ND	"	
Chloroform	"	"	"		100	ND	"	
Chloromethane	"	"	"		500	ND	"	
2-Chlorotoluene	"	"	"		100	ND	"	
4-Chlorotoluene	"	"	"		100	**555**	"	
1,2-Dibromo-3-chloropropane	"	"	"		100	ND	"	
Dibromochloromethane	"	"	"		100	ND	"	
1,2-Dibromoethane	"	"	"		100	ND	"	
Dibromomethane	"	"	"		100	ND	"	
1,2-Dichlorobenzene	"	"	1/19/00		5000	**817000**	"	
1,3-Dichlorobenzene	"	"	1/18/00		1000	**33200**	"	
1,4-Dichlorobenzene	"	"	1/19/00		5000	**330000**	"	
Dichlorodifluoromethane	"	"	1/17/00		500	ND	"	
1,1-Dichloroethane	"	"	"		100	ND	"	
1,2-Dichloroethane	"	"	"		100	ND	"	
1,1-Dichloroethene	"	"	"		100	ND	"	
cis-1,2-Dichloroethene	"	"	"		100	ND	"	
trans-1,2-Dichloroethene	"	"	"		100	ND	"	
1,2-Dichloropropane	"	"	"		100	ND	"	
1,3-Dichloropropane	"	"	"		100	ND	"	
2,2-Dichloropropane	"	"	"		100	ND	"	
1,1-Dichloropropene	"	"	"		100	ND	"	
cis-1,3-Dichloropropene	"	"	"		100	ND	"	
trans-1,3-Dichloropropene	"	"	"		100	ND	"	

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Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
LWS-01-01 (continued)			**P001195-01**				**Soil**	
Ethylbenzene	0100342	1/17/00	1/17/00		100	**18000**	ug/kg dry	
Hexachlorobutadiene	"	"	"		200	ND	"	
2-Hexanone	"	"	"		1000	ND	"	
Iodomethane	"	"	"		2000	ND	"	
Isopropylbenzene	"	"	"		100	**1600**	"	
p-Isopropyltoluene	"	"	"		100	**200**	"	
4-Methyl-2-pentanone	"	"	"		500	ND	"	
Methylene chloride	"	"	"		500	ND	"	
Naphthalene	"	"	"		100	**289**	"	
n-Propylbenzene	"	"	"		100	**9400**	"	
Styrene	"	"	"		100	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		100	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		100	ND	"	
[illegible]achloroethene	"	"	"		100	ND	"	
[illegible]uene	"	"	"		100	**347**	"	
1,2,3-Trichlorobenzene	"	"	"		100	**2300**	"	
1,2,4-Trichlorobenzene	"	"	"		100	**15900**	"	
1,1,1-Trichloroethane	"	"	"		100	ND	"	
1,1,2-Trichloroethane	"	"	"		100	ND	"	
Trichloroethene	"	"	"		100	ND	"	
Trichlorofluoromethane	"	"	"		100	ND	"	
1,2,3-Trichloropropane	"	"	"		100	ND	"	
1,2,4-Trimethylbenzene	"	"	1/18/00		1000	**85400**	"	
1,3,5-Trimethylbenzene	"	"	1/17/00		100	**17200**	"	
Vinyl chloride	"	"	"		100	ND	"	
o-Xylene	"	"	"		100	**16300**	"	
m,p-Xylene	"	"	1/18/00		2000	**75000**	"	
Surrogate: 4-BFB	"	"	*1/17/00*	*70.0-130*		*106*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*65.0-135*		*84.9*	"	
Surrogate: Dibromofluoromethane	"	"	"	*65.0-130*		*78.3*	"	
Surrogate: Toluene-d8	"	"	"	*70.0-120*		*104*	"	

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**Refer to end of report for text of notes and definitions.*

Latonya Pelt, Project Manager

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 1/28/00 16:15

Semivolatile Organic Compounds per EPA Method 8270C
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate - Limits	Reporting Limit	Result	Units	Notes*
LWS-01-01			**P001195-01**				**Soil**	**2**
Acenaphthene	0100354	1/17/00	1/19/00		3.30	ND	mg/kg dry	
Acenaphthylene	"	"	"		3.30	ND	"	
Anthracene	"	"	"		3.30	ND	"	
Benzo (a) anthracene	"	"	"		3.30	ND	"	
Benzo (a) pyrene	"	"	"		3.30	ND	"	
Benzo (b) fluoranthene	"	"	"		3.30	ND	"	
Benzo (ghi) perylene	"	"	"		3.30	ND	"	
Benzo (k) fluoranthene	"	"	"		3.30	ND	"	
Benzoic Acid	"	"	"		10.0	ND	"	
Benzyl alcohol	"	"	"		3.30	ND	"	
4-Bromophenyl phenyl ether	"	"	"		3.30	ND	"	
Butyl benzyl phthalate	"	"	"		3.30	ND	"	
4-Chloro-3-methylphenol	"	"	"		3.30	ND	"	
4-Chloroaniline	"	"	"		20.0	ND	"	
Bis(2-chloroethoxy)methane	"	"	"		3.30	ND	"	
Bis(2-chloroethyl)ether	"	"	"		3.30	ND	"	
Bis(2-chloroisopropyl)ether	"	"	"		3.30	ND	"	
2-Chloronaphthalene	"	"	"		3.30	ND	"	
2-Chlorophenol	"	"	"		3.30	ND	"	
4-Chlorophenyl phenyl ether	"	"	"		3.30	ND	"	
Chrysene	"	"	"		3.30	ND	"	
Di-n-butyl phthalate	"	"	"		10.0	ND	"	
Di-n-octyl phthalate	"	"	"		3.30	ND	"	
Dibenzo (a,h) anthracene	"	"	"		3.30	ND	"	
Dibenzofuran	"	"	"		3.30	ND	"	
1,2-Dichlorobenzene	"	"	"		10.0	**19.1**	"	
1,3-Dichlorobenzene	"	"	"		10.0	ND	"	
1,4-Dichlorobenzene	"	"	"		10.0	ND	"	
3,3'-Dichlorobenzidine	"	"	"		10.0	ND	"	
2,4-Dichlorophenol	"	"	"		3.30	**33.4**	"	
Diethyl phthalate	"	"	"		3.30	ND	"	
2,4-Dimethylphenol	"	"	"		10.0	ND	"	
Dimethyl phthalate	"	"	"		3.30	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		10.0	ND	"	
2,4-Dinitrophenol	"	"	"		20.0	ND	"	
2,4-Dinitrotoluene	"	"	"		3.30	ND	"	
2,6-Dinitrotoluene	"	"	"		3.30	ND	"	
Bis(2-ethylhexyl)phthalate	"	"	"		20.0	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/10/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 1/13/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 1/28/00 16:15

Semivolatile Organic Compounds per EPA Method 8270C
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
LWS-01-01 (continued)			**P001195-01**				**Soil**	**2**
Fluoranthene	0100354	1/17/00	1/19/00		3.30	ND	mg/kg dry	
Fluorene	"	"	"		3.30	ND	"	
Hexachlorobenzene	"	"	"		3.30	ND	"	
Hexachlorobutadiene	"	"	"		10.0	ND	"	
Hexachlorocyclopentadiene	"	"	"		10.0	ND	"	
Hexachloroethane	"	"	"		10.0	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		3.30	ND	"	
Isophorone	"	"	"		3.30	ND	"	
2-Methylnaphthalene	"	"	"		3.30	ND	"	
2-Methylphenol	"	"	"		3.30	ND	"	
3-,4-Methylphenol	"	"	"		3.30	ND	"	
Naphthalene	"	"	"		3.30	ND	"	
2-Nitroaniline	"	"	"		3.30	ND	"	
itroaniline	"	"	"		10.0	ND	"	
itroaniline	"	"	"		3.30	ND	"	
Nitrobenzene	"	"	"		3.30	ND	"	
2-Nitrophenol	"	"	"		3.30	ND	"	
4-Nitrophenol	"	"	"		10.0	ND	"	
N-Nitrosodi-n-propylamine	"	"	"		3.30	ND	"	
N-Nitrosodiphenylamine	"	"	"		3.30	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Phenanthrene	"	"	"		3.30	ND	"	
Phenol	"	"	"		3.30	ND	"	
Pyrene	"	"	"		3.30	ND	"	
1,2,4-Trichlorobenzene	"	"	"		3.30	ND	"	
2,4,5-Trichlorophenol	"	"	"		3.30	ND	"	
2,4,6-Trichlorophenol	"	"	"		3.30	**9.44**	"	
Surrogate: 2-Fluorobiphenyl	"	"	"	*44.0-146*		*70.9*	*%*	
Surrogate: 2-Fluorophenol	"	"	"	*42.0-126*		*43.9*	"	
Surrogate: Nitrobenzene-d5	"	"	"	*42.0-126*		*44.9*	"	*J*
Surrogate: Phenol-d6	"	"	"	*42.0-131*		*52.6*	"	
Surrogate: p-Terphenyl-d14	"	"	"	*49.0-150*		*76.2*	"	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*48.0-119*		*82.0*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/10/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 1/13/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 1/28/00 16:15

Chlorinated Herbicides by EPA Method 8151A
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
LWS-01-01			**P001195-01**				**Soil**	
Bromoxynil	0A18018	1/18/00	1/25/00	EPA 8151A	201	ND	ug/kg dry	
2,4-D	"	"	1/27/00	EPA 8151A	40200	**231000**	"	
2,4-DB	"	"	1/25/00	EPA 8151A	4020	ND	"	
2,4,5-T	"	"	"	EPA 8151A	10100	ND	"	
2,4,5-TP (Silvex)	"	"	"	EPA 8151A	10100	ND	"	
Dalapon	"	"	"	EPA 8151A	10100	ND	"	
Dicamba	"	"	"	EPA 8151A	4020	ND	"	
Dichlorprop	"	"	"	EPA 8151A	2010	ND	"	
Dinoseb	"	"	"	EPA 8151A	2010	ND	"	
MCPA	"	"	"	EPA 8151A	201000	ND	"	
MCPP	"	"	"	EPA 8151A	201000	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*31-136*		*NR*	%	*4*

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/10/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 1/13/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 1/28/00 16:15

Physical Parameters by APHA/ASTM/EPA Methods
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
LWS-01-01			**P001195-01**				**Soil**	
Dry Weight	0A18003	1/18/00	1/19/00	BSOPSPL003R07	1.00	**82.8**	%	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled:	1/10/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received:	1/13/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported:	1/28/00 16:15

Dry Weight Determination
North Creek Analytical - Bothell

Sample Name	Lab ID	Matrix	Result	Units
LWS-01-01	P001195-01	Soil	82.82	%

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled:	1/10/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received:	1/13/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported:	1/28/00 16:15

Dry Weight Determination
North Creek Analytical - Portland

Sample Name	Lab ID	Matrix	Result	Units
LWS-01-01	P001195-01	Soil	77.5	%

Latonya Pelt, Project Manager

SCOEPA00009820

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/10/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 1/13/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 1/28/00 16:15

Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0100369	**Date Prepared: 1/18/00**					**Extraction Method: TPH-D Extraction**				
Blank	**0100369-BLK1**									
Diesel Range Organics	1/18/00			**ND**	mg/kg dry	**25.0**				
Heavy Oil Range Hydrocarbons	"			**ND**	"	**50.0**				
Surrogate: 1-Chlorooctadecane	"	*5.00*		*4.55*	"	*50.0-150*	*91.0*			
LCS	**0100369-BS1**									
Diesel Range Organics	1/18/00	127		138	mg/kg dry	50.0-150	109			
Heavy Oil Range Hydrocarbons	"	65.9		49.8	"	50.0-150	75.6			
Surrogate: 1-Chlorooctadecane	"	*5.00*		*3.88*	"	*50.0-150*	*77.6*			
Duplicate	**0100369-DUP1**		**P001227-01**							
Diesel Range Organics	1/18/00		ND	ND	mg/kg dry			50.0		
Heavy Oil Range Hydrocarbons	"		ND	ND	"			50.0		
Surrogate: 1-Chlorooctadecane	"	*6.20*		*5.40*	"	*50.0-150*	*87.1*			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/10/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 1/13/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 1/28/00 16:15

Total Metals per EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0100462	**Date Prepared: 1/25/00**				**Extraction Method: EPA 7471**					
Blank	**0100462-BLK1**									
Mercury	1/25/00			**ND**	mg/kg dry	**0.0500**				
LCS	**0100462-BS1**									
Mercury	1/25/00	1.00		0.994	mg/kg dry	80.0-120	99.4			
Duplicate	**0100462-DUP1**		**P001195-01**							
Mercury	1/25/00		0.151	0.071	mg/kg dry			40.0		7
Matrix Spike	**0100462-MS1**		**P001195-01**							
Mercury	1/25/00	1.29	0.151	1.35	mg/kg dry	75.0-125	**92.9**			
Matrix Spike Dup	**0100462-MSD1**		**P001195-01**							
Mercury	1/25/00	1.29	0.151	1.37	mg/kg dry	75.0-125	**94.5**	40.0	**1.71**	
Batch: 0100465	**Date Prepared: 1/20/00**				**Extraction Method: EPA 3050**					
Blank	**0100465-BLK1**									
Cadmium	1/27/00			**ND**	mg/kg dry	**0.500**				
Chromium	"			**ND**	"	**0.500**				
Copper	"			**ND**	"	**0.500**				
Lead	"			**ND**	"	**10.0**				
Nickel	"			**ND**	"	**1.25**				
Vanadium	"			**ND**	"	**1.00**				
Zinc	"			**ND**	"	**1.00**				
Arsenic	1/28/00			**ND**	"	**0.500**				
LCS	**0100465-BS1**									
Cadmium	1/27/00	20.0		18.2	mg/kg dry	80.0-120	91.0			
Chromium	"	50.0		51.0	"	80.0-120	102			
Copper	"	50.0		48.0	"	80.0-120	96.0			
Lead	"	100		94.5	"	80.0-120	94.5			
Nickel	"	50.0		49.4	"	80.0-120	98.8			
Vanadium	"	20.0		19.7	"	80.0-120	98.5			
Zinc	"	50.0		47.6	"	80.0-120	95.2			
Arsenic	1/28/00	100		105	"	80.0-120	105			
Duplicate	**0100465-DUP1**		**P001195-01**							
Cadmium	1/27/00		ND	ND	mg/kg dry			40.0		

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/10/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 1/13/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 1/28/00 16:15

Total Metals per EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov.Limits	Recov. %	RPD Limit	RPD %	Notes*
Duplicate (continued)	**0100465-DUP1**		**P001195-01**							
Chromium	1/27/00		12.7	11.5	mg/kg dry			40.0	**9.92**	
Copper	"		47.3	61.7	"			40.0	**26.4**	
Lead	"		262	202	"			40.0	**25.9**	
Nickel	"		15.3	17.5	"			40.0	**13.4**	
Vanadium	"		89.3	74.5	"			40.0	**18.1**	
Zinc	"		58.6	45.4	"			40.0	**25.4**	
Arsenic	1/28/00		66.1	52.0	"			40.0	**23.9**	
Matrix Spike	**0100465-MS1**		**P001195-01**							
Cadmium	1/27/00	25.1	ND	22.9	mg/kg dry	75.0-125	**91.2**			
Chromium	"	62.6	12.7	69.5	"	75.0-125	**90.7**			
Copper	"	62.6	47.3	117	"	75.0-125	**111**			
Lead	"	125	262	303	"	75.0-125	**32.8**			8
Nickel	"	62.6	15.3	71.4	"	75.0-125	**89.6**			
Vanadium	"	25.1	89.3	89.0	"	75.0-125	**NR**			8
Zinc	"	62.6	58.6	102	"	75.0-125	**69.3**			8
Arsenic	1/28/00	125	66.1	185	"	75.0-125	**95.1**			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/10/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 1/13/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 1/28/00 16:15

Phenols per EPA Method 8041/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0100351	**Date Prepared: 1/17/00**					**Extraction Method: EPA 3550**				
Blank	**0100351-BLK1**									
4-Chloro-3-methylphenol	1/20/00			**ND**	mg/kg dry	**1.00**				
2-Chlorophenol	"			**ND**	"	**1.00**				
Cresols	"			**ND**	"	**2.00**				
2,4-Dichlorophenol	"			**ND**	"	**1.00**				
2,6-Dichlorophenol	"			**ND**	"	**1.00**				
2,4-Dimethylphenol	"			**ND**	"	**1.00**				
4,6-Dinitro-2-methylphenol	"			**ND**	"	**1.00**				
2,4-Dinitrophenol	"			**ND**	"	**2.50**				
Dinoseb	"			**ND**	"	**1.00**				
2-Nitrophenol	"			**ND**	"	**1.00**				
4-Nitrophenol	"			**ND**	"	**1.00**				
Pentachlorophenol	"			**ND**	"	**1.00**				
Phenol	"			**ND**	"	**1.00**				
2,3,4,6-Tetrachlorophenol	"			**ND**	"	**1.00**				
2,4,5-Trichlorophenol	"			**ND**	"	**1.00**				
2,4,6-Trichlorophenol	"			**ND**	"	**1.00**				
Surrogate: 2-Fluorophenol	"	*3.33*		*2.89*	"	*70.0-130*	*86.8*			
Surrogate: 2,4,6-Tribromophenol	"	*3.33*		*2.72*	"	*70.0-130*	*81.7*			
LCS	**0100351-BS1**									
4-Chloro-3-methylphenol	1/20/00	3.33		3.00	mg/kg dry	70.0-130	90.1			
2-Chlorophenol	"	3.33		2.59	"	70.0-130	77.8			
4-Nitrophenol	"	3.33		2.99	"	70.0-130	89.8			
Pentachlorophenol	"	3.33		2.12	"	70.0-130	63.7			9
Phenol	"	3.33		2.81	"	70.0-130	84.4			
Surrogate: 2-Fluorophenol	"	*3.33*		*2.61*	"	*70.0-130*	*78.4*			
Surrogate: 2,4,6-Tribromophenol	"	*3.33*		*2.89*	"	*70.0-130*	*86.8*			
LCS Dup	**0100351-BSD1**									
4-Chloro-3-methylphenol	1/20/00	3.33		3.09	mg/kg dry	70.0-130	92.8	50.0	2.95	
2-Chlorophenol	"	3.33		2.69	"	70.0-130	80.8	50.0	3.78	
4-Nitrophenol	"	3.33		3.06	"	70.0-130	91.9	50.0	2.31	
Pentachlorophenol	"	3.33		2.24	"	70.0-130	67.3	50.0	5.50	9
Phenol	"	3.33		2.87	"	70.0-130	86.2	50.0	2.11	
Surrogate: 2-Fluorophenol	"	*3.33*		*2.65*	"	*70.0-130*	*79.6*			
Surrogate: 2,4,6-Tribromophenol	"	*3.33*		*2.94*	"	*70.0-130*	*88.3*			

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**Refer to end of report for text of notes and definitions.*

Latonya Pelt, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/10/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 1/13/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 1/28/00 16:15

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0100352	**Date Prepared: 1/17/00**				**Extraction Method: EPA 3550**					
Blank	**0100352-BLK1**									
Aldrin	1/19/00			**ND**	ug/kg dry	**6.70**				
alpha-BHC	"			**ND**	"	**6.70**				
beta-BHC	"			**ND**	"	**6.70**				
delta-BHC	"			**ND**	"	**6.70**				
gamma-BHC (Lindane)	"			**ND**	"	**6.70**				
alpha-Chlordane	"			**ND**	"	**6.70**				
gamma-Chlordane	"			**ND**	"	**6.70**				
Chlordane (tech)	"			**ND**	"	**150**				
4,4'-DDD	"			**ND**	"	**6.70**				
4,4'-DDE	"			**ND**	"	**6.70**				
4,4'-DDT	"			**ND**	"	**6.70**				
Dieldrin	"			**ND**	"	**6.70**				
Endosulfan I	"			**ND**	"	**6.70**				
Endosulfan II	"			**ND**	"	**6.70**				
Endosulfan sulfate	"			**ND**	"	**6.70**				
Endrin	"			**ND**	"	**6.70**				
Endrin aldehyde	"			**ND**	"	**6.70**				
Endrin ketone	"			**ND**	"	**6.70**				
Heptachlor	"			**ND**	"	**6.70**				
Heptachlor epoxide	"			**ND**	"	**6.70**				
Hexachlorobenzene	"			**ND**	"	**10.0**				
Methoxychlor	"			**ND**	"	**6.70**				
Toxaphene	"			**ND**	"	**200**				
Aroclor 1016	1/20/00			**ND**	"	**67.0**				
Aroclor 1221	"			**ND**	"	**134**				
Aroclor 1232	"			**ND**	"	**67.0**				
Aroclor 1242	"			**ND**	"	**67.0**				
Aroclor 1248	"			**ND**	"	**67.0**				
Aroclor 1254	"			**ND**	"	**67.0**				
Aroclor 1260	"			**ND**	"	**67.0**				
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	*1/19/00*	*33.3*		*32.1*	"	*63.0-119*	*96.4*			
Surrogate: Decachlorobiphenyl	*1/20/00*	*33.3*		*25.5*	"	*52.0-131*	*76.6*			
LCS	**0100352-BS1**									
Aldrin	1/19/00	16.7		17.6	ug/kg dry	64.0-136	105			
gamma-BHC (Lindane)	"	16.7		17.9	"	62.0-140	107			
4,4'-DDT	"	66.7		76.3	"	65.0-130	114			

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**Refer to end of report for text of notes and definitions*

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/10/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 1/13/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 1/28/00 16:15

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS (continued)	**0100352-BS1**									
Dieldrin	1/19/00	66.7		75.7	ug/kg dry	70.0-135	113			
Endrin	"	66.7		75.3	"	65.0-135	113			
Heptachlor	"	16.7		17.7	"	48.0-124	106			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	*33.3*		*34.7*	"	*63.0-119*	*104*			
Surrogate: Decachlorobiphenyl	"	*33.3*		*36.0*	"	*52.0-131*	*108*			
LCS	**0100352-BS2**									
Aroclor 1016	1/20/00	333		253	ug/kg dry	57.0-132	76.0			
Aroclor 1260	"	333		283	"	60.0-136	85.0			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	*33.3*		*27.5*	"	*63.0-119*	*82.6*			
Surrogate: Decachlorobiphenyl	"	*33.3*		*24.4*	"	*52.0-131*	*73.3*			
LCS Dup	**0100352-BSD1**									
[illegible]rin	1/19/00	16.7		19.1	ug/kg dry	64.0-136	114	50.0	8.22	
[illegible]ma-BHC (Lindane)	"	16.7		19.1	"	62.0-140	114	50.0	6.33	
4,4'-DDT	"	66.7		80.7	"	65.0-130	121	50.0	5.96	
Dieldrin	"	66.7		80.3	"	70.0-135	120	50.0	6.01	
Endrin	"	66.7		80.0	"	65.0-135	120	50.0	6.01	
Heptachlor	"	16.7		18.8	"	48.0-124	113	50.0	6.39	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	*33.3*		*34.3*	"	*63.0-119*	*103*			
Surrogate: Decachlorobiphenyl	"	*33.3*		*34.7*	"	*52.0-131*	*104*			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/10/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 1/13/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 1/28/00 16:15

Organophosphorus Pesticides per EPA Method 8141A/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0100353	**Date Prepared: 1/17/00**				**Extraction Method: EPA 3550**					
Blank	**0100353-BLK1**									
Azinphos methyl	1/18/00			**ND**	ug/kg dry	**40.0**				
Bolstar	"			**ND**	"	**40.0**				
Chlorpyrifos	"			**ND**	"	**40.0**				
Coumaphos	"			**ND**	"	**40.0**				
Demeton	"			**ND**	"	**40.0**				
Diazinon	"			**ND**	"	**40.0**				
Dichlorvos	"			**ND**	"	**40.0**				
Disulfoton	"			**ND**	"	**40.0**				
EPN	"			**ND**	"	**40.0**				
Ethoprop	"			**ND**	"	**40.0**				
Fensulfothion	"			**ND**	"	**40.0**				
Fenthion	"			**ND**	"	**40.0**				
Malathion	"			**ND**	"	**40.0**				
Mevinphos	"			**ND**	"	**40.0**				
Naled	"			**ND**	"	**40.0**				
Parathion-ethyl	"			**ND**	"	**40.0**				
Parathion-methyl	"			**ND**	"	**40.0**				
Phorate	"			**ND**	"	**40.0**				
Ronnel	"			**ND**	"	**40.0**				
Stirophos (Tetrachlorvinphos)	"			**ND**	"	**40.0**				
Tokuthion (Prothiofos)	"			**ND**	"	**40.0**				
Trichloronate	"			**ND**	"	**40.0**				
Surrogate: TBP	"	*83.3*		*94.7*	"	*47.0-155*	*114*			
Surrogate: TPP	"	*83.3*		*92.7*	"	*48.0-156*	*111*			
LCS	**0100353-BS1**									
Dichlorvos	1/18/00	83.3		103	ug/kg dry	44.0-167	124			
Ethoprop	"	83.3		88.7	"	59.0-137	106			
Parathion-methyl	"	83.3		83.3	"	62.0-143	100			
Stirophos (Tetrachlorvinphos)	"	83.3		94.7	"	54.0-158	114			
Surrogate: TBP	"	*83.3*		*96.0*	"	*47.0-155*	*115*			
Surrogate: TPP	"	*83.3*		*94.0*	"	*48.0-156*	*113*			
LCS Dup	**0100353-BSD1**									
Dichlorvos	1/18/00	83.3		90.7	ug/kg dry	44.0-167	109	50.0	12.9	
Ethoprop	"	83.3		81.3	"	59.0-137	97.6	50.0	8.25	
Parathion-methyl	"	83.3		77.3	"	62.0-143	92.8	50.0	7.47	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/10/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 1/13/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 1/28/00 16:15

Organophosphorus Pesticides per EPA Method 8141A/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS Dup (continued)	**0100353-BSD1**									
Stirophos (Tetrachlorvinphos)	1/18/00	83.3		86.7	ug/kg dry	54.0-158	104	50.0	9.17	
Surrogate: TBP	"	*83.3*		*86.7*	"	*47.0-155*	*104*			
Surrogate: TPP	"	*83.3*		*86.7*	"	*48.0-156*	*104*			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/10/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 1/13/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 1/28/00 16:15

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0100342	**Date Prepared: 1/17/00**				**Extraction Method: EPA 5035**					
Blank	**0100342-BLK1**									
Acetone	1/18/00			ND	ug/kg dry	2500				
Benzene	"			ND	"	100				
Bromobenzene	"			ND	"	100				
Bromochloromethane	"			ND	"	100				
Bromodichloromethane	"			ND	"	100				
Bromoform	"			ND	"	100				
Bromomethane	"			ND	"	1000				
2-Butanone	"			ND	"	2500				
n-Butylbenzene	"			ND	"	100				
sec-Butylbenzene	"			ND	"	100				
tert-Butylbenzene	"			ND	"	100				
Carbon disulfide	"			ND	"	1000				
Carbon tetrachloride	"			ND	"	100				
Chlorobenzene	"			ND	"	100				
Chloroethane	"			ND	"	500				
Chloroform	"			ND	"	100				
Chloromethane	"			ND	"	500				
2-Chlorotoluene	"			ND	"	100				
4-Chlorotoluene	"			ND	"	100				
1,2-Dibromo-3-chloropropane	"			ND	"	100				
Dibromochloromethane	"			ND	"	100				
1,2-Dibromoethane	"			ND	"	100				
Dibromomethane	"			ND	"	100				
1,2-Dichlorobenzene	"			ND	"	100				
1,3-Dichlorobenzene	"			ND	"	100				
1,4-Dichlorobenzene	"			ND	"	100				
Dichlorodifluoromethane	"			ND	"	500				
1,1-Dichloroethane	"			ND	"	100				
1,2-Dichloroethane	"			ND	"	100				
1,1-Dichloroethene	"			ND	"	100				
cis-1,2-Dichloroethene	"			ND	"	100				
trans-1,2-Dichloroethene	"			ND	"	100				
1,2-Dichloropropane	"			ND	"	100				
1,3-Dichloropropane	"			ND	"	100				
2,2-Dichloropropane	"			ND	"	100				
1,1-Dichloropropene	"			ND	"	100				
cis-1,3-Dichloropropene	"			ND	"	100				

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URS Greiner Woodward Clyde	Project: RPAC	Sampled:	1/10/00
111 SW Columbia, Suite 900	Project Number: 92C0804A/45	Received:	1/13/00
Portland, OR 97201	Project Manager: Karen Schadler	Reported:	1/28/00 16:15

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	**0100342-BLK1**									
trans-1,3-Dichloropropene	1/18/00			**ND**	ug/kg dry	**100**				
Ethylbenzene	"			**ND**	"	**100**				
Hexachlorobutadiene	"			**ND**	"	**200**				
2-Hexanone	"			**ND**	"	**1000**				
Iodomethane	"			**ND**	"	**2000**				
Isopropylbenzene	"			**ND**	"	**100**				
p-Isopropyltoluene	"			**ND**	"	**100**				
4-Methyl-2-pentanone	"			**ND**	"	**500**				
Methylene chloride	"			**ND**	"	**500**				
Naphthalene	"			**ND**	"	**100**				
n-Propylbenzene	"			**ND**	"	**100**				
Styrene	"			**ND**	"	**100**				
1,1,1,2-Tetrachloroethane	"			**ND**	"	**100**				
1,1,2,2-Tetrachloroethane	"			**ND**	"	**100**				
Tetrachloroethene	"			**ND**	"	**100**				
Toluene	"			**ND**	"	**100**				
1,2,3-Trichlorobenzene	"			**ND**	"	**100**				
1,2,4-Trichlorobenzene	"			**ND**	"	**100**				
1,1,1-Trichloroethane	"			**ND**	"	**100**				
1,1,2-Trichloroethane	"			**ND**	"	**100**				
Trichloroethene	"			**ND**	"	**100**				
Trichlorofluoromethane	"			**ND**	"	**100**				
1,2,3-Trichloropropane	"			**ND**	"	**100**				
1,2,4-Trimethylbenzene	"			**ND**	"	**100**				
1,3,5-Trimethylbenzene	"			**ND**	"	**100**				
Vinyl chloride	"			**ND**	"	**100**				
o-Xylene	"			**ND**	"	**100**				
m,p-Xylene	"			**ND**	"	**200**				
Surrogate: 4-BFB	"	*2000*		*2210*	"	*70.0-130*	*111*			
Surrogate: 1,2-DCA-d4	"	*2000*		*2210*	"	*65.0-135*	*111*			
Surrogate: Dibromofluoromethane	"	*2000*		*1870*	"	*65.0-130*	*93.5*			
Surrogate: Toluene-d8	"	*2000*		*2640*	"	*70.0-120*	*132*			*10*
LCS	**0100342-BS1**									
Benzene	1/17/00	2500		2170	ug/kg dry	80.0-135	86.8			
Chlorobenzene	"	2500		2640	"	80.0-135	106			
1,1-Dichloroethene	"	2500		2230	"	60.0-150	89.2			
Toluene	"	2500		2510	"	80.0-130	100			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/10/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 1/13/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 1/28/00 16:15

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS (continued)	**0100342-BS1**									
Trichloroethene	1/17/00	2500		2090	ug/kg dry	70.0-135	83.6			
Surrogate: 4-BFB	"	*2000*		*2190*	"	*70.0-130*	*110*			
Surrogate: 1,2-DCA-d4	"	*2000*		*2130*	"	*65.0-135*	*107*			
Surrogate: Dibromofluoromethane	"	*2000*		*2040*	"	*65.0-130*	*102*			
Surrogate: Toluene-d8	"	*2000*		*2430*	"	*70.0-120*	*122*			*10*
Matrix Spike	**0100342-MS1**		**P001195-01**							
Benzene	1/17/00	3230	4250	5740	ug/kg dry	60.0-135	**46.1**			8
Chlorobenzene	"	3230	51300	37800	"	65.0-125	**NR**			8
1,1-Dichloroethene	"	3230	ND	1960	"	60.0-135	**60.7**			
Toluene	"	3230	347	3140	"	60.0-125	**86.5**			
Trichloroethene	"	3230	ND	2310	"	60.0-125	**71.5**			
Surrogate: 4-BFB	"	*2580*		*3220*	"	*70.0-130*	*125*			
Surrogate: 1,2-DCA-d4	"	*2580*		*2190*	"	*65.0-135*	*84.9*			
Surrogate: Dibromofluoromethane	"	*2580*		*1990*	"	*65.0-130*	*77.1*			
Surrogate: Toluene-d8	"	*2580*		*2770*	"	*70.0-120*	*107*			
Matrix Spike Dup	**0100342-MSD1**		**P001195-01**							
Benzene	1/17/00	3230	4250	6360	ug/kg dry	60.0-135	**65.3**	25.0	**34.5**	8
Chlorobenzene	"	3230	51300	42300	"	65.0-125	**NR**	25.0		8
1,1-Dichloroethene	"	3230	ND	1930	"	60.0-135	**59.8**	25.0	**1.49**	8
Toluene	"	3230	347	3070	"	60.0-125	**84.3**	25.0	**2.58**	
Trichloroethene	"	3230	ND	2220	"	60.0-125	**68.7**	25.0	**3.99**	
Surrogate: 4-BFB	"	*2580*		*2740*	"	*70.0-130*	*106*			
Surrogate: 1,2-DCA-d4	"	*2580*		*2130*	"	*65.0-135*	*82.6*			
Surrogate: Dibromofluoromethane	"	*2580*		*1990*	"	*65.0-130*	*77.1*			
Surrogate: Toluene-d8	"	*2580*		*2650*	"	*70.0-120*	*103*			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/10/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 1/13/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 1/28/00 16:15

Semivolatile Organic Compounds per EPA Method 8270C/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0100354	**Date Prepared: 1/17/00**				**Extraction Method: EPA 3550**					
Blank	**0100354-BLK1**									
Acenaphthene	1/19/00			ND	mg/kg dry	0.330				
Acenaphthylene	"			ND	"	0.330				
Anthracene	"			ND	"	0.330				
Benzo (a) anthracene	"			ND	"	0.330				
Benzo (a) pyrene	"			ND	"	0.330				
Benzo (b) fluoranthene	"			ND	"	0.330				
Benzo (ghi) perylene	"			ND	"	0.330				
Benzo (k) fluoranthene	"			ND	"	0.330				
Benzoic Acid	"			ND	"	1.00				
Benzyl alcohol	"			ND	"	0.330				
4-Bromophenyl phenyl ether	"			ND	"	0.330				
Butyl benzyl phthalate	"			ND	"	0.330				
Chloro-3-methylphenol	"			ND	"	0.330				
4-Chloroaniline	"			ND	"	2.00				
Bis(2-chloroethoxy)methane	"			ND	"	0.330				
Bis(2-chloroethyl)ether	"			ND	"	0.330				
Bis(2-chloroisopropyl)ether	"			ND	"	0.330				
2-Chloronaphthalene	"			ND	"	0.330				
2-Chlorophenol	"			ND	"	0.330				
4-Chlorophenyl phenyl ether	"			ND	"	0.330				
Chrysene	"			ND	"	0.330				
Di-n-butyl phthalate	"			ND	"	1.00				
Di-n-octyl phthalate	"			ND	"	0.330				
Dibenzo (a,h) anthracene	"			ND	"	0.330				
Dibenzofuran	"			ND	"	0.330				
1,2-Dichlorobenzene	"			ND	"	1.00				
1,3-Dichlorobenzene	"			ND	"	1.00				
1,4-Dichlorobenzene	"			ND	"	1.00				
3,3'-Dichlorobenzidine	"			ND	"	1.00				
2,4-Dichlorophenol	"			ND	"	0.330				
Diethyl phthalate	"			ND	"	0.330				
2,4-Dimethylphenol	"			ND	"	1.00				
Dimethyl phthalate	"			ND	"	0.330				
4,6-Dinitro-2-methylphenol	"			ND	"	1.00				
2,4-Dinitrophenol	"			ND	"	2.00				
2,4-Dinitrotoluene	"			ND	"	0.330				
2,6-Dinitrotoluene	"			ND	"	0.330				

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/10/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 1/13/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 1/28/00 16:15

Semivolatile Organic Compounds per EPA Method 8270C/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	**0100354-BLK1**									
Bis(2-ethylhexyl)phthalate	1/19/00			**ND**	mg/kg dry	**2.00**				
Fluoranthene	"			**ND**	"	**0.330**				
Fluorene	"			**ND**	"	**0.330**				
Hexachlorobenzene	"			**ND**	"	**0.330**				
Hexachlorobutadiene	"			**ND**	"	**1.00**				
Hexachlorocyclopentadiene	"			**ND**	"	**1.00**				
Hexachloroethane	"			**ND**	"	**1.00**				
Indeno (1,2,3-cd) pyrene	"			**ND**	"	**0.330**				
Isophorone	"			**ND**	"	**0.330**				
2-Methylnaphthalene	"			**ND**	"	**0.330**				
2-Methylphenol	"			**ND**	"	**0.330**				
3-,4-Methylphenol	"			**ND**	"	**0.330**				
Naphthalene	"			**ND**	"	**0.330**				
2-Nitroaniline	"			**ND**	"	**0.330**				
3-Nitroaniline	"			**ND**	"	**1.00**				
4-Nitroaniline	"			**ND**	"	**0.330**				
Nitrobenzene	"			**ND**	"	**0.330**				
2-Nitrophenol	"			**ND**	"	**0.330**				
4-Nitrophenol	"			**ND**	"	**1.00**				
N-Nitrosodi-n-propylamine	"			**ND**	"	**0.330**				
N-Nitrosodiphenylamine	"			**ND**	"	**0.330**				
Pentachlorophenol	"			**ND**	"	**1.00**				
Phenanthrene	"			**ND**	"	**0.330**				
Phenol	"			**ND**	"	**0.330**				
Pyrene	"			**ND**	"	**0.330**				
1,2,4-Trichlorobenzene	"			**ND**	"	**0.330**				
2,4,5-Trichlorophenol	"			**ND**	"	**0.330**				
2,4,6-Trichlorophenol	"			**ND**	"	**0.330**				
Surrogate: 2-Fluorobiphenyl	"	*2.50*		*1.84*	"	*44.0-146*	*73.6*			
Surrogate: 2-Fluorophenol	"	*5.00*		*3.60*	"	*42.0-126*	*72.0*			
Surrogate: Nitrobenzene-d5	"	*2.50*		*1.48*	"	*42.0-126*	*59.2*			
Surrogate: Phenol-d6	"	*5.00*		*3.82*	"	*42.0-131*	*76.4*			
Surrogate: p-Terphenyl-d14	"	*2.50*		*1.88*	"	*49.0-150*	*75.2*			
Surrogate: 2,4,6-Tribromophenol	"	*5.00*		*4.17*	"	*48.0-119*	*83.4*			
LCS	**0100354-BS1**									
Acenaphthene	1/19/00	2.50		1.64	mg/kg dry	47.0-145	65.6			
4-Chloro-3-methylphenol	"	5.00		3.67	"	22.0-147	73.4			

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*Refer to end of report for text of notes and definitions

Latonya Pelt, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/10/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 1/13/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 1/28/00 16:15

Semivolatile Organic Compounds per EPA Method 8270C/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS (continued)	**0100354-BS1**									
2-Chlorophenol	1/19/00	5.00		3.33	mg/kg dry	23.0-134	66.6			
1,4-Dichlorobenzene	"	2.50		1.40	"	20.0-124	56.0			
2,4-Dinitrotoluene	"	2.50		1.73	"	39.0-139	69.2			
4-Nitrophenol	"	5.00		3.60	"	0-132	72.0			
N-Nitrosodi-n-propylamine	"	2.50		1.44	"	0-230	57.6			
Pentachlorophenol	"	5.00		3.06	"	14.0-176	61.2			
Phenol	"	5.00		3.33	"	5.00-112	66.6			
Pyrene	"	2.50		1.78	"	52.0-130	71.2			
1,2,4-Trichlorobenzene	"	2.50		1.51	"	44.0-142	60.4			
Surrogate: 2-Fluorobiphenyl	"	*2.50*		*1.83*	"	*44.0-146*	*73.2*			
Surrogate: 2-Fluorophenol	"	*5.00*		*3.67*	"	*42.0-126*	*73.4*			
Surrogate: Nitrobenzene-d5	"	*2.50*		*1.72*	"	*42.0-126*	*68.8*			
Surrogate: Phenol-d6	"	*5.00*		*3.90*	"	*42.0-131*	*78.0*			
Surrogate: p-Terphenyl-d14	"	*2.50*		*1.96*	"	*49.0-150*	*78.4*			
Surrogate: 2,4,6-Tribromophenol	"	*5.00*		*4.23*	"	*48.0-119*	*84.6*			
LCS Dup	**0100354-BSD1**									
Acenaphthene	1/19/00	2.50		1.53	mg/kg dry	47.0-145	61.2	60.0	6.94	
4-Chloro-3-methylphenol	"	5.00		3.67	"	22.0-147	73.4	60.0	0	
2-Chlorophenol	"	5.00		2.89	"	23.0-134	57.8	60.0	14.1	
1,4-Dichlorobenzene	"	2.50		1.09	"	20.0-124	43.6	60.0	24.9	
2,4-Dinitrotoluene	"	2.50		1.80	"	39.0-139	72.0	60.0	3.97	
4-Nitrophenol	"	5.00		3.63	"	0-132	72.6	60.0	0.830	
N-Nitrosodi-n-propylamine	"	2.50		1.27	"	0-230	50.8	60.0	12.5	
Pentachlorophenol	"	5.00		3.27	"	14.0-176	65.4	60.0	6.64	
Phenol	"	5.00		2.86	"	5.00-112	57.2	60.0	15.2	
Pyrene	"	2.50		1.81	"	52.0-130	72.4	60.0	1.67	
1,2,4-Trichlorobenzene	"	2.50		1.30	"	44.0-142	52.0	60.0	14.9	
Surrogate: 2-Fluorobiphenyl	"	*2.50*		*1.64*	"	*44.0-146*	*65.6*			
Surrogate: 2-Fluorophenol	"	*5.00*		*3.21*	"	*42.0-126*	*64.2*			
Surrogate: Nitrobenzene-d5	"	*2.50*		*1.42*	"	*42.0-126*	*56.8*			
Surrogate: Phenol-d6	"	*5.00*		*3.47*	"	*42.0-131*	*69.4*			
Surrogate: p-Terphenyl-d14	"	*2.50*		*2.00*	"	*49.0-150*	*80.0*			
Surrogate: 2,4,6-Tribromophenol	"	*5.00*		*4.43*	"	*48.0-119*	*88.6*			

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Appendix I
Chlorinated Herbicides by 8151A
Data Package

North Creek Analytical, Inc.
Environmental Laboratory Network

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/10/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 1/13/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 1/28/00 16:15

Chlorinated Herbicides by EPA Method 8151A/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0A18018	**Date Prepared: 1/18/00**					**Extraction Method: EPA 1658**				
Blank	**0A18018-BLK1**									
Bromoxynil	1/25/00			**ND**	ug/kg dry	**1.00**				
2,4-D	"			**ND**	"	**40.0**				
2,4-DB	"			**ND**	"	**20.0**				
2,4,5-T	"			**ND**	"	**50.0**				
2,4,5-TP (Silvex)	"			**ND**	"	**50.0**				
Dalapon	"			**ND**	"	**50.0**				
Dicamba	"			**ND**	"	**20.0**				
Dichlorprop	"			**ND**	"	**10.0**				
Dinoseb	"			**ND**	"	**10.0**				
MCPA	"			**ND**	"	**1000**				
MCPP	"			**ND**	"	**1000**				
Surrogate: 2,4-DCAA	"	*333*		*316*	"	*31-136*	*94.9*			
LCS	**0A18018-BS1**									
2,4-D	1/25/00	100		99.8	ug/kg dry	41-141	99.8			
2,4,5-TP (Silvex)	"	100		82.8	"	51-116	82.8			
Surrogate: 2,4-DCAA	"	*333*		*320*	"	*31-136*	*96.1*			
LCS	**0A18018-BS2**									
Bromoxynil	1/25/00	33.3		38.2	ug/kg dry	31-136	115			
Surrogate: 2,4-DCAA	"	*333*		*310*	"	*31-136*	*93.1*			
LCS Dup	**0A18018-BSD2**									
Bromoxynil	1/25/00	33.3		39.8	ug/kg dry	31-136	120	25	4.10	
Surrogate: 2,4-DCAA	"	*333*		*318*	"	*31-136*	*95.5*			
Matrix Spike	**0A18018-MS1**		**P001195-01**							**4**
2,4-D	1/25/00	121	231000	**NR**	ug/kg dry	41-141	**NR**			
2,4,5-TP (Silvex)	"	121	**NR**	**NR**	"	51-116	**NR**			
Surrogate: 2,4-DCAA	"	*403*		**NR**	"	*31-136*	**NR**			
Matrix Spike Dup	**0A18018-MSD1**		**P001195-01**							**4**
2,4-D	1/25/00	121	231000	**NR**	ug/kg dry	41-141	**NR**	44		
2,4,5-TP (Silvex)	"	121	**NR**	**NR**	"	51-116	**NR**	27		
Surrogate: 2,4-DCAA	"	*403*		**NR**	"	*31-136*	**NR**			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/10/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 1/13/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 1/28/00 16:15

Physical Parameters by APHA/ASTM/EPA Methods/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0A18003	**Date Prepared: 1/18/00**				**Extraction Method: Dry Weight**					
Blank	**0A18003-BLK1**									
Dry Weight	1/19/00			**99.8**	%	**1.00**				

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111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 1/13/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 1/28/00 16:15

Notes and Definitions

#	Note
J	Estimated value.
1	Detected hydrocarbons do not have pattern and range consistent with typical petroleum products and may be due to biogenic interference.
2	Reporting limits raised due to dilution necessary for analysis. Sample contains high levels of reported analyte, non-target analyte, and/or matrix interference.
3	This note intentionally left blank.
4	The surrogate and/or spike recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interferences.
5	Unable to calculate surrogate recovery due to matrix interference.
6	Surrogate recovery is out of control limits. QA criteria are met when one surrogate is within control limits.
7	Analyses are not controlled on RPD values from sample concentrations less than 5 times the reporting limit.
8	The spike recovery and/or % RPD for this analyte is outside of established control limits due to sample matrix interference and/or high analyte concentration.
9	The spike recovery, and/or RPD, for this QC sample is outside of established control limits. Sample data integrity is not impacted by the low bias.
10	Surrogate recovery is outside control limits. Review of associated batch QC and sample surrogate data indicates the recovery for this analyte does not represent an out-of-control condition for the batch.

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/10/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 1/13/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 1/28/00 16:15

Notes and Definitions

#	Note

Recov. Recovery

RPD Relative Percent Difference

North Creek Analytical - Portland

Latonya Pelt, Project Manager

North Creek Analytical, Inc.
Environmental Laboratory Network

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Case Narrative

CLIENT: URS Greiner Woodward Clyde
PROJECT: RPAC
PROJECT #: 92C0804A.00/44

February 15, 2000
NCA #: P001226

1.0 DESCRIPTION OF CASE

North Creek Analytical, Beaverton received five water samples on 1/17/00 from URS Greiner Woodward Clyde for analysis by the following EPA Methods: 6020 Dissolved Metals, 7470A Dissolved Mercury, Isobutyl Alcohol by GC/FID Headspace Analysis, 8041 Phenols, 8081A/8082 Pesticides/PCBs, 8141A Organophosphorous Pesticides, 8260B Volatile Organics and 8151A Chlorinated Herbicides. One of the five water samples received was a trip blank for volatiles analysis only. 8151A Chlorinated Herbicides analysis was subcontracted to NCA, Bothell. A separate *Case Narrative* and raw data package for the subcontracted analysis are contained in Appendix I of this data package.

2.0 SAMPLE LIST

Refer to the *Chain of Custody* documents for a summary of sample information.

Each group of samples received is given an NCA #, proceeded by a "P" for Portland. This number consists of a one-digit code for the year, a two-digit code for the month and a sequential number for the group within the month. Each sample within the sub-group is numbered sequentially by placing a dash after the NCA#.

3.0 COMMENTS ON ANALYSIS

3.1 Sample Receipt

The samples were received intact from URS Greiner Woodward Clyde. The cooler was hand delivered by NCA courier, custody seals were present and intact. The samples were clearly labeled and matched the chain of custody. Sample temperature (5.2 °C) was measured upon receipt using a Digital probe Thermometer and recorded with sample log-in information.

3.2 Analysis

The samples were analyzed following the procedures outlined in the applicable methods. The samples were refrigerated at ~ 4 °C and extracted and analyzed within the EPA recommended holding times without incident; any exceptions are footnoted and described in the *Notes and Definitions* section of the *Analytical Report*. Exceptions requiring more detail are as follows:

Dissolved Metals

Sample matrix interference necessitated that the sample be diluted for analysis and that Cu results be reported from the Cu 65 ion data rather than the Cu 63 ion data. Raw data for both the initial undiluted analysis and the analysis of the samples diluted five fold are included in the data package.

Organochlorine Pesticides by 8081A/8082

Dilution of sample 042-GG-01 was necessary for analysis due to high concentration of non-target analytes and/or matrix interference.

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Case Narrative

Volatile Organics by 8260B

Sample 043-GG-01 was reanalyzed with a different analytical batch/analysis date for Trichlorofluoromethane due to an instrumentational high bias for the analyte and detection in the sample just above the MRL. The analyte was not detected in any other samples during the initial analysis. Trichlorofluoromethane results were reported as "ND" from the reanalysis of sample 043-GG-01.

The trip blank sample was reanalyzed within the same analytical batch/analysis date due to a low response for one internal standard during the initial analysis.

4.0 QC RESULTS

Surrogate and quality control parameters that were outside control limits are noted on the appropriate pages of the *Analytical Report*. All quality control parameters other than those noted on the *Analytical Report* were within established control limits.

5.0 SAMPLE RESULTS

Where applicable, qualifiers have been added to sample results as footnotes and are detailed in the *Notes and Definitions* section of the *Analytical Report*.

The dilution factor for a sample, if applicable, is depicted on the *Analytical Report* as the MRL(s) for the quantitated analytes being raised by the dilution factor. The method blank sample may be referenced for the initial MRL.

" I certify that this data package is in compliance with the method, both technically and for completeness, for all conditions other than those listed above. Release of the data in this hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature."

Susan Schimelfining, QA Manager
North Creek Analytical, Beaverton

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North Creek Analytical Report

013

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Environmental Laboratory Network

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
042-GG-01	P001226-01	Water	1/17/00
043-GG-01	P001226-02	Water	1/17/00
043-GG-02	P001226-03	Water	1/17/00
042-GG-03	P001226-04	Water	1/17/00
TRIP BLANK	P001226-05	Water	1/17/00

The results in this report apply to the samples analyzed in accordance with the chain of custody docum[illegible]
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Latonya Pelt, Project Manager

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Dissolved Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
042-GG-01			**P001226-01**				**Water**	
Arsenic	0300007	1/25/00	2/3/00	EPA 6020	0.00500	**0.0359**	mg/l	1
Cadmium	"	"	"	EPA 6020	0.00500	ND	"	1
Chromium	"	"	"	EPA 6020	0.00500	**0.0152**	"	1
Copper	"	"	"	EPA 6020	0.0100	**0.0729**	"	1
Lead	"	"	"	EPA 6020	0.00500	ND	"	1
Nickel	"	"	"	EPA 6020	0.0100	**0.0395**	"	1
Vanadium	"	"	"	EPA 6020	0.0250	**0.234**	"	1
Zinc	"	"	"	EPA 6020	0.0250	**0.101**	"	1
Mercury	0100654	1/27/00	1/28/00	EPA 7470A	0.000200	**0.000482**	"	
043-GG-01			**P001226-02**				**Water**	
Arsenic	0300007	1/25/00	2/3/00	EPA 6020	0.00500	**0.0896**	mg/l	1
Cadmium	"	"	"	EPA 6020	0.00500	ND	"	1
[illegible]mium	"	"	"	EPA 6020	0.00500	ND	"	1
[illegible]pper	"	"	"	EPA 6020	0.0100	ND	"	1
Lead	"	"	"	EPA 6020	0.00500	ND	"	1
Nickel	"	"	"	EPA 6020	0.0100	ND	"	1
Vanadium	"	"	"	EPA 6020	0.0250	**0.315**	"	1
Zinc	"	"	"	EPA 6020	0.0250	ND	"	1
Mercury	0100654	1/27/00	1/28/00	EPA 7470A	0.000200	**0.000387**	"	
043-GG-02			**P001226-03**				**Water**	
Arsenic	0300007	1/25/00	2/3/00	EPA 6020	0.00500	**0.0914**	mg/l	1
Cadmium	"	"	"	EPA 6020	0.00500	ND	"	1
Chromium	"	"	"	EPA 6020	0.00500	ND	"	1
Copper	"	"	"	EPA 6020	0.0100	ND	"	1
Lead	"	"	"	EPA 6020	0.00500	ND	"	1
Nickel	"	"	"	EPA 6020	0.0100	**0.0100**	"	1
Vanadium	"	"	"	EPA 6020	0.0250	**0.366**	"	1
Zinc	"	"	"	EPA 6020	0.0250	ND	"	1
Mercury	0100654	1/27/00	1/28/00	EPA 7470A	0.000200	**0.000373**	"	
042-GG-03			**P001226-04**				**Water**	
Arsenic	0300007	1/25/00	2/3/00	EPA 6020	0.00500	ND	mg/l	1
Cadmium	"	"	"	EPA 6020	0.00500	ND	"	1
Chromium	"	"	"	EPA 6020	0.00500	ND	"	1
Copper	"	"	"	EPA 6020	0.0100	ND	"	1
Lead	"	"	"	EPA 6020	0.00500	ND	"	1

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Dissolved Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
042-GG-03 (continued)			**P001226-04**				**Water**	
Nickel	0300007	1/25/00	2/3/00	EPA 6020	0.0100	ND	mg/l	1
Vanadium	"	"	"	EPA 6020	0.0250	ND	"	1
Zinc	"	"	"	EPA 6020	0.0250	ND	"	1
Mercury	0100654	1/27/00	1/28/00	EPA 7470A	0.000200	ND	"	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Alcohols by GC/FID Headspace Analysis
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
042-GG-01			**P001226-01**				**Water**	
Isobutyl alcohol	0100383	1/18/00	1/19/00	EPA 8015	10.0	ND	mg/l	
043-GG-01			**P001226-02**				**Water**	
Isobutyl alcohol	0100383	1/18/00	1/19/00	EPA 8015	10.0	ND	mg/l	
043-GG-02			**P001226-03**				**Water**	
Isobutyl alcohol	0100383	1/18/00	1/19/00	EPA 8015	10.0	ND	mg/l	
042-GG-03			**P001226-04**				**Water**	
Isobutyl alcohol	0100383	1/18/00	1/19/00	EPA 8015	10.0	ND	mg/l	
TRIP BLANK			**P001226-05**				**Water**	
Isobutyl alcohol	0100383	1/18/00	1/19/00	EPA 8015	10.0	ND	mg/l	

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Phenols per EPA Method 8041
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
042-GG-01			**P001226-01**				**Water**	
4-Chloro-3-methylphenol	0100471	1/20/00	1/25/00		25.0	ND	ug/l	
2-Chlorophenol	"	"	"		25.0	ND	"	
Cresols	"	"	"		25.0	ND	"	
2,4-Dichlorophenol	"	"	"		25.0	ND	"	
2,6-Dichlorophenol	"	"	"		25.0	ND	"	
2,4-Dimethylphenol	"	"	"		25.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		25.0	ND	"	
2,4-Dinitrophenol	"	"	"		62.5	ND	"	
Dinoseb	"	"	"		25.0	ND	"	
2-Nitrophenol	"	"	"		25.0	ND	"	
4-Nitrophenol	"	"	"		25.0	ND	"	
Pentachlorophenol	"	"	"		25.0	ND	"	
Phenol	"	"	"		25.0	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		25.0	ND	"	
2,4,5-Trichlorophenol	"	"	"		25.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		25.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*37.3*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*71.1*	"	
043-GG-01			**P001226-02**				**Water**	
4-Chloro-3-methylphenol	0100471	1/20/00	1/25/00		25.0	ND	ug/l	
2-Chlorophenol	"	"	"		25.0	ND	"	
Cresols	"	"	"		25.0	ND	"	
2,4-Dichlorophenol	"	"	"		25.0	ND	"	
2,6-Dichlorophenol	"	"	"		25.0	ND	"	
2,4-Dimethylphenol	"	"	"		25.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		25.0	ND	"	
2,4-Dinitrophenol	"	"	"		62.5	ND	"	
Dinoseb	"	"	"		25.0	ND	"	
2-Nitrophenol	"	"	"		25.0	ND	"	
4-Nitrophenol	"	"	"		25.0	ND	"	
Pentachlorophenol	"	"	"		25.0	ND	"	
Phenol	"	"	"		25.0	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		25.0	ND	"	
2,4,5-Trichlorophenol	"	"	"		25.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		25.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*39.3*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*86.6*	"	

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**Refer to end of report for text of notes and definit*

Latonya Pelt, Project Manager

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Phenols per EPA Method 8041
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
043-GG-02			**P001226-03**				**Water**	
4-Chloro-3-methylphenol	0100471	1/20/00	1/25/00		25.0	ND	ug/l	
2-Chlorophenol	"	"	"		25.0	ND	"	
Cresols	"	"	"		25.0	ND	"	
2,4-Dichlorophenol	"	"	"		25.0	ND	"	
2,6-Dichlorophenol	"	"	"		25.0	ND	"	
2,4-Dimethylphenol	"	"	"		25.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		25.0	ND	"	
2,4-Dinitrophenol	"	"	"		62.5	ND	"	
Dinoseb	"	"	"		25.0	ND	"	
2-Nitrophenol	"	"	"		25.0	ND	"	
4-Nitrophenol	"	"	"		25.0	ND	"	
Pentachlorophenol	"	"	"		25.0	ND	"	
Phenol	"	"	"		25.0	ND	"	
[illegible]6-Tetrachlorophenol	"	"	"		25.0	ND	"	
2,4,5-Trichlorophenol	"	"	"		25.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		25.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*37.5*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*81.7*	"	
042-GG-03			**P001226-04**				**Water**	
4-Chloro-3-methylphenol	0100471	1/20/00	1/25/00		25.0	ND	ug/l	
2-Chlorophenol	"	"	"		25.0	ND	"	
Cresols	"	"	"		25.0	ND	"	
2,4-Dichlorophenol	"	"	"		25.0	ND	"	
2,6-Dichlorophenol	"	"	"		25.0	ND	"	
2,4-Dimethylphenol	"	"	"		25.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		25.0	ND	"	
2,4-Dinitrophenol	"	"	"		62.5	ND	"	
Dinoseb	"	"	"		25.0	ND	"	
2-Nitrophenol	"	"	"		25.0	ND	"	
4-Nitrophenol	"	"	"		25.0	ND	"	
Pentachlorophenol	"	"	"		25.0	ND	"	
Phenol	"	"	"		25.0	ND	"	
2,3,4,6-Tetrachlorophenol	"	"	"		25.0	ND	"	
2,4,5-Trichlorophenol	"	"	"		25.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		25.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*22.0-83.0*		*40.2*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*42.0-141*		*73.2*	"	

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**Refer to end of report for text of notes and definitions.*

Latonya Pelt, Project Manager

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Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
042-GG-01			**P001226-01**				**Water**	
Aldrin	0100409	1/19/00	1/21/00		0.200	ND	ug/l	1
alpha-BHC	"	"	"		0.200	ND	"	1
beta-BHC	"	"	"		0.200	ND	"	1
delta-BHC	"	"	"		0.200	ND	"	1
gamma-BHC (Lindane)	"	"	"		0.200	ND	"	1
alpha-Chlordane	"	"	"		0.200	ND	"	1
gamma-Chlordane	"	"	"		0.200	ND	"	1
Chlordane (tech)	"	"	"		2.00	ND	"	1
4,4'-DDD	"	"	"		0.200	ND	"	1
4,4'-DDE	"	"	"		0.200	ND	"	1
4,4'-DDT	"	"	"		0.200	ND	"	1
Dieldrin	"	"	"		0.200	ND	"	1
Endosulfan I	"	"	"		0.200	ND	"	1
Endosulfan II	"	"	"		0.200	ND	"	1
Endosulfan sulfate	"	"	"		0.200	ND	"	1
Endrin	"	"	"		0.200	ND	"	1
Endrin aldehyde	"	"	"		0.200	ND	"	1
Endrin ketone	"	"	"		0.200	ND	"	1
Heptachlor	"	"	"		0.200	ND	"	1
Heptachlor epoxide	"	"	"		0.200	ND	"	1
Hexachlorobenzene	"	"	"		0.200	ND	"	1
Methoxychlor	"	"	"		0.200	ND	"	1
Toxaphene	"	"	"		5.00	ND	"	1
Aroclor 1016	"	"	1/20/00		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*1/21/00*	*44.0-119*		*68.6*	*%*	
Surrogate: Decachlorobiphenyl	"	"	*1/20/00*	*54.0-128*		*36.9*	"	*2*

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Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
043-GG-01			**P001226-02**				**Water**	
Aldrin	0100409	1/19/00	1/21/00		0.100	ND	ug/l	
alpha-BHC	"	"	"		0.100	ND	"	
beta-BHC	"	"	"		0.100	ND	"	
delta-BHC	"	"	"		0.100	ND	"	
gamma-BHC (Lindane)	"	"	"		0.100	ND	"	
alpha-Chlordane	"	"	"		0.100	ND	"	
gamma-Chlordane	"	"	"		0.100	ND	"	
Chlordane (tech)	"	"	"		1.00	ND	"	
4,4'-DDD	"	"	"		0.100	ND	"	
4,4'-DDE	"	"	"		0.100	ND	"	
4,4'-DDT	"	"	"		0.100	ND	"	
Dieldrin	"	"	"		0.100	ND	"	
Endosulfan I	"	"	"		0.100	ND	"	
[illegible]sulfan II	"	"	"		0.100	ND	"	
[illegible]sulfan sulfate	"	"	"		0.100	ND	"	
Endrin	"	"	"		0.100	ND	"	
Endrin aldehyde	"	"	"		0.100	ND	"	
Endrin ketone	"	"	"		0.100	ND	"	
Heptachlor	"	"	"		0.100	ND	"	
Heptachlor epoxide	"	"	"		0.100	ND	"	
Hexachlorobenzene	"	"	"		0.100	ND	"	
Methoxychlor	"	"	"		0.100	ND	"	
Toxaphene	"	"	"		2.50	ND	"	
Aroclor 1016	"	"	1/20/00		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*1/21/00*	*44.0-119*		*99.2*	*%*	
Surrogate: Decachlorobiphenyl	"	"	*1/20/00*	*54.0-128*		*62.3*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
043-GG-02			**P001226-03**				**Water**	
Aldrin	0100409	1/19/00	1/21/00		0.100	ND	ug/l	
alpha-BHC	"	"	"		0.100	ND	"	
beta-BHC	"	"	"		0.100	ND	"	
delta-BHC	"	"	"		0.100	ND	"	
gamma-BHC (Lindane)	"	"	"		0.100	ND	"	
alpha-Chlordane	"	"	"		0.100	ND	"	
gamma-Chlordane	"	"	"		0.100	ND	"	
Chlordane (tech)	"	"	"		1.00	ND	"	
4,4'-DDD	"	"	"		0.100	ND	"	
4,4'-DDE	"	"	"		0.100	ND	"	
4,4'-DDT	"	"	"		0.100	ND	"	
Dieldrin	"	"	"		0.100	ND	"	
Endosulfan I	"	"	"		0.100	ND	"	
Endosulfan II	"	"	"		0.100	ND	"	
Endosulfan sulfate	"	"	"		0.100	ND	"	
Endrin	"	"	"		0.100	ND	"	
Endrin aldehyde	"	"	"		0.100	ND	"	
Endrin ketone	"	"	"		0.100	ND	"	
Heptachlor	"	"	"		0.100	ND	"	
Heptachlor epoxide	"	"	"		0.100	ND	"	
Hexachlorobenzene	"	"	"		0.100	ND	"	
Methoxychlor	"	"	"		0.100	ND	"	
Toxaphene	"	"	"		2.50	ND	"	
Aroclor 1016	"	"	1/20/00		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*1/21/00*	*44.0-119*		*93.4*	*%*	
Surrogate: Decachlorobiphenyl	"	"	*1/20/00*	*54.0-128*		*68.6*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
042-GG-03			**P001226-04**				**Water**	
Aldrin	0100409	1/19/00	1/21/00		0.100	ND UJ	ug/l	
alpha-BHC	"	"	"		0.100	ND	"	
beta-BHC	"	"	"		0.100	ND	"	
delta-BHC	"	"	"		0.100	ND	"	
gamma-BHC (Lindane)	"	"	"		0.100	ND	"	
alpha-Chlordane	"	"	"		0.100	ND	"	
gamma-Chlordane	"	"	"		0.100	ND	"	
Chlordane (tech)	"	"	"		1.00	ND	"	
4,4'-DDD	"	"	"		0.100	ND	"	
4,4'-DDE	"	"	"		0.100	ND	"	
4,4'-DDT	"	"	"		0.100	ND	"	
Dieldrin	"	"	"		0.100	ND	"	
Endosulfan I	"	"	"		0.100	ND	"	
[illegible]sulfan II	"	"	"		0.100	ND	"	
[illegible]osulfan sulfate	"	"	"		0.100	ND	"	
Endrin	"	"	"		0.100	ND	"	
Endrin aldehyde	"	"	"		0.100	ND	"	
Endrin ketone	"	"	"		0.100	ND	"	
Heptachlor	"	"	"		0.100	ND	"	
Heptachlor epoxide	"	"	"		0.100	ND	"	
Hexachlorobenzene	"	"	"		0.100	ND	"	
Methoxychlor	"	"	"		0.100	ND	"	
Toxaphene	"	"	"		2.50	ND	"	
Aroclor 1016	"	"	1/20/00		0.500	ND	"	
Aroclor 1221	"	"	"		1.00	ND	"	
Aroclor 1232	"	"	"		0.500	ND	"	
Aroclor 1242	"	"	"		0.500	ND	"	
Aroclor 1248	"	"	"		0.500	ND	"	
Aroclor 1254	"	"	"		0.500	ND	"	
Aroclor 1260	"	"	"		0.500	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*1/21/00*	*44.0-119*		*90.0*	*%*	
Surrogate: Decachlorobiphenyl	"	"	*1/20/00*	*54.0-128*		*37.3*	"	*2*

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Latonya Pelt, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Organophosphorus Pesticides per EPA Method 8141A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
042-GG-01			**P001226-01**				**Water**	
Azinphos methyl	0100423	1/19/00	1/22/00		1.00	ND	ug/l	
Bolstar	"	"	"		1.00	ND	"	
Chlorpyrifos	"	"	"		1.00	ND	"	
Coumaphos	"	"	"		1.00	ND	"	
Demeton	"	"	"		1.00	ND	"	
Diazinon	"	"	"		1.00	ND	"	
Dichlorvos	"	"	"		1.00	ND	"	
Disulfoton	"	"	"		1.00	ND	"	
EPN	"	"	"		1.00	ND	"	
Ethoprop	"	"	"		1.00	ND	"	
Fensulfothion	"	"	"		2.00	ND	"	
Fenthion	"	"	"		1.00	ND	"	
Malathion	"	"	"		1.00	ND	"	
Mevinphos	"	"	"		1.00	ND	"	
Naled	"	"	"		1.00	ND	"	
Parathion-ethyl	"	"	"		1.00	ND	"	
Parathion-methyl	"	"	"		1.00	ND	"	
Phorate	"	"	"		1.00	ND	"	
Ronnel	"	"	"		1.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		1.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		1.00	ND	"	
Trichloronate	"	"	"		1.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*75.0*	*%*	
Surrogate: TPP	"	"	"	*65.0-138*		*71.6*	"	
043-GG-01			**P001226-02**				**Water**	
Azinphos methyl	0100423	1/19/00	1/22/00		1.00	ND	ug/l	
Bolstar	"	"	"		1.00	ND	"	
Chlorpyrifos	"	"	"		1.00	ND	"	
Coumaphos	"	"	"		1.00	ND	"	
Demeton	"	"	"		1.00	ND	"	
Diazinon	"	"	"		1.00	ND	"	
Dichlorvos	"	"	"		1.00	ND	"	
Disulfoton	"	"	"		1.00	ND	"	
EPN	"	"	"		1.00	ND	"	
Ethoprop	"	"	"		1.00	ND	"	
Fensulfothion	"	"	"		2.00	ND	"	
Fenthion	"	"	"		1.00	ND	"	

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Latonya Pelt, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Organophosphorus Pesticides per EPA Method 8141A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
043-GG-01 (continued)			**P001226-02**				**Water**	
Malathion	0100423	1/19/00	1/22/00		1.00	ND	ug/l	
Mevinphos	"	"	"		1.00	ND	"	
Naled	"	"	"		1.00	ND	"	
Parathion-ethyl	"	"	"		1.00	ND	"	
Parathion-methyl	"	"	"		1.00	ND	"	
Phorate	"	"	"		1.00	ND	"	
Ronnel	"	"	"		1.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		1.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		1.00	ND	"	
Trichloronate	"	"	"		1.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*93.6*	*%*	
Surrogate: TPP	"	"	"	*65.0-138*		*94.5*	"	
[illegible]GG-02			**P001226-03**				**Water**	
[illegible]phos methyl	0100423	1/19/00	1/22/00		1.00	ND	ug/l	
Bolstar	"	"	"		1.00	ND	"	
Chlorpyrifos	"	"	"		1.00	ND	"	
Coumaphos	"	"	"		1.00	ND	"	
Demeton	"	"	"		1.00	ND	"	
Diazinon	"	"	"		1.00	ND	"	
Dichlorvos	"	"	"		1.00	ND	"	
Disulfoton	"	"	"		1.00	ND	"	
EPN	"	"	"		1.00	ND	"	
Ethoprop	"	"	"		1.00	ND	"	
Fensulfothion	"	"	"		2.00	ND	"	
Fenthion	"	"	"		1.00	ND	"	
Malathion	"	"	"		1.00	ND	"	
Mevinphos	"	"	"		1.00	ND	"	
Naled	"	"	"		1.00	ND	"	
Parathion-ethyl	"	"	"		1.00	ND	"	
Parathion-methyl	"	"	"		1.00	ND	"	
Phorate	"	"	"		1.00	ND	"	
Ronnel	"	"	"		1.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		1.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		1.00	ND	"	
Trichloronate	"	"	"		1.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*88.6*	*%*	
Surrogate: TPP	"	"	"	*65.0-138*		*91.9*	"	

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Latonya Pelt, Project Manager

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111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Organophosphorus Pesticides per EPA Method 8141A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
042-GG-03			**P001226-04**				**Water**	
Azinphos methyl	0100423	1/19/00	1/22/00		1.00	ND	ug/l	
Bolstar	"	"	"		1.00	ND	"	
Chlorpyrifos	"	"	"		1.00	ND	"	
Coumaphos	"	"	"		1.00	ND	"	
Demeton	"	"	"		1.00	ND	"	
Diazinon	"	"	"		1.00	ND	"	
Dichlorvos	"	"	"		1.00	ND	"	
Disulfoton	"	"	"		1.00	ND	"	
EPN	"	"	"		1.00	ND	"	
Ethoprop	"	"	"		1.00	ND	"	
Fensulfothion	"	"	"		2.00	ND	"	
Fenthion	"	"	"		1.00	ND	"	
Malathion	"	"	"		1.00	ND	"	
Mevinphos	"	"	"		1.00	ND	"	
Naled	"	"	"		1.00	ND	"	
Parathion-ethyl	"	"	"		1.00	ND	"	
Parathion-methyl	"	"	"		1.00	ND	"	
Phorate	"	"	"		1.00	ND	"	
Ronnel	"	"	"		1.00	ND	"	
Stirophos (Tetrachlorvinphos)	"	"	"		1.00	ND	"	
Tokuthion (Prothiofos)	"	"	"		1.00	ND	"	
Trichloronate	"	"	"		1.00	ND	"	
Surrogate: TBP	"	"	"	*64.0-132*		*93.6*	*%*	
Surrogate: TPP	"	"	"	*65.0-138*		*88.6*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
042-GG-01			**P001226-01**				**Water**	
Acetone	0100478	1/21/00	1/21/00		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	UJ
[illegible]obenzene	"	"	"		1.00	ND	"	
[illegible]oroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	**24.2**	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	**2.41**	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	UJ 1/31/00
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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Latonya Pelt, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
042-GG-01 (continued)			**P001226-01**				**Water**	
Ethylbenzene	0100478	1/21/00	1/21/00		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	UJ 3/31/00 a
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	**5.18**	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	UJ
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*114*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*121*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*109*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*106*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
043-GG-01			**P001226-02**				**Water**	
Acetone	0100478	1/21/00	1/21/00		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	U4
[illegible]obenzene	"	"	"		1.00	ND	"	
[illegible]oroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	**32.7**	"	
Chloromethane	"	"	"		5.00	ND	"	U4
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	U4
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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Latonya Pelt, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
043-GG-01 (continued)			**P001226-02**				**Water**	
Ethylbenzene	0100478	1/21/00	1/21/00		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	**1.25**	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*111*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*123*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*108*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*106*	"	
Trichlorofluoromethane	0100554	1/24/00	1/24/00		1.00	ND	ug/l	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*99.0*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*97.5*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*91.5*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*94.5*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
043-GG-02			**P001226-03**				**Water**	
Acetone	0100478	1/21/00	1/21/00		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	U4
[illegible]obenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	**48.8**	"	
Chloromethane	"	"	"		5.00	ND	"	U4
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	U4
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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Latonya Pelt, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
043-GG-02 (continued)			**P001226-03**				**Water**	
Ethylbenzene	0100478	1/21/00	1/21/00		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	U
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	U
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*114*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*118*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*103*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*104*	"	

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Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
043-GG-02			**P001226-03**				**Water**	
Acetone	0100478	1/21/00	1/21/00		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	U4
Chlorobenzene	"	"	"		1.00	ND	"	
[illegible]roethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	**48.8**	"	
Chloromethane	"	"	"		5.00	ND	"	U4
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	U4
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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North Creek Analytical - Portland

**Refer to end of report for text of notes and definitions.*

Latonya Pelt, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
043-GG-02 (continued)			**P001226-03**				**Water**	
Ethylbenzene	0100478	1/21/00	1/21/00		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*114*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*118*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*103*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*104*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
042-GG-03			**P001226-04**				**Water**	
Acetone	0100478	1/21/00	1/21/00		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	UJ
[illegible]robenzene	"	"	"		1.00	ND	"	
[illegible]roethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	UJ
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	3/31/00
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	UJ
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
042-GG-03 (continued)			**P001226-04**				**Water**	
Ethylbenzene	0100478	1/21/00	1/21/00		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	UJ
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	UJ
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*113*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*118*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*108*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*99.0*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK			**P001226-05**				**Water**	
Acetone	0100478	1/21/00	1/21/00		25.0	ND	ug/l	
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	
Carbon tetrachloride	"	"	"		2.00	ND	"	UJ
[illegible]obenzene	"	"	"		1.00	ND	"	
[illegible]roethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	UJ
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	UJ
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

3/31/00

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TRIP BLANK (continued)			**P001226-05**				**Water**	
Ethylbenzene	0100478	1/21/00	1/21/00		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	UJ
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	3/31/00
Trichlorofluoromethane	"	"	"		1.00	ND	"	UJ
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*116*	*%*	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*119*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*107*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*102*	"	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Chlorinated Herbicides by EPA Method 8151A
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
042-GG-01			**P001226-01**				**Water**	
Bromoxynil	0A21010	1/21/00	1/25/00	EPA 8151A	5.00	ND	ug/l	
2,4-D	"	"	"	EPA 8151A	5.00	ND	"	
2,4-DB	"	"	"	EPA 8151A	20.0	ND	"	
2,4,5-T	"	"	"	EPA 8151A	5.00	ND	"	
2,4,5-TP (Silvex)	"	"	"	EPA 8151A	5.00	ND	"	
Dalapon	"	"	"	EPA 8151A	50.0	ND	"	
Dicamba	"	"	"	EPA 8151A	5.00	ND	"	
Dichlorprop	"	"	"	EPA 8151A	5.00	ND	"	
Dinoseb	"	"	"	EPA 8151A	10.0	ND	"	
MCPA	"	"	"	EPA 8151A	300	ND	"	
MCPP	"	"	"	EPA 8151A	250	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24-135*		*116*	*%*	
[illegible]G-01			**P001226-02**				**Water**	
Bromoxynil	0A21010	1/21/00	1/25/00	EPA 8151A	1.00	ND	ug/l	
2,4-D	"	"	"	EPA 8151A	1.00	ND	"	
2,4-DB	"	"	"	EPA 8151A	4.00	ND	"	
2,4,5-T	"	"	"	EPA 8151A	1.00	ND	"	
2,4,5-TP (Silvex)	"	"	"	EPA 8151A	1.00	ND	"	
Dalapon	"	"	"	EPA 8151A	10.0	ND	"	
Dicamba	"	"	"	EPA 8151A	1.00	ND	"	
Dichlorprop	"	"	"	EPA 8151A	1.00	ND	"	
Dinoseb	"	"	"	EPA 8151A	2.00	ND	"	
MCPA	"	"	"	EPA 8151A	60.0	ND	"	
MCPP	"	"	"	EPA 8151A	50.0	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24-135*		*43.9*	*%*	
043-GG-02			**P001226-03**				**Water**	
Bromoxynil	0A21010	1/21/00	1/25/00	EPA 8151A	1.00	ND	ug/l	
2,4-D	"	"	"	EPA 8151A	1.00	ND	"	
2,4-DB	"	"	"	EPA 8151A	4.00	ND	"	
2,4,5-T	"	"	"	EPA 8151A	1.00	ND	"	
2,4,5-TP (Silvex)	"	"	"	EPA 8151A	1.00	ND	"	
Dalapon	"	"	"	EPA 8151A	10.0	ND	"	
Dicamba	"	"	"	EPA 8151A	1.00	ND	"	
Dichlorprop	"	"	"	EPA 8151A	1.00	ND	"	
Dinoseb	"	"	"	EPA 8151A	2.00	ND	"	
MCPA	"	"	"	EPA 8151A	60.0	ND	"	

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**Refer to end of report for text of notes and definitions.*

Latonya Pelt, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Chlorinated Herbicides by EPA Method 8151A
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
043-GG-02 (continued)			**P001226-03**				**Water**	
MCPP	0A21010	1/21/00	1/25/00	EPA 8151A	50.0	ND	ug/l	
Surrogate: 2,4-DCAA	"	"	"	*24-135*		*72.5*	*%*	
042-GG-03			**P001226-04**				**Water**	
Bromoxynil	0A21010	1/21/00	1/25/00	EPA 8151A	1.00	ND	ug/l	
2,4-D	"	"	"	EPA 8151A	1.00	ND	"	
2,4-DB	"	"	"	EPA 8151A	4.00	ND	"	
2,4,5-T	"	"	"	EPA 8151A	1.00	ND	"	
2,4,5-TP (Silvex)	"	"	"	EPA 8151A	1.00	ND	"	
Dalapon	"	"	"	EPA 8151A	10.0	ND	"	
Dicamba	"	"	"	EPA 8151A	1.00	ND	"	
Dichlorprop	"	"	"	EPA 8151A	1.00	ND	"	
Dinoseb	"	"	"	EPA 8151A	2.00	ND	"	
MCPA	"	"	"	EPA 8151A	60.0	ND	"	
MCPP	"	"	"	EPA 8151A	50.0	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*24-135*		*82.2*	*%*	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Dissolved Metals per EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0100654	**Date Prepared: 1/27/00**				**Extraction Method: EPA 7470**					
Blank	**0100654-BLK1**									
Mercury	1/28/00			**ND**	mg/l	**0.000200**				
LCS	**0100654-BS1**									
Mercury	1/28/00	0.00500		0.00541	mg/l	80.0-120	108			
Duplicate	**0100654-DUP1**		**P001226-02**							
Mercury	1/28/00		0.000387	0.000380	mg/l			20.0	**1.83**	
Matrix Spike	**0100654-MS1**		**P001226-02**							
Mercury	1/28/00	0.00500	0.000387	0.00519	mg/l	75.0-125	**96.1**			
Matrix Spike Dup	**0100654-MSD1**		**P001226-02**							
[illegible]ury	1/28/00	0.00500	0.000387	0.00475	mg/l	75.0-125	**87.3**	20.0	**9.60**	
Batch: 0300007	**Date Prepared: 1/25/00**				**Extraction Method: EPA 200/3005**					
Blank	**0300007-BLK1**									
Arsenic	2/1/00			**ND**	mg/l	**0.00100**				
Cadmium	"			**ND**	"	**0.00100**				
Chromium	"			**ND**	"	**0.00100**				
Copper	"			**ND**	"	**0.00200**				
Lead	"			**ND**	"	**0.00100**				
Nickel	"			**ND**	"	**0.00200**				
Vanadium	"			**ND**	"	**0.00500**				
Zinc	"			**ND**	"	**0.00500**				
LCS	**0300007-BS1**									
Arsenic	2/1/00	0.100		0.103	mg/l	80.0-120	103			
Cadmium	"	0.100		0.0984	"	80.0-120	98.4			
Chromium	"	0.100		0.109	"	80.0-120	109			
Copper	"	0.100		0.108	"	80.0-120	108			
Lead	"	0.100		0.101	"	80.0-120	101			
Nickel	"	0.100		0.107	"	80.0-120	107			
Vanadium	"	0.100		0.110	"	80.0-120	110			
Zinc	"	0.100		0.106	"	80.0-120	106			
Duplicate	**0300007-DUP1**		**P001226-02**							**1**
Arsenic	2/3/00		0.0896	0.0847	mg/l			20.0	**5.62**	

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Latonya Pelt, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Dissolved Metals per EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Duplicate (continued)	**0300007-DUP1**		**P001226-02**							**1**
Cadmium	2/3/00		ND	ND	mg/l			20.0		
Chromium	"		ND	0.00670	"			20.0		3
Copper	"		ND	ND	"			20.0		
Lead	"		ND	ND	"			20.0		
Nickel	"		ND	ND	"			20.0		
Vanadium	"		0.315	0.298	"			20.0	**5.55**	
Zinc	"		ND	ND	"			20.0		
Matrix Spike	**0300007-MS1**		**P001226-02**							**1**
Arsenic	2/3/00	0.100	0.0896	0.194	mg/l	75.0-125	**104**			
Cadmium	"	0.100	ND	0.0928	"	75.0-125	**92.8**			
Chromium	"	0.100	ND	0.110	"	75.0-125	**110**			
Copper	"	0.100	ND	0.109	"	75.0-125	**109**			
Lead	"	0.100	ND	0.0920	"	75.0-125	**92.0**			
Nickel	"	0.100	ND	0.111	"	75.0-125	**111**			
Vanadium	"	0.100	0.315	0.435	"	75.0-125	**120**			
Zinc	"	0.100	ND	0.0975	"	75.0-125	**97.5**			
Matrix Spike Dup	**0300007-MSD1**		**P001226-02**							**1**
Arsenic	2/3/00	0.100	0.0896	0.198	mg/l	75.0-125	**108**	20.0	**3.77**	
Cadmium	"	0.100	ND	0.0928	"	75.0-125	**92.8**	20.0	**0**	
Chromium	"	0.100	ND	0.116	"	75.0-125	**116**	20.0	**5.31**	
Copper	"	0.100	ND	0.117	"	75.0-125	**117**	20.0	**7.08**	
Lead	"	0.100	ND	0.0944	"	75.0-125	**94.4**	20.0	**2.58**	
Nickel	"	0.100	ND	0.113	"	75.0-125	**113**	20.0	**1.79**	
Vanadium	"	0.100	0.315	0.437	"	75.0-125	**122**	20.0	**1.65**	
Zinc	"	0.100	ND	0.102	"	75.0-125	**102**	20.0	**4.51**	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Alcohols by GC/FID Headspace Analysis/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0100383	**Date Prepared: 1/18/00**					**Extraction Method: 3810 Headspace**				
Blank	**0100383-BLK1**									
Isobutyl alcohol	1/19/00			**ND**	mg/l	**10.0**				
LCS	**0100383-BS1**									
Isobutyl alcohol	1/19/00	50.0		45.7	mg/l	50.0-150	91.4			
Matrix Spike	**0100383-MS1**		**P001226-02**							
Isobutyl alcohol	1/19/00	50.0	ND	48.0	mg/l	50.0-150	**96.0**			
Matrix Spike Dup	**0100383-MSD1**		**P001226-02**							
Isobutyl alcohol	1/19/00	50.0	ND	46.9	mg/l	50.0-150	**93.8**	25.0	**2.32**	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Phenols per EPA Method 8041/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0100471	**Date Prepared: 1/20/00**					**Extraction Method: EPA 3510/600 Series**				
Blank	**0100471-BLK1**									
4-Chloro-3-methylphenol	1/25/00			**ND**	ug/l	**25.0**				
2-Chlorophenol	"			**ND**	"	**25.0**				
Cresols	"			**ND**	"	**25.0**				
2,4-Dichlorophenol	"			**ND**	"	**25.0**				
2,6-Dichlorophenol	"			**ND**	"	**25.0**				
2,4-Dimethylphenol	"			**ND**	"	**25.0**				
4,6-Dinitro-2-methylphenol	"			**ND**	"	**25.0**				
2,4-Dinitrophenol	"			**ND**	"	**62.5**				
Dinoseb	"			**ND**	"	**25.0**				
2-Nitrophenol	"			**ND**	"	**25.0**				
4-Nitrophenol	"			**ND**	"	**25.0**				
Pentachlorophenol	"			**ND**	"	**25.0**				
Phenol	"			**ND**	"	**25.0**				
2,3,4,6-Tetrachlorophenol	"			**ND**	"	**25.0**				
2,4,5-Trichlorophenol	"			**ND**	"	**25.0**				
2,4,6-Trichlorophenol	"			**ND**	"	**25.0**				
Surrogate: 2-Fluorophenol	"	*150*		*83.5*	"	*22.0-83.0*	*55.7*			
Surrogate: 2,4,6-Tribromophenol	"	*150*		*130*	"	*42.0-141*	*86.7*			
LCS	**0100471-BS1**									
4-Chloro-3-methylphenol	1/25/00	150		126	ug/l	23.0-97.0	84.0			
2-Chlorophenol	"	150		128	"	27.0-123	85.3			
4-Nitrophenol	"	150		57.3	"	10.0-80.0	38.2			
Pentachlorophenol	"	150		133	"	50.0-150	88.7			
Phenol	"	150		54.4	"	12.0-110	36.3			
Surrogate: 2-Fluorophenol	"	*150*		*83.5*	"	*22.0-83.0*	*55.7*			
Surrogate: 2,4,6-Tribromophenol	"	*150*		*137*	"	*42.0-141*	*91.3*			
Matrix Spike	**0100471-MS1**		**P001226-02**							
4-Chloro-3-methylphenol	1/25/00	142	ND	108	ug/l	23.0-97.0	**76.1**			
2-Chlorophenol	"	142	ND	109	"	27.0-123	**76.8**			
4-Nitrophenol	"	142	ND	54.2	"	10.0-80.0	**38.2**			
Pentachlorophenol	"	142	ND	126	"	50.0-150	**88.7**			
Phenol	"	142	ND	45.9	"	12.0-110	**32.3**			
Surrogate: 2-Fluorophenol	"	*142*		*53.9*	"	*22.0-83.0*	*38.0*			
Surrogate: 2,4,6-Tribromophenol	"	*142*		*121*	"	*42.0-141*	*85.2*			

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Latonya Pelt, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Phenols per EPA Method 8041/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike Dup	**0100471-MSD1**		**P001226-02**							
4-Chloro-3-methylphenol	1/25/00	142	ND	105	ug/l	23.0-97.0	**73.9**	50.0	**2.93**	
2-Chlorophenol	"	142	ND	107	"	23.0-123	**75.4**	50.0	**1.84**	
4-Nitrophenol	"	142	ND	58.1	"	10.0-80.0	**40.9**	50.0	**6.83**	
Pentachlorophenol	"	142	ND	119	"	50.0-150	**83.8**	50.0	**5.68**	
Phenol	"	142	ND	48.1	"	12.0-110	**33.9**	50.0	**4.83**	
Surrogate: 2-Fluorophenol	"	*142*		*52.5*	"	*22.0-83.0*	*37.0*			
Surrogate: 2,4,6-Tribromophenol	"	*142*		*112*	"	*42.0-141*	*78.9*			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0100409	**Date Prepared: 1/19/00**					**Extraction Method: EPA 3510/600 Series**				
Blank	**0100409-BLK1**									
Aldrin	1/21/00			**ND**	ug/l	**0.100**				
alpha-BHC	"			**ND**	"	**0.100**				
beta-BHC	"			**ND**	"	**0.100**				
delta-BHC	"			**ND**	"	**0.100**				
gamma-BHC (Lindane)	"			**ND**	"	**0.100**				
alpha-Chlordane	"			**ND**	"	**0.100**				
gamma-Chlordane	"			**ND**	"	**0.100**				
Chlordane (tech)	"			**ND**	"	**1.00**				
4,4'-DDD	"			**ND**	"	**0.100**				
4,4'-DDE	"			**ND**	"	**0.100**				
4,4'-DDT	"			**ND**	"	**0.100**				
Dieldrin	"			**ND**	"	**0.100**				
Endosulfan I	"			**ND**	"	**0.100**				
Endosulfan II	"			**ND**	"	**0.100**				
Endosulfan sulfate	"			**ND**	"	**0.100**				
Endrin	"			**ND**	"	**0.100**				
Endrin aldehyde	"			**ND**	"	**0.100**				
Endrin ketone	"			**ND**	"	**0.100**				
Heptachlor	"			**ND**	"	**0.100**				
Heptachlor epoxide	"			**ND**	"	**0.100**				
Hexachlorobenzene	"			**ND**	"	**0.100**				
Methoxychlor	"			**ND**	"	**0.100**				
Toxaphene	"			**ND**	"	**2.50**				
Aroclor 1016	1/20/00			**ND**	"	**0.500**				
Aroclor 1221	"			**ND**	"	**1.00**				
Aroclor 1232	"			**ND**	"	**0.500**				
Aroclor 1242	"			**ND**	"	**0.500**				
Aroclor 1248	"			**ND**	"	**0.500**				
Aroclor 1254	"			**ND**	"	**0.500**				
Aroclor 1260	"			**ND**	"	**0.500**				
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	*1/21/00*	*0.500*		*0.406*	"	*44.0-119*	*81.2*			
Surrogate: Decachlorobiphenyl	*1/20/00*	*0.500*		*0.319*	"	*54.0-128*	*63.8*			
LCS	**0100409-BS1**									
Aroclor 1016	1/20/00	5.00		3.79	ug/l	45.0-145	75.8			
Aroclor 1260	"	5.00		3.86	"	47.0-155	77.2			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	*0.500*		*0.369*	"	*44.0-119*	*73.8*			

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Latonya Pelt, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS (continued)	**0100409-BS1**									
Surrogate: Decachlorobiphenyl	*1/20/00*	*0.500*		*0.284*	*ug/l*	*54.0-128*	*56.8*			
LCS	**0100409-BS2**									
Aldrin	1/21/00	0.250		0.198	ug/l	48.0-123	79.2			
gamma-BHC (Lindane)	"	0.250		0.229	"	47.0-137	91.6			
4,4'-DDT	"	1.00		1.05	"	77.0-128	105			
Dieldrin	"	1.00		1.05	"	84.0-135	105			
Endrin	"	1.00		1.05	"	81.0-133	105			
Heptachlor	"	0.250		0.214	"	48.0-124	85.6			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	*0.500*		*0.410*	"	*44.0-119*	*82.0*			
Surrogate: Decachlorobiphenyl	"	*0.500*		*0.352*	"	*54.0-128*	*70.4*			
Matrix Spike	**0100409-MS1**		**P001226-02**							
[redacted]	1/21/00	0.236	ND	0.204	ug/l	50.0-150	**86.4**			
[redacted]a-BHC (Lindane)	"	0.236	ND	0.225	"	50.0-150	**95.3**			
4,4'-DDT	"	0.943	ND	0.948	"	50.0-150	**101**			
Dieldrin	"	0.943	ND	0.972	"	50.0-150	**103**			
Endrin	"	0.943	ND	0.967	"	50.0-150	**103**			
Heptachlor	"	0.236	ND	0.211	"	50.0-150	**89.4**			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	*0.472*		*0.411*	"	*44.0-119*	*87.1*			
Surrogate: Decachlorobiphenyl	"	*0.472*		*0.442*	"	*54.0-128*	*93.6*			
Matrix Spike Dup	**0100409-MSD1**		**P001226-02**							
Aldrin	1/21/00	0.236	ND	0.205	ug/l	50.0-150	**86.9**	50.0	**0.577**	
gamma-BHC (Lindane)	"	0.236	ND	0.211	"	50.0-150	**89.4**	50.0	**6.39**	
4,4'-DDT	"	0.943	ND	0.906	"	50.0-150	**96.1**	50.0	**4.97**	
Dieldrin	"	0.943	ND	0.953	"	50.0-150	**101**	50.0	**1.96**	
Endrin	"	0.943	ND	0.953	"	50.0-150	**101**	50.0	**1.96**	
Heptachlor	"	0.236	ND	0.210	"	50.0-150	**89.0**	50.0	**0.448**	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	*1/20/00*	*0.472*		*0.419*	"	*44.0-119*	*88.8*			
Surrogate: Decachlorobiphenyl	*1/21/00*	*0.472*		*0.392*	"	*54.0-128*	*83.1*			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Organophosphorus Pesticides per EPA Method 8141A/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0100423	**Date Prepared: 1/19/00**					**Extraction Method: EPA 3510/600 Series**				
Blank	**0100423-BLK1**									
Azinphos methyl	1/22/00			**ND**	ug/l	**1.00**				
Bolstar	"			**ND**	"	**1.00**				
Chlorpyrifos	"			**ND**	"	**1.00**				
Coumaphos	"			**ND**	"	**1.00**				
Demeton	"			**ND**	"	**1.00**				
Diazinon	"			**ND**	"	**1.00**				
Dichlorvos	"			**ND**	"	**1.00**				
Disulfoton	"			**ND**	"	**1.00**				
EPN	"			**ND**	"	**1.00**				
Ethoprop	"			**ND**	"	**1.00**				
Fensulfothion	"			**ND**	"	**2.00**				
Fenthion	"			**ND**	"	**1.00**				
Malathion	"			**ND**	"	**1.00**				
Mevinphos	"			**ND**	"	**1.00**				
Naled	"			**ND**	"	**1.00**				
Parathion-ethyl	"			**ND**	"	**1.00**				
Parathion-methyl	"			**ND**	"	**1.00**				
Phorate	"			**ND**	"	**1.00**				
Ronnel	"			**ND**	"	**1.00**				
Stirophos (Tetrachlorvinphos)	"			**ND**	"	**1.00**				
Tokuthion (Prothiofos)	"			**ND**	"	**1.00**				
Trichloronate	"			**ND**	"	**1.00**				
Surrogate: TBP	"	*2.50*		*2.38*	"	*64.0-132*	*95.2*			
Surrogate: TPP	"	*2.50*		*2.52*	"	*65.0-138*	*101*			
LCS	**0100423-BS1**									
Dichlorvos	1/22/00	2.50		2.32	ug/l	35.0-144	92.8			
Ethoprop	"	2.50		2.26	"	51.0-145	90.4			
Parathion-methyl	"	2.50		2.20	"	60.0-142	88.0			
Stirophos (Tetrachlorvinphos)	"	2.50		2.30	"	40.0-161	92.0			
Surrogate: TBP	"	*2.50*		*2.42*	"	*64.0-132*	*96.8*			
Surrogate: TPP	"	*2.50*		*2.54*	"	*65.0-138*	*102*			
Matrix Spike	**0100423-MS1**		**P001226-02**							
Dichlorvos	1/22/00	2.36	ND	1.91	ug/l	35.0-144	**80.9**			
Ethoprop	"	2.36	ND	2.02	"	51.0-145	**85.6**			
Parathion-methyl	"	2.36	ND	2.00	"	60.0-142	**84.7**			

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Latonya Pelt, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Organophosphorus Pesticides per EPA Method 8141A/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike (continued)	**0100423-MS1**		**P001226-02**							
Stirophos (Tetrachlorvinphos)	1/22/00	2.36	ND	2.21	ug/l	40.0-161	**93.6**			
Surrogate: TBP	"	*2.36*		*2.28*	"	*64.0-132*	*96.6*			
Surrogate: TPP	"	*2.36*		*2.23*	"	*65.0-138*	*94.5*			
Matrix Spike Dup	**0100423-MSD1**		**P001226-02**							
Dichlorvos	1/22/00	2.36	ND	2.62	ug/l	35.0-144	**111**	50.0	**31.4**	
Ethoprop	"	2.36	ND	2.21	"	51.0-145	**93.6**	50.0	**8.93**	
Parathion-methyl	"	2.36	ND	2.08	"	60.0-142	**88.1**	50.0	**3.94**	
Stirophos (Tetrachlorvinphos)	"	2.36	ND	2.26	"	40.0-161	**95.8**	50.0	**2.32**	
Surrogate: TBP	"	*2.36*		*2.34*	"	*64.0-132*	*99.2*			
Surrogate: TPP	"	*2.36*		*2.30*	"	*65.0-138*	*97.5*			

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Latonya Pelt, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0100478	**Date Prepared: 1/21/00**				**Extraction Method: EPA 5030**					
Blank	**0100478-BLK1**									
Acetone	1/21/00			ND	ug/l	25.0				
Benzene	"			ND	"	1.00				
Bromobenzene	"			ND	"	1.00				
Bromochloromethane	"			ND	"	1.00				
Bromodichloromethane	"			ND	"	1.00				
Bromoform	"			ND	"	1.00				
Bromomethane	"			ND	"	10.0				
2-Butanone	"			ND	"	25.0				
n-Butylbenzene	"			ND	"	1.00				
sec-Butylbenzene	"			ND	"	1.00				
tert-Butylbenzene	"			ND	"	1.00				
Carbon disulfide	"			ND	"	10.0				
Carbon tetrachloride	"			ND	"	2.00				
Chlorobenzene	"			ND	"	1.00				
Chloroethane	"			ND	"	2.00				
Chloroform	"			ND	"	1.00				
Chloromethane	"			ND	"	5.00				
2-Chlorotoluene	"			ND	"	1.00				
4-Chlorotoluene	"			ND	"	1.00				
1,2-Dibromo-3-chloropropane	"			ND	"	1.00				
Dibromochloromethane	"			ND	"	1.00				
1,2-Dibromoethane	"			ND	"	1.00				
Dibromomethane	"			ND	"	1.00				
1,2-Dichlorobenzene	"			ND	"	1.00				
1,3-Dichlorobenzene	"			ND	"	1.00				
1,4-Dichlorobenzene	"			ND	"	1.00				
Dichlorodifluoromethane	"			ND	"	5.00				
1,1-Dichloroethane	"			ND	"	1.00				
1,2-Dichloroethane	"			ND	"	1.00				
1,1-Dichloroethene	"			ND	"	1.00				
cis-1,2-Dichloroethene	"			ND	"	1.00				
trans-1,2-Dichloroethene	"			ND	"	1.00				
1,2-Dichloropropane	"			ND	"	1.00				
1,3-Dichloropropane	"			ND	"	1.00				
2,2-Dichloropropane	"			ND	"	1.00				
1,1-Dichloropropene	"			ND	"	1.00				
cis-1,3-Dichloropropene	"			ND	"	1.00				

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	**0100478-BLK1**									
trans-1,3-Dichloropropene	1/21/00			**ND**	ug/l	**1.00**				
Ethylbenzene	"			**ND**	"	**1.00**				
Hexachlorobutadiene	"			**ND**	"	**2.00**				
2-Hexanone	"			**ND**	"	**10.0**				
Iodomethane	"			**ND**	"	**20.0**				
Isopropylbenzene	"			**ND**	"	**1.00**				
p-Isopropyltoluene	"			**ND**	"	**1.00**				
4-Methyl-2-pentanone	"			**ND**	"	**5.00**				
Methylene chloride	"			**ND**	"	**5.00**				
Naphthalene	"			**ND**	"	**1.00**				
n-Propylbenzene	"			**ND**	"	**1.00**				
Styrene	"			**ND**	"	**1.00**				
1,1,1,2-Tetrachloroethane	"			**ND**	"	**1.00**				
[illegible]2-Tetrachloroethane	"			**ND**	"	**1.00**				
[illegible]chloroethene	"			**ND**	"	**1.00**				
Toluene	"			**ND**	"	**1.00**				
1,2,3-Trichlorobenzene	"			**ND**	"	**1.00**				
1,2,4-Trichlorobenzene	"			**ND**	"	**1.00**				
1,1,1-Trichloroethane	"			**ND**	"	**1.00**				
1,1,2-Trichloroethane	"			**ND**	"	**1.00**				
Trichloroethene	"			**ND**	"	**1.00**				
Trichlorofluoromethane	"			**ND**	"	**1.00**				
1,2,3-Trichloropropane	"			**ND**	"	**1.00**				
1,2,4-Trimethylbenzene	"			**ND**	"	**1.00**				
1,3,5-Trimethylbenzene	"			**ND**	"	**1.00**				
Vinyl chloride	"			**ND**	"	**1.00**				
o-Xylene	"			**ND**	"	**1.00**				
m,p-Xylene	"			**ND**	"	**2.00**				
Surrogate: 4-BFB	"	*20.0*		*21.6*	"	*75.0-135*	*108*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*23.8*	"	*70.0-135*	*119*			
Surrogate: Dibromofluoromethane	"	*20.0*		*22.0*	"	*80.0-125*	*110*			
Surrogate: Toluene-d8	"	*20.0*		*19.4*	"	*80.0-120*	*97.0*			
LCS	**0100478-BS1**									
Benzene	1/21/00	20.0		20.6	ug/l	80.0-125	103			
Chlorobenzene	"	20.0		22.0	"	80.0-125	110			
1,1-Dichloroethene	"	20.0		24.1	"	70.0-135	121			
Toluene	"	20.0		20.9	"	80.0-125	104			

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Latonya Pelt, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS (continued)	**0100478-BS1**									
Trichloroethene	1/21/00	20.0		22.2	ug/l	70.0-130	111			
Surrogate: 4-BFB	"	*20.0*		*22.1*	"	*75.0-135*	*111*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*23.9*	"	*70.0-135*	*119*			
Surrogate: Dibromofluoromethane	"	*20.0*		*22.0*	"	*80.0-125*	*110*			
Surrogate: Toluene-d8	"	*20.0*		*20.0*	"	*80.0-120*	*100*			
LCS Dup	**0100478-BSD1**									
Benzene	1/21/00	20.0		20.5	ug/l	80.0-125	103	25.0	0	
Chlorobenzene	"	20.0		21.5	"	80.0-125	108	25.0	1.83	
1,1-Dichloroethene	"	20.0		23.7	"	70.0-135	119	25.0	1.67	
Toluene	"	20.0		20.4	"	80.0-125	102	25.0	1.94	
Trichloroethene	"	20.0		21.4	"	70.0-130	107	25.0	3.67	
Surrogate: 4-BFB	"	*20.0*		*21.4*	"	*75.0-135*	*107*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*24.3*	"	*70.0-135*	*121*			
Surrogate: Dibromofluoromethane	"	*20.0*		*21.6*	"	*80.0-125*	*108*			
Surrogate: Toluene-d8	"	*20.0*		*19.5*	"	*80.0-120*	*97.5*			
Matrix Spike	**0100478-MS1**		**P001226-02**							
Benzene	1/21/00	20.0	ND	16.6	ug/l	80.0-125	**83.0**			
Chlorobenzene	"	20.0	ND	18.1	"	80.0-125	**90.5**			
1,1-Dichloroethene	"	20.0	ND	19.4	"	70.0-135	**97.0**			
Toluene	"	20.0	1.25	18.3	"	80.0-125	**85.2**			
Trichloroethene	"	20.0	ND	18.3	"	70.0-130	**91.5**			
Surrogate: 4-BFB	"	*20.0*		*23.5*	"	*75.0-135*	*118*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*22.5*	"	*70.0-135*	*113*			
Surrogate: Dibromofluoromethane	"	*20.0*		*21.1*	"	*80.0-125*	*106*			
Surrogate: Toluene-d8	"	*20.0*		*21.1*	"	*80.0-120*	*106*			
Matrix Spike Dup	**0100478-MSD1**		**P001226-02**							**4**
Benzene	1/21/00	20.0	ND	23.0	ug/l	80.0-125	**115**	25.0	**32.3**	
Chlorobenzene	"	20.0	ND	25.4	"	80.0-125	**127**	25.0	**33.6**	
1,1-Dichloroethene	"	20.0	ND	27.4	"	70.0-135	**137**	25.0	**34.2**	
Toluene	"	20.0	1.25	25.7	"	80.0-125	**122**	25.0	**35.5**	
Trichloroethene	"	20.0	ND	25.2	"	70.0-130	**126**	25.0	**31.7**	
Surrogate: 4-BFB	"	*20.0*		*23.6*	"	*75.0-135*	*118*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*23.6*	"	*70.0-135*	*118*			

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Latonya Pelt, Project Manager

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URS Greiner Woodward Clyde	Project: RPAC	Sampled:	1/17/00
111 SW Columbia, Suite 900	Project Number: 92C0804A.00/44	Received:	1/17/00
Portland, OR 97201	Project Manager: Karen Schadler	Reported:	2/3/00 14:47

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike Dup (continued)	**0100478-MSD1**		**P001226-02**							**4**
Surrogate: Dibromofluoromethane	*1/21/00*	*20.0*		*20.8*	*ug/l*	*80.0-125*	*104*			
Surrogate: Toluene-d8	"	*20.0*		*21.6*	"	*80.0-120*	*108*			
Batch: 0100554	**Date Prepared: 1/24/00**					**Extraction Method: EPA 5030**				
Blank	**0100554-BLK1**									
Trichlorofluoromethane	1/24/00			**ND**	ug/l	**1.00**				
Surrogate: 4-BFB	"	*20.0*		*20.2*	"	*75.0-135*	*101*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*19.2*	"	*70.0-135*	*96.0*			
Surrogate: Dibromofluoromethane	"	*20.0*		*18.0*	"	*80.0-125*	*90.0*			
Surrogate: Toluene-d8	"	*20.0*		*19.0*	"	*80.0-120*	*95.0*			
LCS	**0100554-BS1**									
B[illegible]ene	1/24/00	20.0		19.0	ug/l	80.0-125	95.0			
[illegible]obenzene	"	20.0		22.4	"	80.0-125	112			
1,1-Dichloroethene	"	20.0		19.0	"	70.0-135	95.0			
Toluene	"	20.0		23.0	"	80.0-125	115			
Trichloroethene	"	20.0		18.4	"	70.0-130	92.0			
Surrogate: 4-BFB	"	*20.0*		*20.6*	"	*75.0-135*	*103*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*18.8*	"	*70.0-135*	*94.0*			
Surrogate: Dibromofluoromethane	"	*20.0*		*17.9*	"	*80.0-125*	*89.5*			
Surrogate: Toluene-d8	"	*20.0*		*21.2*	"	*80.0-120*	*106*			
LCS Dup	**0100554-BSD1**									
Benzene	1/24/00	20.0		18.2	ug/l	80.0-125	91.0	25.0	4.30	
Chlorobenzene	"	20.0		20.9	"	80.0-125	104	25.0	7.41	
1,1-Dichloroethene	"	20.0		18.2	"	70.0-135	91.0	25.0	4.30	
Toluene	"	20.0		20.3	"	80.0-125	101	25.0	13.0	
Trichloroethene	"	20.0		17.6	"	70.0-130	88.0	25.0	4.44	
Surrogate: 4-BFB	"	*20.0*		*20.2*	"	*75.0-135*	*101*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*18.9*	"	*70.0-135*	*94.5*			
Surrogate: Dibromofluoromethane	"	*20.0*		*17.7*	"	*80.0-125*	*88.5*			
Surrogate: Toluene-d8	"	*20.0*		*19.3*	"	*80.0-120*	*96.5*			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported: 2/3/00 14:47

Chlorinated Herbicides by EPA Method 8151A/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit - Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0A21010	**Date Prepared: 1/21/00**					**Extraction Method: EPA 1658**				
Blank	**0A21010-BLK1**									
Bromoxynil	1/25/00			**ND**	ug/l	**1.00**				
2,4-D	"			**ND**	"	**1.00**				
2,4-DB	"			**ND**	"	**4.00**				
2,4,5-T	"			**ND**	"	**1.00**				
2,4,5-TP (Silvex)	"			**ND**	"	**1.00**				
Dalapon	"			**ND**	"	**10.0**				
Dicamba	"			**ND**	"	**1.00**				
Dichlorprop	"			**ND**	"	**1.00**				
Dinoseb	"			**ND**	"	**2.00**				
MCPA	"			**ND**	"	**60.0**				
MCPP	"			**ND**	"	**50.0**				
Surrogate: 2,4-DCAA	"	*11.1*		*9.98*	"	*24-135*	*89.9*			
LCS	**0A21010-BS1**									
2,4-D	1/25/00	3.33		2.84	ug/l	34-136	85.3			
2,4,5-TP (Silvex)	"	3.33		2.54	"	34-123	76.3			
Surrogate: 2,4-DCAA	"	*11.1*		*9.56*	"	*24-135*	*86.1*			
LCS	**0A21010-BS2**									
Bromoxynil	1/25/00	1.11		1.21	ug/l	24-135	109			
Surrogate: 2,4-DCAA	"	*11.1*		*9.83*	"	*24-135*	*88.6*			
LCS Dup	**0A21010-BSD1**									
2,4-D	1/25/00	3.33		3.17	ug/l	34-136	95.2	46	11.0	
2,4,5-TP (Silvex)	"	3.33		2.72	"	34-123	81.7	41	6.84	
Surrogate: 2,4-DCAA	"	*11.1*		*10.1*	"	*24-135*	*91.0*			
LCS Dup	**0A21010-BSD2**									
Bromoxynil	1/25/00	1.11		1.24	ug/l	24-135	112	40	2.45	
Surrogate: 2,4-DCAA	"	*11.1*		*9.54*	"	*24-135*	*85.9*			
Matrix Spike	**0A21010-MS1**		**P001226-02**							
2,4-D	1/25/00	3.33	ND	2.20	ug/l	34-136	**66.1**			
2,4,5-TP (Silvex)	"	3.33	ND	2.04	"	34-123	**61.3**			
Surrogate: 2,4-DCAA	"	*11.1*		*8.46*	"	*24-135*	*76.2*			

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Latonya Pelt, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled:	1/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A.00/44	Received:	1/17/00
Portland, OR 97201	Project Manager:	Karen Schadler	Reported:	2/3/00 14:47

Chlorinated Herbicides by EPA Method 8151A/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike Dup	**0A21010-MSD1**		**P001226-02**							
2,4-D	1/25/00	3.33	ND	1.73	ug/l	34-136	**52.0**	46	**23.9**	
2,4,5-TP (Silvex)	"	3.33	ND	1.64	"	34-123	**49.2**	41	**21.7**	
Surrogate: 2,4-DCAA	"	*11.1*		*6.81*	"	*24-135*	*61.4*			

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**Refer to end of report for text of notes and definitions.*

055

Latonya Pelt, Project Manager

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URS Greiner Woodward Clyde	Project: RPAC	Sampled: 1/17/00
111 SW Columbia, Suite 900	Project Number: 92C0804A.00/44	Received: 1/17/00
Portland, OR 97201	Project Manager: Karen Schadler	Reported: 2/3/00 14:47

Notes and Definitions

#	Note
1	Reporting limits raised due to dilution necessary for analysis. Sample contains high levels of reported analyte, non-target analyte, and/or matrix interference.
2	Surrogate recovery is out of control limits. QA criteria are met when one surrogate is within control limits.
3	Analyses are not controlled on RPD values from sample concentrations less than 5 times the reporting limit.
4	The spike recovery, and/or RPD, for this QC sample is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

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Case Narrative

CLIENT: URS Greiner Woodward Clyde
PROJECT: RPAC
PROJECT #: 92C0804A/45

March 15, 2000
NCA #: P002358

1.0 DESCRIPTION OF CASE

North Creek Analytical, Beaverton received two soil samples and one water sample on 2/18/00 from URS Greiner Woodward Clyde for analysis by one or more of the following EPA Methods: 8041 Phenols, 8081A/8082 Pesticides/PCBs, 8260B Volatile Organics, 8270C Semivolatile Organics and 8151A Chlorinated Herbicides. The water sample received was a trip blank for volatiles analysis only. 8151A Chlorinated Herbicides analysis was subcontracted to NCA, Bothell. A separate *Case Narrative* and raw data package for the subcontracted analysis are contained in Appendix I of this data package.

2.0 SAMPLE LIST

Refer to the *Chain of Custody* documents for a summary of sample information.

Each group of samples received is given an NCA #, proceeded by a "P" for Portland. This number consists of a one-digit code for the year, a two-digit code for the month and a sequential number for the group within the month. Each sample within the sub-group is numbered sequentially by placing a dash after the NCA#.

3.0 COMMENTS ON ANALYSIS

3.1 Sample Receipt

The samples were received intact from URS Greiner Woodward Clyde. The cooler was hand delivered by NCA courier; custody seals were present and intact. The samples were clearly labeled and matched the chain of custody. Sample temperature (4.8 °C) was measured upon receipt using a Digital probe Thermometer and recorded with sample log-in information.

3.2 Analysis

The samples were analyzed following the procedures outlined in the applicable methods. The samples were refrigerated at ~ 4 °C and extracted and analyzed within the EPA recommended holding times without incident; any exceptions are footnoted and described in the *Notes and Definitions* section of the *Analytical Report*. Exceptions requiring more detail are as follows:

Phenols by 8041

Due to matrix interference, sample WWS-01-01 required 100X dilution for quantitation of 4-chloro-3-methlyphenol and Dinoseb at "non-detect". A 20X dilution was required to similarly quantify all other analytes for the sample.

Organochlorine Pesticides by 8081A/8082

Dilution of sample WWS-01-01 was necessary for analysis due to high concentration of non-target analytes and/or matrix interference.

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Case Narrative

CLIENT: URS Greiner Woodward Clyde
PROJECT: RPAC
PROJECT #: 92C0804A/45

March 15, 2000
NCA #: P002358

4.0 QC RESULTS

Surrogate and quality control parameters that were outside control limits are noted on the appropriate pages of the *Analytical Report*. All quality control parameters other than those noted on the *Analytical Report* were within established control limits. Additional Quality Control issues are as follows:

Phenols by 8041
Matrix Spike/ Matrix Spike Duplicate data for batch # 200693 was not available due to matrix interference of the native sample, WWS-01-01. Surrogate recoveries were also not obtainable for the native sample due to the dilution necessary for analysis.

Pesticides/PCBs by 8081A/8082
Recovery of 2,4,5,6-Tetrachloror-m-xylene surrogate in sample WWS-01-01 and the MS/MSD of this sample were above the control limit due matrix interference. Recoveries of spike compounds, gamma-BHC (Lindane) and Dieldrin in the MS/MSD samples were also biased high by the sample matrix.

Decachlorobiphenol surrogate recovery in the MSD was also above the control limit due matrix interference.

MS/MSD spike recovery values for Aldrin and Heptachlor are flagged as estimated values because they are calculated from below the calibration curve due to dilution of the sample.

Semivolatile Organics by 8270C
Three of six surrogate recoveries were not obtainable for both samples due to the dilution necessary for analysis. Matrix Spike/ Matrix Spike Duplicate data for batch # 200578 was not available due to matrix interference of the native sample, WWS-01-01.

5.0 SAMPLE RESULTS

Where applicable, qualifiers have been added to sample results as footnotes and are detailed in the *Notes and Definitions* section of the *Analytical Report*.

Phenols by 8041
"ND" results reported for the sample were based on GC/MS confirmation. Sample data integrity is indeterminate when surrogate recoveries are unavailable due to high dilution required to overcome matrix interference.

Pesticides/PCBs by 8081A/8082
"ND" sample results are not impacted by the high bias caused by matrix interference as indicted by high surrogate and MS/MSD spike recoveries.

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Case Narrative

CLIENT: URS Greiner Woodward Clyde
PROJECT: RPAC
PROJECT #: 92C0804A/45

March 15, 2000
NCA #: P002358

Volatile Organics by 8260B
Naphthalene results, including the MRL, are reported from analysis of the sample at a higher dilution.

Semivolatile Organics by 8270C
Reported results for both samples are quantitated from several different dilutions.

Percent Dry Weight Determinations
Percent dry weight determinations were performed twice; once by NCA-Portland and once by NCA-Bothell for subcontracted chlorinated herbicide analysis by EPA 8151A. Results of both determinations are presented in the *Analytical Report.* The NCA-Bothell value is used only in the calculation of chlorinated herbicide results.

The dilution factor for a sample, if applicable, is depicted on the *Analytical Report* as the MRL(s) for the quantitated analytes being raised by the dilution factor. The method blank sample may be referenced for the initial MRL.

Reported MRL values for a sample are not adjusted for the percent dry weight of the sample unless it is less than 50%.

" I certify that this data package is in compliance with the method, both technically and for completeness, for all conditions other than those listed above. Release of the data in this hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature."

Susan Schimelfining, QA Manager
North Creek Analytical, Beaverton

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North Creek Analytical Report

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 2/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 2/18/00
Portland, OR 97201	Project Manager:	Roger Gresh	Reported: 3/3/00 16:49

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
WWS-01-01	P002358-01	Soil	2/17/00
WWS-02-01	P002358-02	Soil	2/17/00
Trip Blank	P002358-03	Water	2/17/00

The results in this report apply to the samples analyzed in accordance with the chain of custody docum
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Latonya K. Pelt
Latonya Pelt, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 2/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 2/18/00
Portland, OR 97201	Project Manager:	Roger Gresh	Reported: 3/3/00 16:49

Phenols per EPA Method 8041
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
WWS-01-01			**P002358-01**				**Soil**	1
4-Chloro-3-methylphenol	0200693	2/25/00	2/29/00		100	ND	mg/kg dry	
2-Chlorophenol	"	"	"		20.0	ND	"	
Cresols	"	"	"		40.0	ND	"	
2,4-Dichlorophenol	"	"	"		20.0	ND	"	
2,6-Dichlorophenol	"	"	"		20.0	ND	"	
2,4-Dimethylphenol	"	"	"		20.0	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		20.0	ND	"	
2,4-Dinitrophenol	"	"	"		50.0	ND	"	
Dinoseb	"	"	"		100	ND	"	
2-Nitrophenol	"	"	"		20.0	ND	"	
4-Nitrophenol	"	"	"		20.0	ND	"	
Pentachlorophenol	"	"	"		20.0	ND	"	
P[illegible]nol	"	"	"		20.0	ND	"	
[illegible]6-Tetrachlorophenol	"	"	"		20.0	ND	"	
2,4,5-Trichlorophenol	"	"	"		20.0	ND	"	
2,4,6-Trichlorophenol	"	"	"		20.0	ND	"	
Surrogate: 2-Fluorophenol	"	"	"	*70.0-130*		*NR*	*%*	*2*
Surrogate: 2,4,6-Tribromophenol	"	"	"	*70.0-130*		*NR*	"	*2*

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 2/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 2/18/00
Portland, OR 97201	Project Manager:	Roger Gresh	Reported: 3/3/00 16:49

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
WWS-01-01			**P002358-01**				**Soil**	**1**
Aldrin	0200695	2/25/00	3/2/00		33.5	ND	ug/kg dry	
alpha-BHC	"	"	"		33.5	ND	"	
beta-BHC	"	"	"		33.5	ND	"	
delta-BHC	"	"	"		33.5	ND	"	
gamma-BHC (Lindane)	"	"	"		33.5	ND	"	
alpha-Chlordane	"	"	"		33.5	ND	"	
gamma-Chlordane	"	"	"		33.5	ND	"	
Chlordane (tech)	"	"	"		750	ND	"	
4,4'-DDD	"	"	"		33.5	ND	"	
4,4'-DDE	"	"	"		33.5	ND	"	
4,4'-DDT	"	"	"		33.5	ND	"	
Dieldrin	"	"	"		33.5	ND	"	
Endosulfan I	"	"	"		33.5	ND	"	
Endosulfan II	"	"	"		33.5	ND	"	
Endosulfan sulfate	"	"	"		33.5	ND	"	
Endrin	"	"	"		33.5	ND	"	
Endrin aldehyde	"	"	"		33.5	ND	"	
Endrin ketone	"	"	"		33.5	ND	"	
Heptachlor	"	"	"		33.5	ND	"	
Heptachlor epoxide	"	"	"		33.5	ND	"	
Hexachlorobenzene	"	"	"		50.0	ND	"	
Methoxychlor	"	"	"		33.5	ND	"	
Toxaphene	"	"	"		1000	ND	"	
Aroclor 1016	"	"	3/1/00		67.0	ND	"	
Aroclor 1221	"	"	"		670	ND	"	
Aroclor 1232	"	"	"		469	ND	"	
Aroclor 1242	"	"	"		134	ND	"	
Aroclor 1248	"	"	"		168	ND	"	
Aroclor 1254	"	"	"		101	ND	"	
Aroclor 1260	"	"	"		67.0	ND	"	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	"	*3/2/00*	*63.0-119*		*152*	*%*	*3*
Surrogate: Decachlorobiphenyl	"	"	*3/1/00*	*52.0-131*		*67.0*	"	

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**Refer to end of report for text of notes and definiti*

JKP

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 2/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 2/18/00
Portland, OR 97201	Project Manager:	Roger Gresh	Reported: 3/3/00 16:49

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
WWS-01-01			**P002358-01**				**Soil**	
Acetone	0200595	2/22/00	2/25/00		12500	ND	ug/kg dry	UJ
Benzene	"	"	"		500	ND	"	
Bromobenzene	"	"	"		500	ND	"	
Bromochloromethane	"	"	"		500	ND	"	
Bromodichloromethane	"	"	"		500	ND	"	
Bromoform	"	"	"		500	ND	"	
Bromomethane	"	"	"		5000	ND	"	
2-Butanone	"	"	"		12500	ND	"	UJ
n-Butylbenzene	"	"	"		500	ND	"	
sec-Butylbenzene	"	"	"		500	ND	"	
tert-Butylbenzene	"	"	"		500	ND	"	UJ
Carbon disulfide	"	"	"		5000	ND	"	UJ
Carbon tetrachloride	"	"	"		500	ND	"	UJ
[illegible]robenzene	"	"	"		500	ND	"	
[illegible]roethane	"	"	"		2500	ND	"	
Chloroform	"	"	"		500	ND	"	
Chloromethane	"	"	"		2500	ND	"	
2-Chlorotoluene	"	"	"		500	ND	"	
4-Chlorotoluene	"	"	"		500	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		500	ND	"	
Dibromochloromethane	"	"	"		500	ND	"	
1,2-Dibromoethane	"	"	"		500	ND	"	
Dibromomethane	"	"	"		500	ND	"	
1,2-Dichlorobenzene	"	"	"		500	ND	"	
1,3-Dichlorobenzene	"	"	"		500	ND	"	
1,4-Dichlorobenzene	"	"	"		500	ND	"	
Dichlorodifluoromethane	"	"	"		2500	ND	"	
1,1-Dichloroethane	"	"	"		500	ND	"	
1,2-Dichloroethane	"	"	"		500	ND	"	
1,1-Dichloroethene	"	"	"		500	ND	"	
cis-1,2-Dichloroethene	"	"	"		500	ND	"	
trans-1,2-Dichloroethene	"	"	"		500	ND	"	
1,2-Dichloropropane	"	"	"		500	ND	"	
1,3-Dichloropropane	"	"	"		500	ND	"	UJ
2,2-Dichloropropane	"	"	"		500	ND	"	
1,1-Dichloropropene	"	"	"		500	ND	"	
cis-1,3-Dichloropropene	"	"	"		500	ND	"	
trans-1,3-Dichloropropene	"	"	"		500	ND	"	UJ

3/3/00

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 2/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 2/18/00
Portland, OR 97201	Project Manager:	Roger Gresh	Reported: 3/3/00 16:49

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
WWS-01-01 (continued)			**P002358-01**				**Soil**	
Ethylbenzene	0200595	2/22/00	2/25/00		500	ND	ug/kg dry	
Hexachlorobutadiene	"	"	"		1000	ND	" U4	
2-Hexanone	"	"	"		5000	ND	"	
Iodomethane	"	"	"		10000	ND	"	
Isopropylbenzene	"	"	"		500	ND	" U4	
p-Isopropyltoluene	"	"	"		500	ND	"	
4-Methyl-2-pentanone	"	"	"		2500	ND	" U4	
Methylene chloride	"	"	"		3810 ~~2500~~	~~3810~~ ND	"	4
Naphthalene	"	"	"		1000	**254000**	"	
n-Propylbenzene	"	"	"		500	ND	"	
Styrene	"	"	"		500	ND	" U4	
1,1,1,2-Tetrachloroethane	"	"	"		500	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		500	ND	" U4	
Tetrachloroethene	"	"	"		500	ND	"	
Toluene	"	"	"		500	ND	"	
1,2,3-Trichlorobenzene	"	"	"		500	ND	" U4	
1,2,4-Trichlorobenzene	"	"	"		500	ND	"	
1,1,1-Trichloroethane	"	"	"		500	ND	"	
1,1,2-Trichloroethane	"	"	"		500	ND	"	
Trichloroethene	"	"	"		500	ND	"	
Trichlorofluoromethane	"	"	"		500	ND	"	
1,2,3-Trichloropropane	"	"	"		500	ND	" U4	
1,2,4-Trimethylbenzene	"	"	"		500	ND	" U4	
1,3,5-Trimethylbenzene	"	"	"		500	ND	" U4	
Vinyl chloride	"	"	"		500	ND	"	
o-Xylene	"	"	"		500	ND	"	
m,p-Xylene	"	"	"		1000	**1830**	"	
Surrogate: 4-BFB	"	"	"	*70.0-130*		*76.4*	%	
Surrogate: 1,2-DCA-d4	"	"	"	*65.0-135*		*98.7*	"	
Surrogate: Dibromofluoromethane	"	"	"	*65.0-130*		*84.7*	"	
Surrogate: Toluene-d8	"	"	"	*70.0-120*		*77.4*	"	

3/31/00

North Creek Analytical - Portland

**Refer to end of report for text of notes and definitions*

JKP

Latonya Pelt, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 2/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 2/18/00
Portland, OR 97201	Project Manager:	Roger Gresh	Reported: 3/3/00 16:49

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
Trip Blank			**P002358-03**				**Water**	
Acetone	0200613	2/23/00	2/23/00		25.0	ND	ug/l	U4
Benzene	"	"	"		1.00	ND	"	
Bromobenzene	"	"	"		1.00	ND	"	
Bromochloromethane	"	"	"		1.00	ND	"	
Bromodichloromethane	"	"	"		1.00	ND	"	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		10.0	ND	"	
2-Butanone	"	"	"		25.0	ND	"	U4
n-Butylbenzene	"	"	"		1.00	ND	"	
sec-Butylbenzene	"	"	"		1.00	ND	"	
tert-Butylbenzene	"	"	"		1.00	ND	"	
Carbon disulfide	"	"	"		10.0	ND	"	U4
Carbon tetrachloride	"	"	"		2.00	ND	"	U4
[illegible]benzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		2.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		5.00	ND	"	
2-Chlorotoluene	"	"	"		1.00	ND	"	
4-Chlorotoluene	"	"	"		1.00	ND	"	
1,2-Dibromo-3-chloropropane	"	"	"		1.00	ND	"	U4
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dibromoethane	"	"	"		1.00	ND	"	
Dibromomethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
Dichlorodifluoromethane	"	"	"		5.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
1,3-Dichloropropane	"	"	"		1.00	ND	"	
2,2-Dichloropropane	"	"	"		1.00	ND	"	
1,1-Dichloropropene	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	

3/3/00

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Latonya Pelt, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 2/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 2/18/00
Portland, OR 97201	Project Manager:	Roger Gresh	Reported: 3/3/00 16:49

Volatile Organic Compounds per EPA Method 8260B
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
Trip Blank (continued)			**P002358-03**				**Water**	
Ethylbenzene	0200613	2/23/00	2/23/00		1.00	ND	ug/l	
Hexachlorobutadiene	"	"	"		2.00	ND	"	
2-Hexanone	"	"	"		10.0	ND	"	
Iodomethane	"	"	"		20.0	ND	"	
Isopropylbenzene	"	"	"		1.00	ND	"	
p-Isopropyltoluene	"	"	"		1.00	ND	"	
4-Methyl-2-pentanone	"	"	"		5.00	ND	"	UJ
Methylene chloride	"	"	"		5.00	ND	"	UJ
Naphthalene	"	"	"		1.00	ND	"	
n-Propylbenzene	"	"	"		1.00	ND	"	
Styrene	"	"	"		1.00	ND	"	
1,1,1,2-Tetrachloroethane	"	"	"		1.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
Toluene	"	"	"		1.00	ND	"	
1,2,3-Trichlorobenzene	"	"	"		1.00	ND	"	
1,2,4-Trichlorobenzene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	UJ
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
1,2,3-Trichloropropane	"	"	"		1.00	ND	"	
1,2,4-Trimethylbenzene	"	"	"		1.00	ND	"	
1,3,5-Trimethylbenzene	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
o-Xylene	"	"	"		1.00	ND	"	
m,p-Xylene	"	"	"		2.00	ND	"	
Surrogate: 4-BFB	"	"	"	*75.0-135*		*87.0*	%	
Surrogate: 1,2-DCA-d4	"	"	"	*70.0-135*		*116*	"	
Surrogate: Dibromofluoromethane	"	"	"	*80.0-125*		*116*	"	
Surrogate: Toluene-d8	"	"	"	*80.0-120*		*109*	"	

3/31/00 R.

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 2/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 2/18/00
Portland, OR 97201	Project Manager:	Roger Gresh	Reported: 3/3/00 16:49

Semivolatile Organic Compounds per EPA Method 8270C
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
WWS-01-01			**P002358-01**				**Soil**	**1**
Acenaphthene	0200578	2/22/00	3/2/00		16.5	**248**	mg/kg dry	
Acenaphthylene	"	"	"		6.60	ND	"	
Anthracene	"	"	"		6.60	**65.3**	"	
Benzo (a) anthracene	"	"	"		6.60	**38.8**	"	
Benzo (a) pyrene	"	"	"		6.60	**18.3**	"	
Benzo (b) fluoranthene	"	"	"		6.60	**17.3**	"	
Benzo (ghi) perylene	"	"	"		6.60	**6.80**	"	
Benzo (k) fluoranthene	"	"	"		6.60	**16.9**	"	
Benzoic Acid	"	"	"		20.0	ND	"	
Benzyl alcohol	"	"	"		6.60	ND	"	
4-Bromophenyl phenyl ether	"	"	"		6.60	ND	"	
Butyl benzyl phthalate	"	"	"		6.60	ND	"	
4-Chloro-3-methylphenol	"	"	"		6.60	ND	"	
[illegible]broaniline	"	"	"		40.0	ND	"	
Bis(2-chloroethoxy)methane	"	"	"		6.60	ND	"	
Bis(2-chloroethyl)ether	"	"	"		6.60	ND	"	
Bis(2-chloroisopropyl)ether	"	"	"		6.60	ND	"	
2-Chloronaphthalene	"	"	"		6.60	ND	"	
2-Chlorophenol	"	"	"		6.60	ND	"	
4-Chlorophenyl phenyl ether	"	"	"		6.60	ND	"	
Chrysene	"	"	"		6.60	**46.6**	"	
Di-n-butyl phthalate	"	"	"		20.0	ND	"	
Di-n-octyl phthalate	"	"	"		6.60	ND	"	
Dibenzo (a,h) anthracene	"	"	"		6.60	ND	"	
Dibenzofuran	"	"	"		16.5	**175**	"	
1,2-Dichlorobenzene	"	"	"		20.0	ND	"	
1,3-Dichlorobenzene	"	"	"		20.0	ND	"	
1,4-Dichlorobenzene	"	"	"		20.0	ND	"	
3,3'-Dichlorobenzidine	"	"	"		20.0	ND	"	
2,4-Dichlorophenol	"	"	"		6.60	ND	"	
Diethyl phthalate	"	"	"		6.60	ND	"	
2,4-Dimethylphenol	"	"	"		20.0	ND	"	
Dimethyl phthalate	"	"	"		6.60	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		20.0	ND	"	
2,4-Dinitrophenol	"	"	"		40.0	ND	"	
2,4-Dinitrotoluene	"	"	"		6.60	ND	"	
2,6-Dinitrotoluene	"	"	"		6.60	ND	"	
Bis(2-ethylhexyl)phthalate	"	"	"		40.0	ND	"	

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JKP

Latonya Pelt, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 2/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 2/18/00
Portland, OR 97201	Project Manager:	Roger Gresh	Reported: 3/3/00 16:49

Semivolatile Organic Compounds per EPA Method 8270C
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
WWS-01-01 (continued)			**P002358-01**				**Soil**	**1**
Fluoranthene	0200578	2/22/00	3/2/00		16.5	**201**	mg/kg dry	
Fluorene	"	"	"		16.5	**197**	"	
Hexachlorobenzene	"	"	"		6.60	ND	"	
Hexachlorobutadiene	"	"	"		20.0	ND	"	
Hexachlorocyclopentadiene	"	"	"		20.0	ND	"	
Hexachloroethane	"	"	"		20.0	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		6.60	**6.65**	"	
Isophorone	"	"	"		6.60	ND	"	
2-Methylnaphthalene	"	"	"		16.5	**192**	"	
2-Methylphenol	"	"	"		6.60	ND	"	
3-,4-Methylphenol	"	"	"		6.60	ND	"	
Naphthalene	"	"	"		33.0	**628**	"	
2-Nitroaniline	"	"	"		6.60	ND	"	
3-Nitroaniline	"	"	"		20.0	ND	"	
4-Nitroaniline	"	"	"		6.60	ND	"	
Nitrobenzene	"	"	"		6.60	ND	"	
2-Nitrophenol	"	"	"		6.60	ND	"	
4-Nitrophenol	"	"	"		20.0	ND	"	
N-Nitrosodi-n-propylamine	"	"	"		6.60	ND	"	
N-Nitrosodiphenylamine	"	"	"		6.60	ND	"	
Pentachlorophenol	"	"	"		20.0	ND	"	
Phenanthrene	"	"	"		33.0	**560**	"	
Phenol	"	"	"		6.60	ND	"	
Pyrene	"	"	"		6.60	**126**	"	
1,2,4-Trichlorobenzene	"	"	"		6.60	ND	"	
2,4,5-Trichlorophenol	"	"	"		6.60	ND	"	
2,4,6-Trichlorophenol	"	"	"		6.60	ND	"	
Surrogate: 2-Fluorobiphenyl	"	"	"	*44.0-146*		*NR*	%	*2*
Surrogate: 2-Fluorophenol	"	"	"	*42.0-126*		*85.6*	"	
Surrogate: Nitrobenzene-d5	"	"	"	*42.0-126*		*NR*	"	*2*
Surrogate: Phenol-d6	"	"	"	*42.0-131*		*93.8*	"	
Surrogate: p-Terphenyl-d14	"	"	"	*49.0-150*		*NR*	"	*2*
Surrogate: 2,4,6-Tribromophenol	"	"	"	*48.0-119*		*69.0*	"	

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Latonya Pelt, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 2/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 2/18/00
Portland, OR 97201	Project Manager:	Roger Gresh	Reported: 3/3/00 16:49

Semivolatile Organic Compounds per EPA Method 8270C
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
WWS-02-01			**P002358-02**				**Soil**	**1**
Acenaphthene	0200578	2/22/00	3/2/00		16.5	**143**	mg/kg dry	
Acenaphthylene	"	"	"		6.60	ND	"	
Anthracene	"	"	"		6.60	**30.5**	"	
Benzo (a) anthracene	"	"	"		6.60	**28.8**	"	
Benzo (a) pyrene	"	"	"		6.60	**12.7**	"	
Benzo (b) fluoranthene	"	"	"		6.60	**12.0**	"	
Benzo (ghi) perylene	"	"	"		6.60	ND	"	
Benzo (k) fluoranthene	"	"	"		6.60	**12.8**	"	
Benzoic Acid	"	"	"		20.0	ND	"	
Benzyl alcohol	"	"	"		6.60	ND	"	
4-Bromophenyl phenyl ether	"	"	"		6.60	ND	"	
Butyl benzyl phthalate	"	"	"		6.60	ND	"	
4-Chloro-3-methylphenol	"	"	"		6.60	ND	"	
4-Chloroaniline	"	"	"		40.0	ND	"	
Bis(2-chloroethoxy)methane	"	"	"		6.60	ND	"	
Bis(2-chloroethyl)ether	"	"	"		6.60	ND	"	
Bis(2-chloroisopropyl)ether	"	"	"		6.60	ND	"	
2-Chloronaphthalene	"	"	"		6.60	ND	"	
2-Chlorophenol	"	"	"		6.60	ND	"	
4-Chlorophenyl phenyl ether	"	"	"		6.60	ND	"	
Chrysene	"	"	"		6.60	**28.7**	"	
Di-n-butyl phthalate	"	"	"		20.0	ND	"	
Di-n-octyl phthalate	"	"	"		6.60	ND	"	
Dibenzo (a,h) anthracene	"	"	"		6.60	ND	"	
Dibenzofuran	"	"	"		6.60	**87.9**	"	
1,2-Dichlorobenzene	"	"	"		20.0	ND	"	
1,3-Dichlorobenzene	"	"	"		20.0	ND	"	
1,4-Dichlorobenzene	"	"	"		20.0	ND	"	
3,3'-Dichlorobenzidine	"	"	"		20.0	ND	"	
2,4-Dichlorophenol	"	"	"		6.60	ND	"	
Diethyl phthalate	"	"	"		6.60	ND	"	
2,4-Dimethylphenol	"	"	"		20.0	ND	"	
Dimethyl phthalate	"	"	"		6.60	ND	"	
4,6-Dinitro-2-methylphenol	"	"	"		20.0	ND	"	
2,4-Dinitrophenol	"	"	"		40.0	ND	"	
2,4-Dinitrotoluene	"	"	"		6.60	ND	"	
2,6-Dinitrotoluene	"	"	"		6.60	ND	"	
Bis(2-ethylhexyl)phthalate	"	"	"		40.0	ND	"	

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Latonya Pelt, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 2/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 2/18/00
Portland, OR 97201	Project Manager:	Roger Gresh	Reported: 3/3/00 16:49

Semivolatile Organic Compounds per EPA Method 8270C
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
WWS-02-01 (continued)			**P002358-02**				**Soil**	**1**
Fluoranthene	0200578	2/22/00	3/2/00		16.5	**144**	mg/kg dry	
Fluorene	"	"	"		6.60	**99.9**	"	
Hexachlorobenzene	"	"	"		6.60	ND	"	
Hexachlorobutadiene	"	"	"		20.0	ND	"	
Hexachlorocyclopentadiene	"	"	"		20.0	ND	"	
Hexachloroethane	"	"	"		20.0	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		6.60	ND	"	
Isophorone	"	"	"		6.60	ND	"	
2-Methylnaphthalene	"	"	"		6.60	**92.4**	"	
2-Methylphenol	"	"	"		6.60	ND	"	
3-,4-Methylphenol	"	"	"		6.60	ND	"	
Naphthalene	"	"	"		16.5	**241**	"	
2-Nitroaniline	"	"	"		6.60	ND	"	
3-Nitroaniline	"	"	"		20.0	ND	"	
4-Nitroaniline	"	"	"		6.60	ND	"	
Nitrobenzene	"	"	"		6.60	ND	"	
2-Nitrophenol	"	"	"		6.60	ND	"	
4-Nitrophenol	"	"	"		20.0	ND	"	
N-Nitrosodi-n-propylamine	"	"	"		6.60	ND	"	
N-Nitrosodiphenylamine	"	"	"		6.60	ND	"	
Pentachlorophenol	"	"	"		20.0	ND	"	
Phenanthrene	"	"	"		16.5	**266**	"	
Phenol	"	"	"		6.60	ND	"	
Pyrene	"	"	"		6.60	**88.4**	"	
1,2,4-Trichlorobenzene	"	"	"		6.60	ND	"	
2,4,5-Trichlorophenol	"	"	"		6.60	ND	"	
2,4,6-Trichlorophenol	"	"	"		6.60	ND	"	
Surrogate: 2-Fluorobiphenyl	"	"	"	*44.0-146*		*NR*	%	*2*
Surrogate: 2-Fluorophenol	"	"	"	*42.0-126*		*83.9*	"	
Surrogate: Nitrobenzene-d5	"	"	"	*42.0-126*		*NR*	"	*2*
Surrogate: Phenol-d6	"	"	"	*42.0-131*		*95.8*	"	
Surrogate: p-Terphenyl-d14	"	"	"	*49.0-150*		*NR*	"	*2*
Surrogate: 2,4,6-Tribromophenol	"	"	"	*48.0-119*		*70.3*	"	

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Latonya Pelt, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 2/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 2/18/00
Portland, OR 97201	Project Manager:	Roger Gresh	Reported: 3/3/00 16:49

Chlorinated Herbicides by EPA Method 8151A
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
WWS-01-01			**P002358-01**				**Soil**	
Bromoxynil	0B23035	2/23/00	2/29/00	EPA 8151A	25.0	ND	ug/kg dry	
2,4-D	"	"	"	EPA 8151A	40.0	ND	"	
2,4-DB	"	"	"	EPA 8151A	20.0	ND	"	
2,4,5-T	"	"	"	EPA 8151A	50.0	ND	"	
2,4,5-TP (Silvex)	"	"	"	EPA 8151A	50.0	ND	"	
Dalapon	"	"	"	EPA 8151A	50.0	ND	"	
Dicamba	"	"	"	EPA 8151A	20.0	ND	"	
Dichlorprop	"	"	"	EPA 8151A	10.0	ND	"	
Dinoseb	"	"	"	EPA 8151A	10.0	ND	"	
MCPA	"	"	"	EPA 8151A	1000	ND	"	
MCPP	"	"	"	EPA 8151A	1000	ND	"	
Surrogate: 2,4-DCAA	"	"	"	*31-136*		*87.9*	*%*	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 2/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 2/18/00
Portland, OR 97201	Project Manager:	Roger Gresh	Reported: 3/3/00 16:49

Physical Parameters by APHA/ASTM/EPA Methods
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
WWS-01-01			**P002358-01**				**Soil**	
Dry Weight	0B23021	2/23/00	2/24/00	BSOPSPL003R07	1.00	**64.9**	%	

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Portland, OR 97201	Project Manager:	Roger Gresh	Reported:	3/3/00 16:49

Dry Weight Determination
North Creek Analytical - Bothell

Sample Name	Lab ID	Matrix	Result	Units
WWS-01-01	P002358-01	Soil	64.91	%

North Creek Analytical - Portland

dKP

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled:	2/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received:	2/18/00
Portland, OR 97201	Project Manager:	Roger Gresh	Reported:	3/3/00 16:49

Dry Weight Determination
North Creek Analytical - Portland

Sample Name	Lab ID	Matrix	Result	Units
WWS-01-01	P002358-01	Soil	63.7	%
WWS-02-01	P002358-02	Soil	72.1	%

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 2/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 2/18/00
Portland, OR 97201	Project Manager:	Roger Gresh	Reported: 3/3/00 16:49

Phenols per EPA Method 8041/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0200693	**Date Prepared: 2/25/00**					**Extraction Method: EPA 3550**				
Blank	**0200693-BLK1**									**5**
4-Chloro-3-methylphenol	2/29/00			**ND**	mg/kg dry	**1.00**				
2-Chlorophenol	"			**ND**	"	**1.00**				
Cresols	"			**ND**	"	**2.00**				
2,4-Dichlorophenol	"			**ND**	"	**1.00**				
2,6-Dichlorophenol	"			**ND**	"	**1.00**				
2,4-Dimethylphenol	"			**ND**	"	**1.00**				
4,6-Dinitro-2-methylphenol	"			**ND**	"	**1.00**				
2,4-Dinitrophenol	"			**ND**	"	**2.50**				
Dinoseb	"			**ND**	"	**1.00**				
2-Nitrophenol	"			**ND**	"	**1.00**				
4-Nitrophenol	"			**ND**	"	**1.00**				
Pentachlorophenol	"			**ND**	"	**1.00**				
Phenol	"			**ND**	"	**1.00**				
2,3,4,6-Tetrachlorophenol	"			**ND**	"	**1.00**				
2,4,5-Trichlorophenol	"			**ND**	"	**1.00**				
2,4,6-Trichlorophenol	"			**ND**	"	**1.00**				
Surrogate: 2-Fluorophenol	"	*3.33*		*2.68*	"	*70.0-130*	*80.5*			
Surrogate: 2,4,6-Tribromophenol	"	*3.33*		*2.54*	"	*70.0-130*	*76.3*			
LCS	**0200693-BS1**									**5**
4-Chloro-3-methylphenol	2/29/00	3.33		2.73	mg/kg dry	70.0-130	82.0			
2-Chlorophenol	"	3.33		2.54	"	70.0-130	76.3			
4-Nitrophenol	"	3.33		2.77	"	70.0-130	83.2			
Pentachlorophenol	"	3.33		2.46	"	70.0-130	73.9			
Phenol	"	3.33		2.75	"	70.0-130	82.6			
Surrogate: 2-Fluorophenol	"	*3.33*		*2.85*	"	*70.0-130*	*85.6*			
Surrogate: 2,4,6-Tribromophenol	"	*3.33*		*2.77*	"	*70.0-130*	*83.2*			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 2/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 2/18/00
Portland, OR 97201	Project Manager:	Roger Gresh	Reported: 3/3/00 16:49

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0200695	**Date Prepared: 2/25/00**				**Extraction Method: EPA 3550**					
Blank	**0200695-BLK1**									
Aldrin	3/1/00			**ND**	ug/kg dry	**6.70**				
alpha-BHC	"			**ND**	"	**6.70**				
beta-BHC	"			**ND**	"	**6.70**				
delta-BHC	"			**ND**	"	**6.70**				
gamma-BHC (Lindane)	"			**ND**	"	**6.70**				
alpha-Chlordane	"			**ND**	"	**6.70**				
gamma-Chlordane	"			**ND**	"	**6.70**				
Chlordane (tech)	"			**ND**	"	**150**				
4,4'-DDD	"			**ND**	"	**6.70**				
4,4'-DDE	"			**ND**	"	**6.70**				
4,4'-DDT	"			**ND**	"	**6.70**				
Dieldrin	"			**ND**	"	**6.70**				
Endosulfan I	"			**ND**	"	**6.70**				
Endosulfan II	"			**ND**	"	**6.70**				
Endosulfan sulfate	"			**ND**	"	**6.70**				
Endrin	"			**ND**	"	**6.70**				
Endrin aldehyde	"			**ND**	"	**6.70**				
Endrin ketone	"			**ND**	"	**6.70**				
Heptachlor	"			**ND**	"	**6.70**				
Heptachlor epoxide	"			**ND**	"	**6.70**				
Hexachlorobenzene	"			**ND**	"	**10.0**				
Methoxychlor	"			**ND**	"	**6.70**				
Toxaphene	"			**ND**	"	**200**				
Aroclor 1016	"			**ND**	"	**67.0**				
Aroclor 1221	"			**ND**	"	**134**				
Aroclor 1232	"			**ND**	"	**67.0**				
Aroclor 1242	"			**ND**	"	**67.0**				
Aroclor 1248	"			**ND**	"	**67.0**				
Aroclor 1254	"			**ND**	"	**67.0**				
Aroclor 1260	"			**ND**	"	**67.0**				
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	*33.3*		*38.0*	"	*63.0-119*	*114*			
Surrogate: Decachlorobiphenyl	"	*33.3*		*25.9*	"	*52.0-131*	*77.8*			
LCS	**0200695-BS1**									
Aldrin	3/1/00	16.7		18.5	ug/kg dry	64.0-136	111			
gamma-BHC (Lindane)	"	16.7		17.7	"	62.0-140	106			
4,4'-DDT	"	66.7		77.7	"	65.0-130	116			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 2/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 2/18/00
Portland, OR 97201	Project Manager:	Roger Gresh	Reported: 3/3/00 16:49

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS (continued)	**0200695-BS1**									
Dieldrin	3/1/00	66.7		78.7	ug/kg dry	70.0-135	118			
Endrin	"	66.7		69.7	"	65.0-135	104			
Heptachlor	"	16.7		18.2	"	48.0-124	109			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	*33.3*		*37.3*	"	*63.0-119*	*112*			
Surrogate: Decachlorobiphenyl	"	*33.3*		*36.7*	"	*52.0-131*	*110*			
LCS	**0200695-BS2**									
Aroclor 1016	3/2/00	333		297	ug/kg dry	57.0-132	89.2			
Aroclor 1260	"	333		298	"	60.0-136	89.5			
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	*33.3*		*27.3*	"	*63.0-119*	*82.0*			
Surrogate: Decachlorobiphenyl	"	*33.3*		*27.0*	"	*52.0-131*	*81.1*			
[redacted]Dup	**0200695-BSD1**									
[redacted]	3/2/00	16.7		17.1	ug/kg dry	64.0-136	102	50.0	8.45	
gamma-BHC (Lindane)	"	16.7		17.0	"	62.0-140	102	50.0	3.85	
4,4'-DDT	"	66.7		70.3	"	65.0-130	105	50.0	9.95	
Dieldrin	"	66.7		71.0	"	70.0-135	106	50.0	10.7	
Endrin	"	66.7		76.0	"	65.0-135	114	50.0	9.17	
Heptachlor	"	16.7		16.8	"	48.0-124	101	50.0	7.62	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	*33.3*		*31.3*	"	*63.0-119*	*94.0*			
Surrogate: Decachlorobiphenyl	"	*33.3*		*29.7*	"	*52.0-131*	*89.2*			
Matrix Spike	**0200695-MS1**		**P002358-01**							
Aldrin	3/3/00	26.2	ND	19.4	ug/kg dry	64.0-136	**74.0**			J
gamma-BHC (Lindane)	"	26.2	ND	71.7	"	62.0-140	**NR**			6
4,4'-DDT	"	105	ND	102	"	65.0-130	**97.1**			
Dieldrin	"	105	ND	235	"	70.0-135	**NR**			6
Endrin	"	105	ND	88.2	"	65.0-135	**84.0**			
Heptachlor	"	26.2	ND	23.7	"	48.0-124	**90.5**			J
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	*52.4*		*66.2*	"	*63.0-119*	*126*			*7*
Surrogate: Decachlorobiphenyl	"	*52.4*		*64.4*	"	*52.0-131*	*123*			
Matrix Spike Dup	**0200695-MSD1**		**P002358-01**							
Aldrin	3/3/00	26.2	ND	21.0	ug/kg dry	64.0-136	**80.2**	50.0	**8.04**	J
gamma-BHC (Lindane)	"	26.2	ND	84.5	"	62.0-140	**NR**	50.0	**16.4**	6
4,4'-DDT	"	105	ND	112	"	65.0-130	**107**	50.0	**9.70**	
Dieldrin	"	105	ND	260	"	70.0-135	**NR**	50.0	**10.2**	6
Endrin	"	105	ND	99.2	"	65.0-135	**94.5**	50.0	**11.8**	

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dlp

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 2/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 2/18/00
Portland, OR 97201	Project Manager:	Roger Gresh	Reported: 3/3/00 16:49

Organochlorine Pesticides and PCBs per EPA Methods 8081A/8082/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike Dup (continued)	**0200695-MSD1**		**P002358-01**							
Heptachlor	3/3/00	26.2	ND	27.5	ug/kg dry	48.0-124	**105**	50.0	**14.8**	
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	"	*52.4*		*69.4*	"	*63.0-119*	*132*			*7*
Surrogate: Decachlorobiphenyl	"	*52.4*		*69.1*	"	*52.0-131*	*132*			*7*

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 2/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 2/18/00
Portland, OR 97201	Project Manager:	Roger Gresh	Reported: 3/3/00 16:49

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0200595	**Date Prepared: 2/22/00**					**Extraction Method: EPA 5035**				
Blank	**0200595-BLK1**									
Acetone	2/23/00			ND	ug/kg dry	2500				
Benzene	"			ND	"	100				
Bromobenzene	"			ND	"	100				
Bromochloromethane	"			ND	"	100				
Bromodichloromethane	"			ND	"	100				
Bromoform	"			ND	"	100				
Bromomethane	"			ND	"	1000				
2-Butanone	"			ND	"	2500				
n-Butylbenzene	"			ND	"	100				
sec-Butylbenzene	"			ND	"	100				
tert-Butylbenzene	"			ND	"	100				
Carbon disulfide	"			ND	"	1000				
[illegible]n tetrachloride	"			ND	"	100				
[illegible]orobenzene	"			ND	"	100				
Chloroethane	"			ND	"	500				
Chloroform	"			ND	"	100				
Chloromethane	"			ND	"	500				
2-Chlorotoluene	"			ND	"	100				
4-Chlorotoluene	"			ND	"	100				
1,2-Dibromo-3-chloropropane	"			ND	"	100				
Dibromochloromethane	"			ND	"	100				
1,2-Dibromoethane	"			ND	"	100				
Dibromomethane	"			ND	"	100				
1,2-Dichlorobenzene	"			ND	"	100				
1,3-Dichlorobenzene	"			ND	"	100				
1,4-Dichlorobenzene	"			ND	"	100				
Dichlorodifluoromethane	"			ND	"	500				
1,1-Dichloroethane	"			ND	"	100				
1,2-Dichloroethane	"			ND	"	100				
1,1-Dichloroethene	"			ND	"	100				
cis-1,2-Dichloroethene	"			ND	"	100				
trans-1,2-Dichloroethene	"			ND	"	100				
1,2-Dichloropropane	"			ND	"	100				
1,3-Dichloropropane	"			ND	"	100				
2,2-Dichloropropane	"			ND	"	100				
1,1-Dichloropropene	"			ND	"	100				
cis-1,3-Dichloropropene	"			ND	"	100				

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 2/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 2/18/00
Portland, OR 97201	Project Manager:	Roger Gresh	Reported: 3/3/00 16:49

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	**0200595-BLK1**									
trans-1,3-Dichloropropene	2/23/00			**ND**	ug/kg dry	**100**				
Ethylbenzene	"			**ND**	"	**100**				
Hexachlorobutadiene	"			**ND**	"	**200**				
2-Hexanone	"			**ND**	"	**1000**				
Iodomethane	"			**ND**	"	**2000**				
Isopropylbenzene	"			**ND**	"	**100**				
p-Isopropyltoluene	"			**ND**	"	**100**				
4-Methyl-2-pentanone	"			**ND**	"	**500**				
Methylene chloride	"			**ND**	"	**500**				
Naphthalene	"			**ND**	"	**100**				
n-Propylbenzene	"			**ND**	"	**100**				
Styrene	"			**ND**	"	**100**				
1,1,1,2-Tetrachloroethane	"			**ND**	"	**100**				
1,1,2,2-Tetrachloroethane	"			**ND**	"	**100**				
Tetrachloroethene	"			**ND**	"	**100**				
Toluene	"			**ND**	"	**100**				
1,2,3-Trichlorobenzene	"			**ND**	"	**100**				
1,2,4-Trichlorobenzene	"			**ND**	"	**100**				
1,1,1-Trichloroethane	"			**ND**	"	**100**				
1,1,2-Trichloroethane	"			**ND**	"	**100**				
Trichloroethene	"			**ND**	"	**100**				
Trichlorofluoromethane	"			**ND**	"	**100**				
1,2,3-Trichloropropane	"			**ND**	"	**100**				
1,2,4-Trimethylbenzene	"			**ND**	"	**100**				
1,3,5-Trimethylbenzene	"			**ND**	"	**100**				
Vinyl chloride	"			**ND**	"	**100**				
o-Xylene	"			**ND**	"	**100**				
m,p-Xylene	"			**ND**	"	**200**				
Surrogate: 4-BFB	"	*2000*		*1830*	"	*70.0-130*	*91.5*			
Surrogate: 1,2-DCA-d4	"	*2000*		*2180*	"	*65.0-135*	*109*			
Surrogate: Dibromofluoromethane	"	*2000*		*2040*	"	*65.0-130*	*102*			
Surrogate: Toluene-d8	"	*2000*		*2110*	"	*70.0-120*	*106*			
LCS	**0200595-BS1**									
Benzene	2/23/00	2500		2810	ug/kg dry	80.0-135	112			
Chlorobenzene	"	2500		2430	"	80.0-135	97.2			
1,1-Dichloroethene	"	2500		2630	"	60.0-150	105			
Toluene	"	2500		2570	"	80.0-130	103			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 2/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 2/18/00
Portland, OR 97201	Project Manager:	Roger Gresh	Reported: 3/3/00 16:49

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS (continued)	**0200595-BS1**									
Trichloroethene	2/23/00	2500		2650	ug/kg dry	70.0-135	106			
Surrogate: 4-BFB	"	*2000*		*1880*	"	*70.0-130*	*94.0*			
Surrogate: 1,2-DCA-d4	"	*2000*		*2230*	"	*65.0-135*	*112*			
Surrogate: Dibromofluoromethane	"	*2000*		*2080*	"	*65.0-130*	*104*			
Surrogate: Toluene-d8	"	*2000*		*2330*	"	*70.0-120*	*117*			
Matrix Spike	**0200595-MS1**		**P002358-01**							
Benzene	2/25/00	3930	ND	3610	ug/kg dry	60.0-135	**91.9**			
Chlorobenzene	"	3930	ND	3010	"	65.0-125	**76.6**			
1,1-Dichloroethene	"	3930	ND	3240	"	60.0-135	**82.4**			
Toluene	"	3930	ND	3370	"	60.0-125	**85.8**			
Trichloroethene	"	3930	ND	3270	"	60.0-125	**83.2**			
Surrogate: 4-BFB	"	*3140*		*2250*	"	*70.0-130*	*71.7*			
Surrogate: 1,2-DCA-d4	"	*3140*		*2990*	"	*65.0-135*	*95.2*			
Surrogate: Dibromofluoromethane	"	*3140*		*2450*	"	*65.0-130*	*78.0*			
Surrogate: Toluene-d8	"	*3140*		*2430*	"	*70.0-120*	*77.4*			
Matrix Spike Dup	**0200595-MSD1**		**P002358-01**							
Benzene	2/25/00	3930	ND	3990	ug/kg dry	60.0-135	**102**	25.0	**10.4**	
Chlorobenzene	"	3930	ND	3290	"	65.0-125	**83.7**	25.0	**8.86**	
1,1-Dichloroethene	"	3930	ND	3420	"	60.0-135	**87.0**	25.0	**5.43**	
Toluene	"	3930	ND	3510	"	60.0-125	**89.3**	25.0	**4.00**	
Trichloroethene	"	3930	ND	3600	"	60.0-125	**91.6**	25.0	**9.61**	
Surrogate: 4-BFB	"	*3140*		*2380*	"	*70.0-130*	*75.8*			
Surrogate: 1,2-DCA-d4	"	*3140*		*3030*	"	*65.0-135*	*96.5*			
Surrogate: Dibromofluoromethane	"	*3140*		*2500*	"	*65.0-130*	*79.6*			
Surrogate: Toluene-d8	"	*3140*		*2610*	"	*70.0-120*	*83.1*			
Batch: 0200613	**Date Prepared: 2/23/00**					**Extraction Method: EPA 5030**				
Blank	**0200613-BLK1**									
Acetone	2/23/00			**ND**	ug/l	**25.0**				
Benzene	"			**ND**	"	**1.00**				
Bromobenzene	"			**ND**	"	**1.00**				
Bromochloromethane	"			**ND**	"	**1.00**				
Bromodichloromethane	"			**ND**	"	**1.00**				
Bromoform	"			**ND**	"	**1.00**				
Bromomethane	"			**ND**	"	**10.0**				
2-Butanone	"			**ND**	"	**25.0**				

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**Refer to end of report for text of notes and definitions.*

Latonya Pelt, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 2/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 2/18/00
Portland, OR 97201	Project Manager:	Roger Gresh	Reported: 3/3/00 16:49

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	**0200613-BLK1**									
n-Butylbenzene	2/23/00			ND	ug/l	1.00				
sec-Butylbenzene	"			ND	"	1.00				
tert-Butylbenzene	"			ND	"	1.00				
Carbon disulfide	"			ND	"	10.0				
Carbon tetrachloride	"			ND	"	2.00				
Chlorobenzene	"			ND	"	1.00				
Chloroethane	"			ND	"	2.00				
Chloroform	"			ND	"	1.00				
Chloromethane	"			ND	"	5.00				
2-Chlorotoluene	"			ND	"	1.00				
4-Chlorotoluene	"			ND	"	1.00				
1,2-Dibromo-3-chloropropane	"			ND	"	1.00				
Dibromochloromethane	"			ND	"	1.00				
1,2-Dibromoethane	"			ND	"	1.00				
Dibromomethane	"			ND	"	1.00				
1,2-Dichlorobenzene	"			ND	"	1.00				
1,3-Dichlorobenzene	"			ND	"	1.00				
1,4-Dichlorobenzene	"			ND	"	1.00				
Dichlorodifluoromethane	"			ND	"	5.00				
1,1-Dichloroethane	"			ND	"	1.00				
1,2-Dichloroethane	"			ND	"	1.00				
1,1-Dichloroethene	"			ND	"	1.00				
cis-1,2-Dichloroethene	"			ND	"	1.00				
trans-1,2-Dichloroethene	"			ND	"	1.00				
1,2-Dichloropropane	"			ND	"	1.00				
1,3-Dichloropropane	"			ND	"	1.00				
2,2-Dichloropropane	"			ND	"	1.00				
1,1-Dichloropropene	"			ND	"	1.00				
cis-1,3-Dichloropropene	"			ND	"	1.00				
trans-1,3-Dichloropropene	"			ND	"	1.00				
Ethylbenzene	"			ND	"	1.00				
Hexachlorobutadiene	"			ND	"	2.00				
2-Hexanone	"			ND	"	10.0				
Iodomethane	"			ND	"	20.0				
Isopropylbenzene	"			ND	"	1.00				
p-Isopropyltoluene	"			ND	"	1.00				
4-Methyl-2-pentanone	"			ND	"	5.00				
Methylene chloride	"			ND	"	5.00				

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Latonya Pelt, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 2/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 2/18/00
Portland, OR 97201	Project Manager:	Roger Gresh	Reported: 3/3/00 16:49

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	**0200613-BLK1**									
Naphthalene	2/23/00			**ND**	ug/l	**1.00**				
n-Propylbenzene	"			**ND**	"	**1.00**				
Styrene	"			**ND**	"	**1.00**				
1,1,1,2-Tetrachloroethane	"			**ND**	"	**1.00**				
1,1,2,2-Tetrachloroethane	"			**ND**	"	**1.00**				
Tetrachloroethene	"			**ND**	"	**1.00**				
Toluene	"			**ND**	"	**1.00**				
1,2,3-Trichlorobenzene	"			**ND**	"	**1.00**				
1,2,4-Trichlorobenzene	"			**ND**	"	**1.00**				
1,1,1-Trichloroethane	"			**ND**	"	**1.00**				
1,1,2-Trichloroethane	"			**ND**	"	**1.00**				
Trichloroethene	"			**ND**	"	**1.00**				
Trichlorofluoromethane	"			**ND**	"	**1.00**				
1,2,3-Trichloropropane	"			**ND**	"	**1.00**				
1,2,4-Trimethylbenzene	"			**ND**	"	**1.00**				
1,3,5-Trimethylbenzene	"			**ND**	"	**1.00**				
Vinyl chloride	"			**ND**	"	**1.00**				
o-Xylene	"			**ND**	"	**1.00**				
m,p-Xylene	"			**ND**	"	**2.00**				
Surrogate: 4-BFB	"	*20.0*		*18.0*	"	*75.0-135*	*90.0*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*22.9*	"	*70.0-135*	*114*			
Surrogate: Dibromofluoromethane	"	*20.0*		*22.7*	"	*80.0-125*	*114*			
Surrogate: Toluene-d8	"	*20.0*		*22.9*	"	*80.0-120*	*114*			
LCS	**0200613-BS1**									
Benzene	2/23/00	20.0		20.9	ug/l	80.0-125	104			
Chlorobenzene	"	20.0		18.3	"	80.0-125	91.5			
1,1-Dichloroethene	"	20.0		20.6	"	70.0-135	103			
Toluene	"	20.0		19.2	"	80.0-125	96.0			
Trichloroethene	"	20.0		20.3	"	70.0-130	101			
Surrogate: 4-BFB	"	*20.0*		*18.2*	"	*75.0-135*	*91.0*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*21.9*	"	*70.0-135*	*109*			
Surrogate: Dibromofluoromethane	"	*20.0*		*22.0*	"	*80.0-125*	*110*			
Surrogate: Toluene-d8	"	*20.0*		*21.9*	"	*80.0-120*	*109*			
LCS Dup	**0200613-BSD1**									
Benzene	2/23/00	20.0		21.8	ug/l	80.0-125	109	25.0	4.69	
Chlorobenzene	"	20.0		19.1	"	80.0-125	95.5	25.0	4.28	

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 2/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 2/18/00
Portland, OR 97201	Project Manager:	Roger Gresh	Reported: 3/3/00 16:49

Volatile Organic Compounds per EPA Method 8260B/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS Dup (continued)	**0200613-BSD1**									
1,1-Dichloroethene	2/23/00	20.0		21.9	ug/l	70.0-135	109	25.0	5.66	
Toluene	"	20.0		20.7	"	80.0-125	104	25.0	8.00	
Trichloroethene	"	20.0		21.2	"	70.0-130	106	25.0	4.83	
Surrogate: 4-BFB	"	*20.0*		*17.7*	"	*75.0-135*	*88.5*			
Surrogate: 1,2-DCA-d4	"	*20.0*		*22.7*	"	*70.0-135*	*114*			
Surrogate: Dibromofluoromethane	"	*20.0*		*22.4*	"	*80.0-125*	*112*			
Surrogate: Toluene-d8	"	*20.0*		*23.2*	"	*80.0-120*	*116*			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 2/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 2/18/00
Portland, OR 97201	Project Manager:	Roger Gresh	Reported: 3/3/00 16:49

Semivolatile Organic Compounds per EPA Method 8270C/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0200578	**Date Prepared: 2/22/00**				**Extraction Method: EPA 3550**					
Blank	**0200578-BLK1**									
Acenaphthene	3/2/00			**ND**	mg/kg dry	**0.330**				
Acenaphthylene	"			**ND**	"	**0.330**				
Anthracene	"			**ND**	"	**0.330**				
Benzo (a) anthracene	"			**ND**	"	**0.330**				
Benzo (a) pyrene	"			**ND**	"	**0.330**				
Benzo (b) fluoranthene	"			**ND**	"	**0.330**				
Benzo (ghi) perylene	"			**ND**	"	**0.330**				
Benzo (k) fluoranthene	"			**ND**	"	**0.330**				
Benzoic Acid	"			**ND**	"	**1.00**				
Benzyl alcohol	"			**ND**	"	**0.330**				
4-Bromophenyl phenyl ether	"			**ND**	"	**0.330**				
Butyl benzyl phthalate	"			**ND**	"	**0.330**				
4-Chloro-3-methylphenol	"			**ND**	"	**0.330**				
4-Chloroaniline	"			**ND**	"	**2.00**				
Bis(2-chloroethoxy)methane	"			**ND**	"	**0.330**				
Bis(2-chloroethyl)ether	"			**ND**	"	**0.330**				
Bis(2-chloroisopropyl)ether	"			**ND**	"	**0.330**				
2-Chloronaphthalene	"			**ND**	"	**0.330**				
2-Chlorophenol	"			**ND**	"	**0.330**				
4-Chlorophenyl phenyl ether	"			**ND**	"	**0.330**				
Chrysene	"			**ND**	"	**0.330**				
Di-n-butyl phthalate	"			**ND**	"	**1.00**				
Di-n-octyl phthalate	"			**ND**	"	**0.330**				
Dibenzo (a,h) anthracene	"			**ND**	"	**0.330**				
Dibenzofuran	"			**ND**	"	**0.330**				
1,2-Dichlorobenzene	"			**ND**	"	**1.00**				
1,3-Dichlorobenzene	"			**ND**	"	**1.00**				
1,4-Dichlorobenzene	"			**ND**	"	**1.00**				
3,3'-Dichlorobenzidine	"			**ND**	"	**1.00**				
2,4-Dichlorophenol	"			**ND**	"	**0.330**				
Diethyl phthalate	"			**ND**	"	**0.330**				
2,4-Dimethylphenol	"			**ND**	"	**1.00**				
Dimethyl phthalate	"			**ND**	"	**0.330**				
4,6-Dinitro-2-methylphenol	"			**ND**	"	**1.00**				
2,4-Dinitrophenol	"			**ND**	"	**2.00**				
2,4-Dinitrotoluene	"			**ND**	"	**0.330**				
2,6-Dinitrotoluene	"			**ND**	"	**0.330**				

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Latonya Pelt, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 2/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 2/18/00
Portland, OR 97201	Project Manager:	Roger Gresh	Reported: 3/3/00 16:49

Semivolatile Organic Compounds per EPA Method 8270C/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	**0200578-BLK1**									
Bis(2-ethylhexyl)phthalate	3/2/00			**ND**	mg/kg dry	**2.00**				
Fluoranthene	"			**ND**	"	**0.330**				
Fluorene	"			**ND**	"	**0.330**				
Hexachlorobenzene	"			**ND**	"	**0.330**				
Hexachlorobutadiene	"			**ND**	"	**1.00**				
Hexachlorocyclopentadiene	"			**ND**	"	**1.00**				
Hexachloroethane	"			**ND**	"	**1.00**				
Indeno (1,2,3-cd) pyrene	"			**ND**	"	**0.330**				
Isophorone	"			**ND**	"	**0.330**				
2-Methylnaphthalene	"			**ND**	"	**0.330**				
2-Methylphenol	"			**ND**	"	**0.330**				
3-,4-Methylphenol	"			**ND**	"	**0.330**				
Naphthalene	"			**ND**	"	**0.330**				
2-Nitroaniline	"			**ND**	"	**0.330**				
3-Nitroaniline	"			**ND**	"	**1.00**				
4-Nitroaniline	"			**ND**	"	**0.330**				
Nitrobenzene	"			**ND**	"	**0.330**				
2-Nitrophenol	"			**ND**	"	**0.330**				
4-Nitrophenol	"			**ND**	"	**1.00**				
N-Nitrosodi-n-propylamine	"			**ND**	"	**0.330**				
N-Nitrosodiphenylamine	"			**ND**	"	**0.330**				
Pentachlorophenol	"			**ND**	"	**1.00**				
Phenanthrene	"			**ND**	"	**0.330**				
Phenol	"			**ND**	"	**0.330**				
Pyrene	"			**ND**	"	**0.330**				
1,2,4-Trichlorobenzene	"			**ND**	"	**0.330**				
2,4,5-Trichlorophenol	"			**ND**	"	**0.330**				
2,4,6-Trichlorophenol	"			**ND**	"	**0.330**				
Surrogate: 2-Fluorobiphenyl	"	*2.50*		*2.16*	"	*44.0-146*	*86.4*			
Surrogate: 2-Fluorophenol	"	*5.00*		*4.03*	"	*42.0-126*	*80.6*			
Surrogate: Nitrobenzene-d5	"	*2.50*		*2.11*	"	*42.0-126*	*84.4*			
Surrogate: Phenol-d6	"	*5.00*		*4.20*	"	*42.0-131*	*84.0*			
Surrogate: p-Terphenyl-d14	"	*2.50*		*2.23*	"	*49.0-150*	*89.2*			
Surrogate: 2,4,6-Tribromophenol	"	*5.00*		*4.83*	"	*48.0-119*	*96.6*			
LCS	**0200578-BS1**									**8**
Acenaphthene	3/2/00	2.50		1.80	mg/kg dry	47.0-145	72.0			
4-Chloro-3-methylphenol	"	5.00		3.73	"	22.0-147	74.6			

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Latonya Pelt, Project Manager

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 2/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 2/18/00
Portland, OR 97201	Project Manager:	Roger Gresh	Reported: 3/3/00 16:49

Semivolatile Organic Compounds per EPA Method 8270C/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS (continued)	**0200578-BS1**									8
2-Chlorophenol	3/2/00	5.00		3.67	mg/kg dry	23.0-134	73.4			
1,4-Dichlorobenzene	"	2.50		1.70	"	20.0-124	68.0			
2,4-Dinitrotoluene	"	2.50		1.90	"	39.0-139	76.0			
4-Nitrophenol	"	5.00		4.40	"	0-132	88.0			
N-Nitrosodi-n-propylamine	"	2.50		1.67	"	0-230	66.8			
Pentachlorophenol	"	5.00		3.77	"	14.0-176	75.4			
Phenol	"	5.00		3.47	"	5.00-112	69.4			
Pyrene	"	2.50		1.90	"	52.0-130	76.0			
1,2,4-Trichlorobenzene	"	2.50		1.83	"	44.0-142	73.2			
Surrogate: 2-Fluorobiphenyl	"	*2.50*		*2.20*	"	*44.0-146*	*88.0*			
Surrogate: 2-Fluorophenol	"	*5.00*		*4.03*	"	*42.0-126*	*80.6*			
Surrogate: Nitrobenzene-d5	"	*2.50*		*2.17*	"	*42.0-126*	*86.8*			
Surrogate: Phenol-d6	"	*5.00*		*4.07*	"	*42.0-131*	*81.4*			
Surrogate: p-Terphenyl-d14	"	*2.50*		*2.20*	"	*49.0-150*	*88.0*			
Surrogate: 2,4,6-Tribromophenol	"	*5.00*		*4.90*	"	*48.0-119*	*98.0*			

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URS Greiner Woodward Clyde	Project:	RPAC	Sampled: 2/17/00
111 SW Columbia, Suite 900	Project Number:	92C0804A/45	Received: 2/18/00
Portland, OR 97201	Project Manager:	Roger Gresh	Reported: 3/3/00 16:49

Chlorinated Herbicides by EPA Method 8151A/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0B23035	**Date Prepared: 2/23/00**					**Extraction Method: EPA 1658**				
Blank	**0B23035-BLK1**									
Bromoxynil	2/28/00			**ND**	ug/kg dry	**25.0**				
2,4-D	"			**ND**	"	**40.0**				
2,4-DB	"			**ND**	"	**20.0**				
2,4,5-T	"			**ND**	"	**50.0**				
2,4,5-TP (Silvex)	"			**ND**	"	**50.0**				
Dalapon	"			**ND**	"	**50.0**				
Dicamba	"			**ND**	"	**20.0**				
Dichlorprop	"			**ND**	"	**10.0**				
Dinoseb	"			**ND**	"	**10.0**				
MCPA	"			**ND**	"	**1000**				
MCPP	"			**ND**	"	**1000**				
Surrogate: 2,4-DCAA	"	*333*		*267*	"	*31-136*	*80.2*			
LCS	**0B23035-BS1**									
2,4-D	2/28/00	100		114	ug/kg dry	41-141	114			
2,4,5-TP (Silvex)	"	100		90.7	"	51-116	90.7			
Surrogate: 2,4-DCAA	"	*333*		*263*	"	*31-136*	*79.0*			
LCS	**0B23035-BS2**									
Bromoxynil	2/28/00	25.0		29.5	ug/kg dry	31-136	118			
Surrogate: 2,4-DCAA	"	*333*		*289*	"	*31-136*	*86.8*			
LCS Dup	**0B23035-BSD2**									
Bromoxynil	2/28/00	25.0		28.3	ug/kg dry	31-136	113	25	4.15	
Surrogate: 2,4-DCAA	"	*333*		*298*	"	*31-136*	*89.5*			
Matrix Spike	**0B23035-MS1**		**P002358-01**							
2,4-D	2/29/00	154	ND	190	ug/kg dry	41-141	**123**			
2,4,5-TP (Silvex)	"	154	ND	146	"	51-116	**94.8**			
Surrogate: 2,4-DCAA	"	*514*		*528*	"	*31-136*	*103*			
Matrix Spike Dup	**0B23035-MSD1**		**P002358-01**							
2,4-D	2/29/00	154	ND	184	ug/kg dry	41-141	**119**	44	**3.21**	
2,4,5-TP (Silvex)	"	154	ND	165	"	51-116	**107**	27	**12.2**	
Surrogate: 2,4-DCAA	"	*514*		*609*	"	*31-136*	*118*			

North Creek Analytical - Portland

**Refer to end of report for text of notes and definitions*

Latonya Pelt, Project Manager

North Creek Analytical, Inc.
Environmental Laboratory Network

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Physical Parameters by APHA/ASTM/EPA Methods/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0B23021	**Date Prepared: 2/23/00**					**Extraction Method: Dry Weight**				
Blank	**0B23021-BLK1**									
Dry Weight	2/24/00			**100**	%	**1.00**				