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PHASE I SOIL REMEDIAL ACTION SUMMARY REPORT
MCCORMICK & BAXTER COMPANY PORTLAND PLANT
PORTLAND, OREGON

November 1999

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Waste Management & Cleanup Division
Department of Environmental Quality

Prepared for:

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1. Introduction and Purpose

Ecology and Environment, Inc., (E & E), under contract with the Oregon Department of Environmental Quality (DEQ), has prepared this remedial action summary report to document Phase I remedial actions implemented to address contaminated soil at the McCormick & Baxter Company (McCormick & Baxter) creosoting plant site in Portland, Oregon. This report has been prepared under DEQ Task Order No. 88-97-5, which concerns implementation of remedial design (RD) and remedial actions (RAs) at the site in accordance with the remedy described in the Record of Decision (ROD) (EPA/DEQ 1996) and the March 1998 ROD Amendment (EPA/DEQ 1998). This report has been prepared in accordance with the *Final Construction Quality Assurance Plan* (CQAP) submitted by E & E to DEQ in December 1998 (E & E 1998a).

The site is a former wood-treating facility along the Willamette River at 6900 North Edgewater Street (see Figure 1-1). Former wood-treating operations at the facility resulted in widespread contamination of soil, groundwater, and sediment across much of the property. Key soil contaminants of concern include carcinogenic polycyclic aromatic hydrocarbons (cPAHs), pentachlorophenol (PCP), arsenic, and dioxins/furans. A detailed site description and history, a summary of RD data collection field activities, and a discussion of cleanup goals, the nature and extent of contamination, and design criteria are presented in the *Revised Final Remedial Design Data Summary Report* (E & E 1998b) submitted to DEQ in February 1998.

The ROD identifies two sets of remedial goals for arsenic, PCP, cPAHs, and dioxins/furans in soil at the McCormick & Baxter site. The soil cleanup goals presented in Table 1-1 were established to delineate the extent of allowable soil concentrations after installation of the site cap. The action levels presented in Table 1-2 were established to delineate areas for excavation and off-site treatment and/or disposal. The soil removal activities

E & E
Ecology and Environment, Inc.

DEQ
Oregon Department of Environmental Quality

McCormick & Baxter
McCormick & Baxter Company

RD
remedial design

RAs
remedial actions

ROD
Record of Decision

CQAP
Construction Quality Assurance Plan

cPAHs
carcinogenic polycyclic aromatic hydrocarbons

PCP
pentachlorophenol

summarized in this report focus on areas of the site that exceed the Table 1-2 action levels. Now that Phase I soil remediation activities have been completed, the ROD states that the site cap (Phase II soil remediation) is to be installed within 2 years (approximately May 2001). (Cap installation has been delayed pending completion of site groundwater remedial activities.)

As described in the CQAP, the purpose of this report is to:

- Document the site activities by E & E and DEQ's remediation contractor;
- Explain modifications made during the site work to the original planned scope of work, including the rationale for modifications;
- Present as-built drawings showing the new site layout, sample locations with analytical results, final excavation depths, and areas where concrete debris was placed;
- Document waste-stream quantities, salvage quantities, and RA area backfill quantities;
- Present all verification soil and air sampling results;
- Document final construction costs; and
- Certify that the construction work has been completed in accordance with project requirements.

QA
quality assurance

QC
quality control

Section 2 presents a weekly summary of the field activities, summarizes deviations from the planned work, and describes the corrective actions taken. Section 3 presents soil and air analytical results with a discussion of data quality assurance (QA) and quality control (QC). Section 4 contains as-built drawings of each RA area and a final site plan. Section 5 documents final project quantities, change orders, and costs and includes E & E's conformation certification. References are in Section 6.

Table 1-1 SOIL CLEANUP GOALS
McCORMICK & BAXTER SITE
PORTLAND PLANT
PORTLAND, OREGON

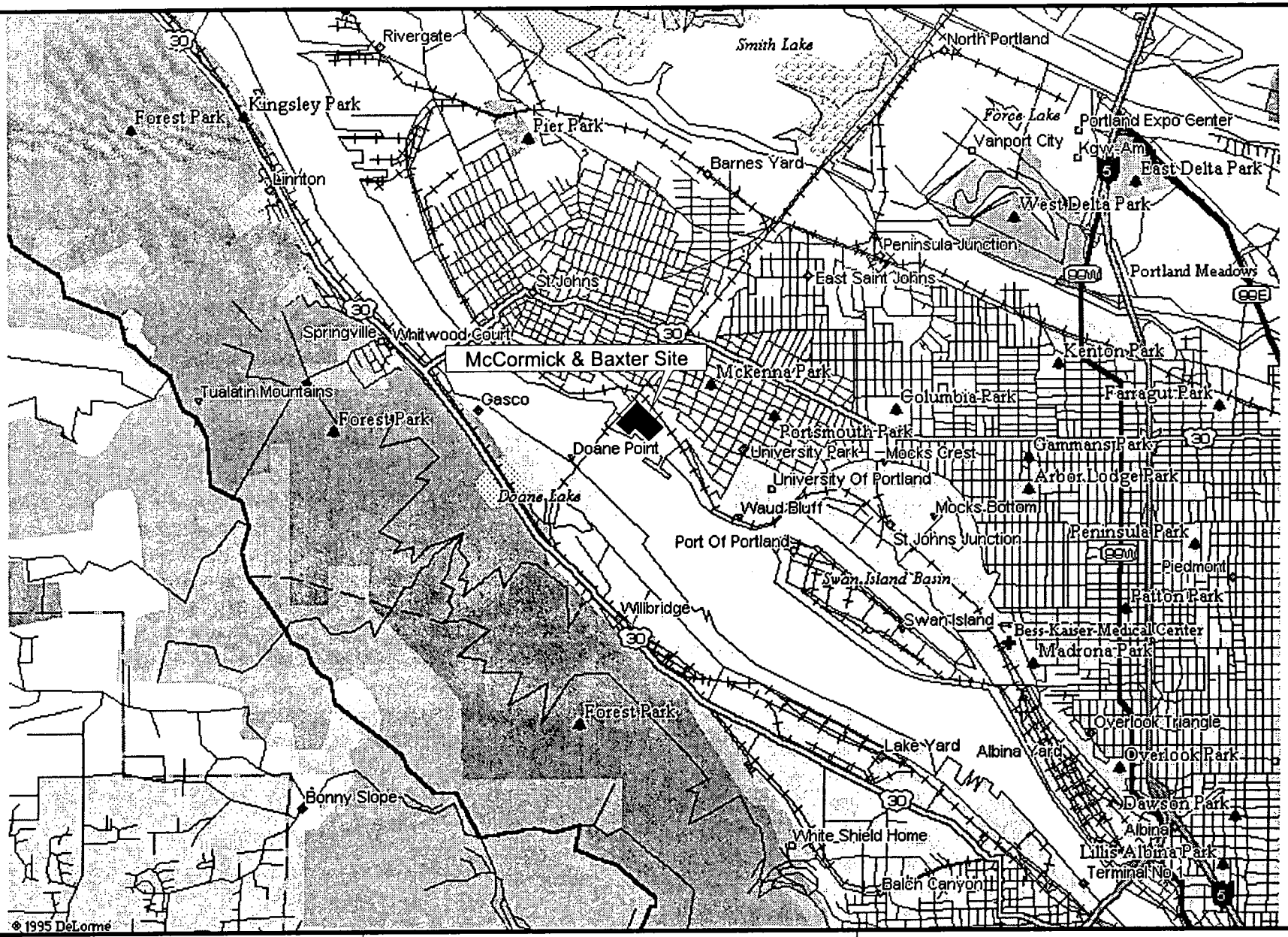
Compound	Soil Concentration (milligrams per kilogram)
Arsenic	8[a]
Pentachlorophenol	50[b]
Carcinogenic Polycyclic Aromatic Hydrocarbons	1[c]
Dioxins/Furans	0.00004[d]

[a] Based on background concentrations equivalent to an excess lifetime cancer risk of 2×10^{-6} in an industrial scenario.
[b] Equivalent to an excess lifetime cancer risk of 1×10^{-6} in an industrial scenario.
[c] Equivalent to an excess lifetime cancer risk of 1×10^{-6} in an industrial scenario using benzo(a)pyrene.
[d] Equivalent to an excess lifetime cancer risk of 1×10^{-6} in an industrial scenario using tetrachlorodibenzo-p-dioxin equivalency.

Table 1-2 ACTION LEVELS FOR EXCAVATION AND OFF-SITE DISPOSAL
McCORMICK & BAXTER SITE
PORTLAND PLANT
PORTLAND, OREGON

Compound	Remedial Action Level (milligrams per kilogram)
Arsenic	300[a]
Pentachlorophenol	500[b]
Carcinogenic Polycyclic Aromatic Hydrocarbons[c]	100[a]

[a] Based on an excess cancer risk of 1×10^{-4} for industrial land use and 2×10^{-5} for recreational land use.
[b] Based on an excess cancer risk of 1×10^{-5} for industrial land use.
[c] Includes the compounds benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene.



ecology and environment, inc.
International Specialists in the Environment
Seattle, Washington

McCORMICK & BAXTER CREOSOTING CO.
PORTLAND, OREGON

0 .5mi 1 mile
Approximate Scale in Miles

FIGURE 1-1

SITE LOCATION MAP

Drawn By:	Date	TDD/Job No.	Dwg. No.
MRE	10-11-96	OT9020	OT9020F4

2. Summary of Remedial Activities

2.1 Scope of Phase I Construction Activities

The purpose of the soil remedial action was to eliminate the potential for future human contact with soil contaminated above the action levels and within the top 4 feet of site soil. In addition, all remaining unused site features were to be demolished to prepare the site for cap installation. Details of the project requirements and procedures are specified in the soil excavation, demolition, and disposal contract documents (E & E 1998c) and E & E's *Final Basis of Design Report* (E & E 1998d). Project requirements, with original estimated quantities, include:

- Soil and debris excavation and off-site disposal as hazardous waste (27,000 tons);
- Building demolition, creosote dock/log loader structure demolition, and utility pole/pilings removal and disposal as nonhazardous waste (860 tons);
- Railroad track and scrap metal salvage (637 tons);
- Concrete structure demolition and on-site consolidation as backfill (1,320 cubic yards);
- Removal of below-ground process piping (2,400 feet);
- Relocation of landslide material as backfill (4,400 tons);
- Utilization of screened cobbles as backfill (3,000 tons);
- Placement of backfill from off-site source (16,800 tons); and
- Completion of site perimeter fencing.

Other miscellaneous tasks included asbestos abatement, poly-tank dismantling, site entrance road rehabilitation, reconfiguration of production wells to monitoring wells, and hydro-seeding. Because of the large quantity of materials and convenient site access to rail lines and the Willamette River, transportation of hazardous waste

was limited to rail and backfill was delivered by barge. The site work was done during February—May 1999.

2.1.1 Contracting and Subcontractors

After a competitive public procurement process by the State of Oregon Department of Administrative Services and DEQ, the construction contract was awarded to Wilder Construction Company (Wilder) of Everett, Washington. Wilder was DEQ's prime contractor for the project; E & E was DEQ's authorized agent in addition to being tasked to perform construction management and engineering oversight. However, no contractual relationship existed between E & E and Wilder during the project.

Wilder
Wilder Construction Company

ESI
Envirosafe Services, Inc.

UPRR
Union Pacific Railroad

RCRA
Resource Conservation and Recover Act

Wilder's major subcontract was with Envirosafe Services, Inc. (ESI) of Idaho for transportation, treatment, and disposal of the hazardous wastes. Union Pacific Railroad (UPRR) performed transportation services as a subcontractor to ESI. Site railroad track removal and salvage was performed by Condon Brothers, Inc. as a subcontractor to Wilder. Off-site backfill was obtained from the Avery Pit operated by Pacific Northwest Aggregates, Inc. in Goldendale, Washington, and transported via barge to the site by Bernert Barge Lines under subcontract to Wilder. Other minor subcontractors to Wilder and their respective activities include: Fred Devine Salvage Co. (dock and log loader marine demolition); Lincoln Cristi, Inc. (asbestos abatement); Geo-Tech Explorations, Inc. (production and monitoring well rehabilitation); Emerald Hydro-Turf, Inc. (hydroseeding); and Reliable Fence & Construction, Inc. (fence installation and repair).

E & E used four subcontractors for laboratory analysis services as part of oversight activities. Soil samples were analyzed by North Creek Analytical Services; air samples for organic compounds by Alta Analytical Laboratory and Air Toxics, Ltd.; and air samples for inorganic compounds by Chester Labnet.

2.1.2 Hazardous Waste Regulatory Environment

The soil and debris hazardous waste generated during this project consisted of two waste streams: F-listed (F032, F034, and F035) and F/D-listed (F032, F034, F035, D004, and D007). In accordance with state and federal hazardous waste regulations, these hazardous waste streams were land disposed in ESI's Resource Conservation and Recovery Act (RCRA) Subtitle D facility. This disposal followed regulatory discussions to clarify relevant treatment standards. During this project, F032, F034, and F035 hazardous waste regulations were under a National Capacity

LDRs
Land Disposal Restrictions

UTS
Universal Treatment Standards

UHCs
Underlying hazardous constituents

IDEQ
Idaho Department of Environmental Quality

EPA
U.S. Environmental Protection Agency

Variance established in the Phase IV Land Disposal Restrictions (LDRs) (40 CFR 268 as revised by Phase IV Rule: 63 FR 28556). The variance suspended compliance with the LDRs and corresponding Universal Treatment Standards (UTS) until after May 12, 1999. However, during preparation and approval of the waste profiles, ESI identified a contradiction in the hazardous waste regulations. Pursuant to Part II of the Phase IV LDRs, F-listed hazardous wastes that also exhibit hazardous characteristics due to metals (in this case, the D-listed metals were arsenic and chromium) require treatment for *all* organic *and* inorganic compounds. Treatment entails lowering the concentrations of underlying hazardous constituents (UHCs) to within 10% of the UTS or demonstrating a 90% total reduction. However, treatment of the organic compounds would appear unnecessary because the capacity variance in place included the organic and inorganic hazardous constituents encompassed by the F-listed waste codes. A position on this issue was issued by the Idaho Department of Environmental Quality (IDEQ) following weeks of discussions between ESI, DEQ, the U.S. Environmental Protection Agency (EPA), and IDEQ, which implements a fully authorized hazardous waste program and is the primary regulatory agency overseeing the appropriate treatment and disposal of wastes in Idaho. IDEQ stated that:

> Because both the UHCs and characteristic metals present in the (F/D-listed) soil are regulated constituents of the waste codes F032, F034, and F035, it is IDEQ's position that the capacity variance that is in effect until May 12, 1999 applies to the waste stream in question. However, the characteristic metals require treatment to UTS levels and if the waste stream contains UHCs that are not regulated constituents of the waste codes that are under the variance, [ESI] would be required to treat those UHCs to UTS levels also.

Therefore, the F/D-listed waste stream was treated by ESI to stabilize the arsenic and chromium compounds to the UTS levels and subsequently land disposed in ESI's Subtitle D facility in accordance with the capacity variance. Copies of correspondence related to this matter are in Appendix A.

2.2 Pre-Construction Activities

The following sections describe E & E activities in preparation for construction.

2.2.1 Surveying Initial Excavation Areas

E & E was tasked with the responsibility for identifying all previous soil sample locations that contained soil exceeding the action levels and resulting in creation of the planned RAs. In addition, E & E located the initial limits of excavation to be followed by the contractor. E & E performed this work in December 1998 and January 1999 with a two-person field crew. Because the excavation work was going to follow an iterative process of excavation, sample collection, re-excavation, and so forth, E & E used past data and professional judgement to determine the sizes of the initial limits of excavation and minimize over- or under-excavation. The initial limits of excavation areas were generally 50% to 75% smaller than the excavation areas presented to the bidders (and used to estimate project quantities) during contractor procurement. This approach to creating initial excavation areas seemed prudent to minimize construction/disposal costs (from over-excavation) and repeated soil analysis costs (from under-excavation).

Upon E & E's submittal of the map of the limits of initial excavation areas to Wilder, Wilder wrote DEQ to reserve Wilder's right to request a future unit cost adjustment if final project quantities did not come within planned project quantities (27,000 tons of soil and debris hazardous waste) (Wilder 1999). Wilder was concerned that the planned quantities would not be generated and that its rates would not be appropriate if actual quantities were significantly less than those planned. This issue was resolved when soil analytical results and DEQ's instructions for additional excavation made it apparent that planned project quantities would be exceeded.

COC
contaminant of concern

2.2.2 Baseline Air Sampling

E & E's CQAP outlined an ambient air monitoring program that was implemented prior to and during the construction activities. The purpose of the program was to monitor and control potential release of airborne contaminants off site and to assess and mitigate the impact on neighboring residential areas. The initial activity of the air monitoring program was to establish baseline (pre-construction activity) ambient air measurements of the contaminants of concern (COCs), which were arsenic, PCP, cPAHs and dioxin/furan congeners. Nine air samplers were deployed at five sampler locations (Figure 2-1). Sampler location Air-2 was used as a duplicate for Air-1. At each location, a high-volume air sampler (General Metal Works, Inc., Model 2000) was stationed to collect air samples for analysis of inorganic compounds (arsenic).

At each location except Air-2, a high-volume air sampler (General Metal Works, Inc. Model PS-1) was stationed to collect air samples for analysis of organic compounds (PCP, cPAHs, and dioxin/furan congeners). A duplicate sampler for organic compounds was not established at Air-2 because the sampling methods followed (EPA Method TO-13A and TO-9) did not require these samples.

During February 22-26, 1999, baseline ambient air samples were collected from four of the five sampler locations (Air-1, Air-2, Air-4, and upwind location Air-5). A total of 9 organic and 12 inorganic compound samples were collected from these sampler locations during three consecutive 36-hour sampling periods. In addition, E & E operated and maintained an on-site meteorological station that recorded wind speed and direction, ambient temperature, barometric pressure, precipitation, and relative humidity. Conditions for the baseline sampling event were less than ideal (winter storms characterized by high winds, heavy precipitation, and high humidity); however, the sampling was carried out because of the pending construction and limited schedule. It should be noted that weather conditions during the baseline sampling event reasonably characterized general weather conditions throughout the next 2 months of construction and that the data collected is therefore indicative of baseline conditions.

During March 9-10, 1999, construction activity air samples were collected from all five sampler locations (Air-1, Air-2, Air-3, Air-4, and upwind location Air-5). A total of four organic and five inorganic compound samples were collected from these locations during one 36-hour sampling period. Results from the baseline and construction sampling events are presented in Section 3.

2.2.3 Pre-Construction Meeting

The pre-construction meeting between DEQ, EPA, Wilder, Wilder's subcontractors, and E & E was held on February 18, 1999, at the job site. The agenda consisted of staff introductions, an update on Wilder's submittals, a construction activity overview, a description of E & E's field oversight activities, a discussion of current issue topics, a summary of action items, and a site work area inspection. Present at the meeting were:

- Joe Spink (Wilder)
- Mike Cabe (Wilder)
- Bob Stewart (Wilder)
- Mark Riem (Wilder)

- Pat Turina (Wilder)
- Nicole Murray (Wilder)
- Steve Campbell (DEQ)
- David Anderson (DEQ)
- Al Goodman (EPA)
- John Montgomery (E & E)
- Kevin Smith (E & E)
- Jennifer Callison (E & E)
- Marion Smith (Fred Devine Diving and Salvage Co.)
- Darren Watts (Lincoln Cristi)
- Arman Bluehe (Emerald Hydro Turf)
- Bruce Eberle (Geo-Tech Exploration)

A copy of the meeting minutes is in Appendix B. Major meeting topics are summarized below.

Submittals: Prior to the meeting, Wilder distributed copies of its health and safety plan, construction operations plan, transportation and disposal plan, and project schedule. These submittals were made in accordance with the time requirements specified for the project. E & E accelerated review of these submittals so that field work could begin on February 25, 1999. Due to the schedule, it was agreed that comments on the plans would be submitted on an "accepted, pending future modification" basis.

UPRR Rail Switch: A critical path item was installation of a rail switch connecting the site rail to UPRR's adjacent line. The off-site rail switch installation was contingent upon UPRR mobilizing a work crew. If the switch was not installed by March 1, 1999, project schedule problems would arise. Wilder submitted the work request on February 4, 1999, and UPRR issued a work order on February 8, 1999.

Schedule: Wilder's schedule used 5-day work weeks at 8 hours/day, but was subject to change pending progress of site activities, weather, availability of gondolas, and UPRR pickup/delivery of gondolas. If Saturday work was needed, a request for authorization had to be in by close of business Thursday, with E & E needing to inform the soil analysis laboratory by that time. Sunday work required DEQ's authorization, could require public notice, and might need a later start time (9:00 a.m.).

ESI guaranteed placement of soil in their facility before May 12, 1999 if the last gondola was released from the site by April 24, 1999.

Construction Overview: Discussion topics included mobilization, site preparation, a summary of equipment to be utilized, staffing levels, the backfill barge off-load area, the site entrance road, stormwater management, and soil loading/transportation.

Engineer Field Activity: Discussion topics included oversight staffing level, soil sampling and analysis, analytical data response time, surveying activities, air sampling and health and safety monitoring, vehicle and debris decontamination acceptance criteria, and waste manifests.

Current Issues: Main project issues at the time of the February 18, 1999 meeting were the hazardous waste regulation interpretation discussed in Section 2.1.2, relocation of two 20,000-gallon Baker tanks to facilitate removal of ties and track, and river debris.

2.2.4 RA12 and RA3 Composite Sampling

In response to the hazardous waste disposal regulations and capacity variance contradiction identified by ESI and discussed in Section 2.1.2, DEQ elected to conduct additional sampling of soil from RA12 and RA3 to obtain a higher level of waste disposal classification certainty. This sampling activity was conducted in conjunction with the regulatory discussions held between ESI, DEQ, EPA, and IDEQ.

TCLP
toxicity characteristic leaching procedure

On February 17, 1999, E & E collected nine horizontal composite samples from RA12 (an area classified as containing approximately 5,000 tons of F/D-listed soil) and submitted them for toxicity characteristic leaching procedure (TCLP) analysis to further delineate the quantity of soil exhibiting the toxic characteristics that result in the F/D-listing (specifically D004 and D007, arsenic and chromium). The historic data used to classify the soil in this area was based on composite samples that were not fully representative of the area to be excavated (that is, 0 to 4 feet below ground surface). The historic composite samples utilized only specific sample aliquots from the surface, 4-foot, and 10-foot depth intervals that contained contaminant concentrations above the action levels (Table 1-2). These historic composite samples were not considered to be representative of the volume of soil to be

excavated because the composite sample aliquots were biased toward aliquots containing the highest contaminant concentrations. The concentrations of soil below the action levels at other locations and depths within the area to be excavated were not accounted for in the historic composite samples.

E & E collected the nine horizontal composite samples by dividing RA12 into three areas (east, central, and west). Within each area, one composite sample was collected from the 0- to 1-foot zone, 1- to 2-foot zone, and 2- to 3-foot zone. The composite samples for each zone were derived from combining five aliquots from the respective zones into one composite sample.

On February 22, 1999, as a follow-up to the nine horizontal composite samples, three vertical composite samples were generated by combining the horizontal composite samples from each area into one composite sample. The three corresponding vertical composite samples (east, central, and west) were created at the off-site laboratory.

In RA3, the area was divided into three sample areas (north, central, and south). Three composite samples representing the 0 to1-foot depth were collected from each area and submitted for TCLP analysis. Samples were not collected at other depths because this area was targeted only for a 1-foot-deep excavation based on previous sampling data.

Further discussion of the analytical results is in Section 3.

2.3 Remedial Action Implementation

Implementation of the remedial actions proceeded without significant interruption and accomplished the goals within the time frame specified for the project. The project plan was followed in detail, with a few exceptions (discussed in Section 2.4). A detailed presentation of the weekly activities, DEQ/contractor interaction, and engineering and technical issues is provided in copies of the weekly construction meeting minutes in Appendix C. Figure 2-2 summarizes the actual construction activity schedule. E & E's photodocumentation of the project, including still photographs and video, is in Appendix D (bound separately).

2.4 Project Deviations and Corrective Actions

Project activities were modified in response to unexpected conditions, requests for additional work by DEQ, and adjustments to the site work by E & E. Table 2-1 describes modifications to the project, rationale/corrective actions, and results.

Table 2-1

Soil Remediation Summary Report
Summary of Deviations and Corrective Actions
McCormick and Baxter Site
Portland, Oregon

Deviation/Scope Change	Reason/Corrective Action/Result
Additional asbestos abatement in Office Building.	Floor tile not included in original requirements was sampled by Contractor and found to contain asbestos fibers. Scope of asbestos abatement was increased to remove floor tiles prior to building demolition. Result - Change Order 1, $7,422
Contractor survey activities.	Contractor was originally responsible for surveying the extent of excavations. However since E & E was already surveying sample locations, it was agreed that E & E would also document excavation extent. Result - Change Order 2, credit of $5,300
On-site railroad track improvements.	In response to a site safety inspection by Oregon DOT railway personnel, the Contractor was required to expand the width of the gravel walkway adjacent to the rail track to be utilized for staging railroad gondolas. In addition, fence posts had to be relocated approximately 1-foot to comply with railroad safety regulations. The width and grade of the walkway is important for the safety of railroad personnel walking adjacent to moving cars. These improvements were determined to be beyond reasonable modifications required to rehabilitate the existing track to accept gondola car, therefore Change Order 3 was issued for $9,302.
RA-17 concrete sizing.	Upon excavation of the concrete retaining wall that existed around the Tank Farm Area (RA-17), it became apparent that the concrete was heavily contaminated with spillage and residue from the tank farm operations. It was decided to instruct the Contractor to reduce the size of the concrete to 1-foot minus and dispose the material as hazardous waste with the site soil. The reduction in size was required to meet disposal facility requirements. This activity resulted in Change Order 4 for $2,828.

Table 2-1

Soil Remediation Summary Report
Summary of Deviations and Corrective Actions
McCormick and Baxter Site
Portland, Oregon

Deviation/Scope Change	Reason/Corrective Action/Result
River debris and additional piling removal.	Due to a large mat of floating logs and river debris that naturally built up against the Creosote Dock pilings, the Contractor requested and was granted a change order to remove the debris. Removal of the debris was required to allow access to and safe demolition of the dock structure. In accordance with instructions from the U.S. Coast Guard, small amounts of debris was pulled away from the structure and released into the river so that no navigation hazards were created. Since the Contractor was mobilized, DEQ elected to have as many pilings as possible removed at the mud-line (not the high water elevation as originally intended). Removal of pilings at the mud-line was seen as a benefit to subsequent sediment remedial activities and facilitated elimination of potential navigation hazards to small boats. Change Order 5 included $22,166 to address the river debris, and trim the plan quantity of pilings at the mud-line. An additional $2,185 was included to address 19 pilings that exceeded the planned quantity.
Entrance road geotextile.	At the Contractor's recommendation, geotextile was placed beneath the entrance road to improve the durability of the road. Change Order 6 for $1,515 was issued for the additional material costs.

Table 2-1

Soil Remediation Summary Report
Summary of Deviations and Corrective Actions
McCormick and Baxter Site
Portland, Oregon

Deviation/Scope Change	Reason/Corrective Action/Result
F-listed soil volume increases.	During the initial weeks of the soil removal activities, the Contractor expressed concerns that the quantities being excavated were significantly less than those indicated in the contract documents. However, excavation during this period was being conducted on the "1-foot" areas and not the major source areas. Upon excavating the first major source area (RA12 - FWDA), it became obvious that the quantity of heavily contaminated soil from this former disposal pit at the excavation depth limit (4 feet bgs) was significant. Upon inspection by DEQ and EPA staff, a decision was made to remove heavily contaminated soil containing sludge-like material in an effort to reduce to the overall quantity of contaminated material in the environment, and to reduce to quantity of material that could contribute to groundwater contamination. Instructions were provided to perform excavations to 8 feet in areas of obvious heavy contamination. Excavations in excess of the planned 4-foot depth were performed in the following areas: RA12 (FWDA), RA17 (TFA), RA18 (Creosote Tank), and RA19 (Butt Tank). The shallow 1-foot excavation areas generally did not expand laterally resulting in additional quantities of excavated soil. Deep, 4-foot excavation areas expanded laterally (sometimes in addition to increased depth) due to analytical results of soil from the walls of the excavations. The largest increase in areal extent was RA10 which increased approximately 480% in volume from the planned quantity. Two other areas that increased in areal extent were RA13a and the area comprising RA19, RA15, and RA16. Throughout the excavation activities, E & E was in contact with DEQ providing volume updates and at completion quantity projections. Considering the impending change in disposal regulations after May 12, 1999 which would considerably increase off-site disposal costs, it was clear that removal of as much contaminated material as possible is advantageous to DEQ, EPA, human health and the environment. Two adjustments to the contract were performed to facilitate removal of F-listed hazardous waste soil in excess of the planned quantity. Change Order 7 was issued for $500,000 and Change Order 13 was issued for $200,000. These modifications allowed increasing the quantity of F-listed soil from 22,000 tons to 32,604 tons.

Table 2-1

Soil Remediation Summary Report
Summary of Deviations and Corrective Actions
McCormick and Baxter Site
Portland, Oregon

Deviation/Scope Change	Reason/Corrective Action/Result
RA3 soil disposal unit cost adjustment.	The original planned quantity for F and D -listed soil was 5,000 tons which included soil from both RA12 and RA3. However, since soil from RA12 was shown to not require the D classification (see Section 2.2.4 and 3.2.1), the soil was disposed a just F-listed hazardous waste. This modification reduced the quantity of soil requiring off-site treatment and disposal to 1,167 tons. The Contractor requested and was granted a unit cost adjustment due to the quantity under-run. Change Order 9 was issued for soil excavated and disposed from RA3 changing the unit cost from $144 per ton to $157 per ton.
Tunnel/Butt Tank demolition.	During construction activities, it was decided to demolish in-place the utility tunnel that existed between theTFA and the retort area and the walls of the former butt tank. The purpose of conducting these activities was to try to reduce the impact they may have on future land uses. The presence of the tunnel acted as an attractive nuisance which could collapse under vehicle weight or pose a safety hazard. The butt tank was collecting stormwater and was located several hundred feet from the area of concrete consolidation that was constructed in RA13b. The floor of the butt tank was punctured and the top 4-feet of exposed wall was removed and placed into the bottom of the tank. This additional was resulted in Change Order 10 for $2,861.
Salvage of railroad ties.	As the removal of railroad ties progressed, the number of ties that were segregated from disposal as hazardous waste increased over plan quantity. The contact specified that these ties were to be disposed as non-hazardous solid waste, however, the salvage contractor proposed to reuse the ties for industrial purposes. In Change Order 11, DEQ approved salvaging of the ties at a cost of $35 per ton as opposed to disposal at $73 per ton.
On-site consolidation of asphalt from stockpile pad.	The stockpile used to stage excavated soil for loading into rail gondolas was constructed with asphalt. Upon project completion, the Contractor requested and was granted permission to place the asphalt material into the concrete consolidation area (RA13b excavation) so that the costs for disposing the material off-site would not be incurred. Change Order 12 was issued that included a credit of $2,000.

Table 2-1

Soil Remediation Summary Report
Summary of Deviations and Corrective Actions
McCormick and Baxter Site
Portland, Oregon

Deviation/Scope Change	Reason/Corrective Action/Result
Well repairs.	Well repairs were required during backfill activities to correct loses of grout, ground seals, and slipped protective casings that resulted when soil around the wells was removed. The damage to the wells was not caused due to negligence by the Contractor and the repairs were required by State water resource regulations. Change Order 14 included $5.975 for the repairs.

24-hour turnaround from time of sample submittal. Soil samples were submitted for arsenic analysis (SW-846 Method 6010) and cPAHs and PCP analysis (SW-846 Method 8270). (The cPAH compounds are listed in Table 1-2.) The CQAP (E & E 1998a) details the protocols used for screening and conformation analysis.

3.2.3 Underground Storage Tank (UST) Excavation Sampling Results

On April 21, 1999, Wilder decommissioned by removal one 1,200-gallon gasoline UST (Tank 1), one 1,200-gallon diesel fuel UST (Tank 2), and one 700-gallon heating oil UST (Tank 3). E & E presented a UST removal report to DEQ on June 30, 1999. that details the UST decommissioning and summarizes analytical results (E & E 1999). (A copy of this report, including analytical results, is in Appendix F.)

Three soil samples—T-1(6), T-2(6), and T-3(7)—were collected beneath the tanks. Analysis of sample T-1(6) did not detect total petroleum hydrocarbon (TPH) concentrations in the gasoline or diesel fuel range, but did detect TPH concentrations in the heavy oil range. Quantification of sample T-1(6) for heavy oil range hydrocarbons reported concentrations in the heavy oil range at 82.7 parts per million (ppm). The laboratory noted that the pattern and range of detected hydrocarbons in sample T-1(6) were not consistent with typical petroleum hydrocarbons (E & E 1999).

TPH
total petroleum hydrocarbons

ppm
parts per million

SVOCs
Semivolatile organic compounds

PRGs
preliminary remedial goals

3.3 Air Sampling Analytical Results

An ambient air monitoring program was performed before and during removal activities at the McCormick & Baxter site to monitor and control the potential release of airborne contaminants off site and to assess and mitigate the impact on neighboring residential areas. (Analytical results are shown in Tables 3-22 to 3-25.) Results of a remedial investigation by PTI Environmental Services in 1992 indicated that arsenic, PCP, cPAHs, and dioxin/furan congeners were COCs due to their concentration in on-site soil (PTI 1992). Because the COCs are inorganic or semivolatile organic compounds (SVOCs), they are primarily associated with soil particulates and do not volatilize at ambient temperatures. Consequently, dust generation from contaminated soil was considered the primary mechanism for COCs in soil to become airborne and migrate from the site. Air sampling results were compared to EPA Region 9 Preliminary Remedial Goals (PRGs) for each of the COCs in ambient air (EPA 1999).

Dust emissions were monitored, using real-time particulate monitors (M.I.E. PDR 1000™ Particulate Monitors), during periods of the removal when soil conditions were dry. To measure dust migration from the stockpile, a real-time particulate monitor was positioned downwind of the stock pile. Measured fugitive dust levels did not exceed the site-specific action level of 2.0 milligrams per cubic meter (mg/m^3). (See E & E 1998d for the derivation of the action level.)

3.3.1 Baseline (Pre-Construction) Results

During February 22-26, 1999, baseline air samples were collected for analysis of arsenic (per EPA Method IO-3.5), PCP and cPAHs (per EPA Method TO-13 GC/MS Full Scan), and dioxin/furan congeners (per EPA Method TO-9). Inorganic air samples were collected from four locations (Air-1, Air-2, Air-4, and Air-5). Arsenic was detected in all baseline air samples. Arsenic levels exceeded the action level (0.00045 μg/m^3) in baseline air samples collected at Air-4 (0.00012 to 0.00061 μg/m^3), downwind from the site, and Air-5 (0.00013 to 0.00050 μg/m^3), upwind from the site. Arsenic samples collected at Air-2 served as collocated samples for Air-1. The relative percent difference between results collected at Air-1 and Air-2 ranged from 0.0 to 34.3%.

TEQ
Toxic equivalency

TEFs
Toxicity equivalency factors

Pg/m^3
Picograms/cubic meter

Organic air samples were collected from three locations (Air-1, Air-4, and Air-5). Pentachlorophenol and cPAHs were not detected in any air samples collected during baseline monitoring. For each organic air sample, the toxic equivalency (TEQ) of the dioxin/furan congeners was calculated using toxicity equivalency factors (TEFs) listed as per EPA guidance (EPA 1989). Dioxins and furans were detected in all air samples collected during baseline sampling. None of the TEQ concentrations exceeded the action level of 0.045 picograms/cubic meter (pg/m^3).

3.3.2 Construction Activity Results

During March 9 -10, 1999, construction activity air samples were collected for analysis of arsenic (per EPA Method IO - 3.5), PCP and cPAHs (per EPA Method TO-13 GC/MS Full Scan), and dioxin/furan congeners (per EPA Method TO-9). Inorganic air samples were collected from five locations (Air-1, Air-2, Air-3, Air-4, and Air-5). Arsenic was detected in all construction-activity air samples. Arsenic levels exceeded the action level (0.00045 μg/m^3) in construction-activity air samples collected at all five stations. The highest arsenic concentration was detected at Air-3, downwind from the stockpile. The lowest arsenic

concentration was detected at Air-5, upwind from the site. Arsenic concentrations detected in air samples collected during construction activities increased (two to fivefold) from baseline monitoring.

Organic air samples were collected from four locations (Air-1, Air-3, Air-4, and Air-5). PCP and cPAHs were not detected in any of the air samples collected during construction activities. For each organic air sample, the TEQ of the dioxin/furan congeners was calculated using TEFs listed as per EPA guidance (EPA 1989). Dioxins and furans were detected in all air samples collected during construction activity. TEQ concentrations exceeded the action level of 0.045 pg/m^3 in air samples collected from Air-1, Air-3, and Air-4. The highest TEQ concentration, 0.25 pg/m^3, was detected at Air-4, located at the northeastern site boundary. The lowest TEQ concentration, 0.031 pg/m^3, was detected at Air-5, upwind of the site. TEQ concentrations detected in air samples collected during construction activities increased from baseline monitoring samples.

Table 3-1 SUMMARY OF TCLP SOIL ANALYTICAL RESULTS
McCORMICK & BAXTER SITE
PORTLAND, OREGON

RA12 and RA3 Horizontal Composite Samples (mg/L)

		RA12 East		
Analytes	TCLP Limits	0-1 Ft	1-2 Ft	2-3 Ft
Arsenic	5	ND	1.41	0.567
Chromium	5	0.026	0.174	0.54
Barium	100	ND	ND	0.088
Pentachlorophenol	100	0.145	1.6	2.28

		RA12 Central		
Analytes	TCLP Limits	0-1 Ft	1-2 Ft	2-3 Ft
Arsenic	5	0.223	0.842	1.24
Chromium	5	0.066	0.124	0.154
Barium	100	ND	ND	ND
Pentachlorophenol	100	ND	1.57	2.42

		RA12 West		
Analytes	TCLP Limits	0-1 Ft	1-2 Ft	2-3 Ft
Arsenic	5	0.126	1.21	2.13
Chromium	5	0.041	0.109	0.84
Barium	100	ND	ND	ND
Pentachlorophenol	100	1.18	2.04	2.2

		RA3 North	RA3 Central	RA3 South
Analytes	TCLP Limits	0-1 Ft	0-1 Ft	0-1 Ft
Arsenic	5	7.14	1.212	2.91
Chromium	5	0.026	0.022	0.032
Barium	100	0.523	0.55	0.752
Pentachlorophenol	100	ND	ND	ND

RA12 Vertical Composite Samples (mg/L)

		East	East/ Central	Central	West/ Central	West
Analytes	TCLP Limits	0-4 Ft	0-4 Ft	0-4 Ft	0-4 Ft	0-4 Ft
Arsenic	5	ND	ND	0.738	2.07	0.716
Chromium	5	0.04	0.057	0.14	0.06	0.061
Barium	100	ND	ND	ND	ND	0.525
Pentachlorophenol	100	1.22	1.21	1.24	1.72	1.34

Key:

mg/L - milligrams per liter
ND - Not detected
RA - Removal action
TCLP - Toxicity characteristic leaching procedure
- Value exceeded TCLP regulatory limits

Table 3-2

SUMMARY OF REMOVAL DATA
REMEDIAL ACTION AREA RA1
McCORMICK AND BAXTER SITE
PORTLAND, OREGON
UNITS: mg/kg

Location	Depth (feet BGS)	Arsenic	Pentachlorophenol	Total CPAHs
A	1	4	NA	NA
B	1	5.7/5.34	NA	NA
C	1	120/128	NA	NA
D	1	2.7/3	NA	NA
E	1	**410**	NA	NA
F	1	110/113	NA	NA
G	1	9.6/8.36	NA	NA
H	1	**450**	NA	NA
I	1	**610**	NA	NA
J	1	6.1/6.01	NA	NA
K	2	**810**	NA	NA
L	2	130/131	NA	NA
M	2	62/61.9	NA	NA
N	2	**310**	NA	NA
O	2	3.1/3.15	NA	NA
P	2	210/213	NA	NA
Q	2	5.8/5.78	NA	NA
R	2	62	NA	NA
S	2	5.7	NA	NA
T	3	18/18.3	NA	NA
U	3	3.7/3.69	NA	NA
V	3	**460**	NA	NA
W	3	6.6	NA	NA
X	3	3.1/3.09	NA	NA
Y	4	ND	NA	NA
Z	4	5.8/5.83	NA	NA
AA	4	4.5/4.52	NA	NA
AB	4	2.8/2.76	NA	NA

Note: **Bold** results exceed action levels.

Key:

BGS = Below ground surface.

NA = Not analyzed.

ND = Not detected.

When two results are presented for an analyte, the first result is the screening result and the second is the confirmation result.

When one result is presented for an analyte, this means that the screening result complied with method QA/QC requirements and was accepted as a confirmation result.

Table 3-3

SUMMARY OF REMOVAL DATA
REMEDIAL ACTION AREA RA2
McCORMICK AND BAXTER SITE
PORTLAND, OREGON
UNITS: mg/kg

Location	Depth (feet BGS)	Arsenic	Pentachlorophenol	Total CPAHs
A	1	26/24.7	NA	NA
B	1	4.3/3.57	NA	NA
C	1	50/44.9	NA	NA
D	1	**820**	NA	NA
E	1	4.2/2.62	NA	NA
F	1	3.4/3.15	NA	NA
G	1	58/59.4	NA	NA
H	1	140/136	NA	NA
I	2	42/41.6	NA	NA
J	3	81/80.6	NA	NA
K	2	2.6/2.64	NA	NA
L	2	6.4/6.39	NA	NA

Note: **Bold** results exceed action levels.

Key:

BGS = Below ground surface.

NA = Not analyzed.

ND = Not detected.

When two results are presented for an analyte, the first result is the screening result and the second is the confirmation result.

When one result is presented for an analyte, this means that the screening result complied with method QA/QC requirements and was accepted as a confirmation result.

Table 3-4

SUMMARY OF REMOVAL DATA
REMEDIAL ACTION AREA RA3
McCORMICK AND BAXTER SITE
PORTLAND, OREGON
UNITS: mg/kg

Location	Depth (feet BGS)	Arsenic	Pentachlorophenol	Total CPAHs
A	1	110/112	NA	NA
B	1	5.2/5.24	NA	NA
C	1	5.2/5.17	NA	NA
D	1	160/161	NA	NA
E	1	10/10.3	NA	NA
F	1	8.4	NA	NA
G	1	15/15.4	NA	NA
H	1	**350**	NA	NA
I	1	**350**	NA	NA
J	1	4.4/4.41	NA	NA
K	1	2.5	NA	NA
L	1	3.6/3.62	NA	NA
M	1	100/103	NA	NA
N	2	130/126	NA	NA
O	2	3.6/3.64	NA	NA
P	2	2.8/2.78	NA	NA
Q	2	3/3.03	NA	NA
R	2	210/206	NA	NA
S	2	51/51.1	NA	NA

Note: **Bold** results exceed action levels.

Key:

BGS = Below ground surface.

NA = Not analyzed.

ND = Not detected.

When two results are presented for an analyte, the first result is the screening result and the second is the confirmation result.

When one result is presented for an analyte, this means that the screening result complied with method QA/QC requirements and was accepted as a confirmation result.

Table 3-5

SUMMARY OF REMOVAL DATA
REMEDIAL ACTION AREA RA4
McCORMICK AND BAXTER SITE
PORTLAND, OREGON
UNITS: mg/kg

Location	Depth (feet BGS)	Arsenic	Pentachlorophenol	Total CPAHs
A	1	8/7.99	ND	ND
B	1	44/43.7	ND	ND
C	1	45/44.9	ND	ND
D	1	89/88.8	ND	ND
E	1	3.7/3.67	ND	ND
F	1	30/30.4	ND	ND
G	1	3.5/3.49	ND	ND
H	1	160/157	ND	ND
I	1	**1200**	ND	ND
J	1	**870**	ND	ND
K	2	180/184	NA	NA
L	2	210/206	NA	NA
M	2	85/85.3	NA	NA
N	2	77/77.3	NA	NA

Note: **Bold** results exceed action levels.

Key:

BGS = Below ground surface.

NA = Not analyzed.

ND = Not detected.

When two results are presented for an analyte, the first result is the screening result and the second is the confirmation result.

When one result is presented for an analyte, this means that the screening result complied with method QA/QC requirements and was accepted as a confirmation result.

Table 3-6

SUMMARY OF REMOVAL DATA
REMEDIAL ACTION AREA RA5
McCORMICK AND BAXTER SITE
PORTLAND, OREGON
UNITS: mg/kg

Location	Depth (feet BGS)	Arsenic	Pentachlorophenol	Total CPAHs
A	1	31/30.9	ND	ND
B	1	15/15.2	ND	ND
C	1	21/20.9	ND	ND
D	1	12/11.6	ND	ND
E	1	260/197	ND	ND

Note: **Bold** results exceed action levels.

Key:

BGS = Below ground surface.

NA = Not analyzed.

ND = Not detected.

When two results are presented for an analyte, the first result is the screening result and the second is the confirmation result.

When one result is presented for an analyte, this means that the screening result complied with method QA/QC requirements and was accepted as a confirmation result.

Table 3-7

SUMMARY OF REMOVAL DATA
REMEDIAL ACTION AREA RA6
McCORMICK AND BAXTER SITE
PORTLAND, OREGON
UNITS: mg/kg

Location	Depth (feet BGS)	Arsenic	Pentachlorophenol	Total CPAHs
A	1	120/126	ND	ND
B	1	55/55.4	ND	ND
C	1	4.2/4.23	ND	ND
D	1	8/8.01	ND	ND
E	1	9.1/9.11	ND	ND
F	1	7.7/7.95	26.9	ND
G	1	3.3/3.33	ND	ND
H	1	260/266	ND	ND
I	1	40/40.7	ND	ND
J	1	220/209	ND	ND
K	1	260/261	ND	ND
L	1	18/18.2	ND	ND
M	1	250/242	ND	ND
N	1	7.9/8.32	ND	ND
O	1	ND	ND	ND

Note: **Bold** results exceed action levels.

Key:

BGS = Below ground surface.

NA = Not analyzed.

ND = Not detected.

When two results are presented for an analyte, the first result is the screening result and the second is the confirmation result.

When one result is presented for an analyte, this means that the screening result complied with method QA/QC requirements and was accepted as a confirmation result.

Table 3-8

SUMMARY OF REMOVAL DATA
REMEDIAL ACTION AREA RA7
McCORMICK AND BAXTER SITE
PORTLAND, OREGON
UNITS: mg/kg

Location	Depth (feet BGS)	Arsenic	Pentachlorophenol	Total CPAHs
A	1	12/12.3	NA	NA
B	1	95/94.5	NA	NA
C	1	24/23.5	NA	NA
D	1	6.1/6.11	NA	NA
E	1	ND	NA	NA

Note: **Bold** results exceed action levels.

Key:

BGS = Below ground surface.

NA = Not analyzed.

ND = Not detected.

When two results are presented for an analyte, the first result is the screening result and the second is the confirmation result.

When one result is presented for an analyte, this means that the screening result complied with method QA/QC requirements and was accepted as a confirmation result.

Table 3-9

SUMMARY OF REMOVAL DATA
REMEDIAL ACTION AREA RA8
McCORMICK AND BAXTER SITE
PORTLAND, OREGON
UNITS: mg/kg

Location	Depth (feet BGS)	Arsenic	Pentachlorophenol	Total CPAHs
A	1	12/13.8	ND	ND
B	1	270/268	ND	ND
C	1	10/10.5	ND	ND
D	1	11/11.2	ND	ND
E	1	170/166	ND	ND
F	1	3.3/3.22	ND	ND
G	1	3.4/3.46	ND	ND
H	1	9.9/10.5	ND	ND
I	1	250/268	ND	ND
J	1	9.2/8.46	ND	ND
K	1	9/ND	21.5	ND
L	1	190/186	10.1	ND

Note: **Bold** results exceed action levels.

Key:

BGS = Below ground surface.

NA = Not analyzed.

ND = Not detected.

When two results are presented for an analyte, the first result is the screening result and the second is the confirmation result.

When one result is presented for an analyte, this means that the screening result complied with method QA/QC requirements and was accepted as a confirmation result.

Table 3-10

SUMMARY OF REMOVAL DATA
REMEDIAL ACTION AREA RA9
McCORMICK AND BAXTER SITE
PORTLAND, OREGON
UNITS: mg/kg

Location	Depth (feet BGS)	Arsenic	Pentachlorophenol	Total CPAHs
A	1	15/15.1	ND	ND
B	1	4.8/4.83	ND	ND
C	1	**330**	ND	ND
D	1	88/87.6	ND	ND
E	1	24/24.4	ND	ND
F	2	4.5/4.26	NA	NA
G	2	5.4/5.51	NA	NA
H	2	5.1/5.72	NA	NA
I	2	24/26.3	NA	NA

Note: **Bold** results exceed action levels.

Key:

BGS = Below ground surface.

NA = Not analyzed.

ND = Not detected.

When two results are presented for an analyte, the first result is the screening result and the second is the confirmation result.

When one result is presented for an analyte, this means that the screening result complied with method QA/QC requirements and was accepted as a confirmation result.

Table 3-11

SUMMARY OF REMOVAL DATA
REMEDIAL ACTION AREA RA10
McCORMICK AND BAXTER SITE
PORTLAND, OREGON
UNITS: mg/kg

Location	Depth (feet BGS)	Arsenic	Pentachlorophenol	Total CPAHs
A	4	3.9	ND	ND
B	4	**460**	130	48.4
C	4	**320**	103	22.8
D	4	3.4/3.38	260	ND
E	4	**790**	126	14.61
F	4	6.3/4.16	ND	ND
G	4	29/33.6	ND	ND
H	4	**1700**	197	**103.68**
I	2	**3200**	**711**	**268.9**
I	4	**500**	187	**112.32**
J	4	**310**	156	30.4
K	2	**1300**	192	**102.86**
K	4	**900**	228	28.5
L	4	74/80.3	108	35
M	2	**4000**	**849**	**718.3**
M	4	**460**	81.5	35.9
N	4	4.6/2.81	ND	ND
P	4	7.6/7.59	ND	ND
Q	4	3.1/3.14	16.5	ND
R	4	280/278	69.4	34.2
S	4	**740**	14.6	ND
T	2	270	410	**154.2**
T	4	3.4	116	50.99
U	2	3.4/4.56	40.4	5.44
U	4	4.2/4.15	ND	ND
V	2	ND	ND	ND
V	4	8.4/8.44	121	ND
W	2	12/12.4	ND	ND
W	4	ND	ND	ND
X	2	**750**	67	28.1
Y	2	**360**	275	**162.8**
Z	4	4.7/4.66	ND	ND
AA	4	3.5/3.52	47.7/66.9	30.1/30.5
AB	4	3/3.02	208/240	ND
BA	4	**820**	323	68.95
BB	4	**740**	34.6	22.4
BC	4	27/32.5	82.2/69.6	50.4/56.3
BD	4	25/27.9	400/354	13.95/13.71
BE	4	35/43.8	13.5/11.8	ND
BF	4	**1200**	NA	NA
BG	4	**460**	NA	NA
BH	4	**400**	NA	NA
BI	4	110/165	41.4/38.1	ND
BJ	4	**770**	NA	NA
BK	4	**660**	NA	NA
BL	4	8.6/5.48	26.7/21.5	ND
BM	4	6.8/7.03	349/261	25/22.9
BN	4	4.3/4.57	19.5/18.7	ND
BO	4	110/103	183/158	30.76/29.16
BP	4	32	74.4	**124.3**
BQ	4	74	**503**	6.92
BR	4	3.6/2.86	ND	ND
BS	4	4.7/3.44	ND	ND
BT	1	7.7	**1850**	**296.8**
BU	4	21/23.7	ND	ND
BV	4	3.9/ND	14.3	ND
BW	4	6.2/5.67	ND	ND
BX	3	5.1/4.12	ND	ND
BY	4	170/163	86.9	ND
BZ	4	**560**	17.6	ND
CA	4	240	ND	ND
CB	2	4.2	**1150**	**129.1**
Floor Composite	4	**430**	226	88.07

Note: **Bold results exceed action levels.**

Key:

BGS = Below ground surface.

NA = Not analyzed.

ND = Not detected.

When two results are presented for an analyte, the first result is the screening result and the second is the confirmation result.

When one result is presented for an analyte, this means that the screening result complied with method QA/QC requirements and was accepted as a confirmation result.

Table 3-12

SUMMARY OF REMOVAL DATA
REMEDIAL ACTION AREA RA11
McCORMICK AND BAXTER SITE
PORTLAND, OREGON
UNITS: mg/kg

Location	Depth (feet BGS)	Arsenic	Pentachlorophenol	Total CPAHs
A	1	5.5/5.54	NA	NA
B	1	4.1/4.13	NA	NA
C	1	4.5/4.46	NA	NA
D	1	3.7/3.69	NA	NA
E	1	3.2/3.21	NA	NA

Note: **Bold** results exceed action levels.

Key:

BGS = Below ground surface.

NA = Not analyzed.

ND = Not detected.

When two results are presented for an analyte, the first result is the screening result and the second is the confirmation result.

When one result is presented for an analyte, this means that the screening result complied with method QA/QC requirements and was accepted as a confirmation result.

Table 3-13

SUMMARY OF REMOVAL DATA
REMEDIAL ACTION AREA RA12
McCORMICK AND BAXTER SITE
PORTLAND, OREGON
UNITS: mg/kg

Location	Depth (feet BGS)	Arsenic	Pentachlorophenol	Total CPAHs
A	4	48	**1310**	**368.92**
B	4	15	239	**163.6**
C	4	12/11.5	175	24.97
D	4	73	144	27.28
E	4	110/115	228	55.3
F	4	4.6/4.63	ND	ND
G	4	5/4.96	95.7	ND
H	4	250	12.8	ND
I	4	5.4/5.39	173	51.5
J	4	**860**	76.8	23.1
K	4	4.2/4.18	ND	ND
L	4	3.9	489	**453.88**
M	4	4.7	**794**	**462.8**
N	4	4.4	463	**319.75**
O	4	210	417	**169**
P	4	ND	ND	ND
Q	4	7.8/7.76	37.5/29.7	14.46/14.25
R	4	2.9/2.89	32.6/36.6	ND
S	4	ND	ND	ND
T	4	**1100**	ND/23.5	16.99/17.54
U	4	220/219	ND	ND
V	4	2.6/2.61	ND	ND
W	4	**350**	ND	ND
X	4	250/251	53.5/78.4	ND
Y	4	45/42	ND	ND
Z	4	3.2/3.04	ND	ND
AA	4	170/167	NA	NA
AB	4	29/29.1	NA	NA
Floor Composite	4	**1400**	**518**	**367.2**

Note: **Bold** results exceed action levels.

Key:

BGS = Below ground surface.

NA = Not analyzed.

ND = Not detected.

When two results are presented for an analyte, the first result is the screening result and the second is the confirmation result.

When one result is presented for an analyte, this means that the screening result complied with method QA/QC requirements and was accepted as a confirmation result.

Table 3-14

SUMMARY OF REMOVAL DATA
REMEDIAL ACTION AREA RA13A
McCORMICK AND BAXTER SITE
PORTLAND, OREGON
UNITS: mg/kg

Location	Depth (feet BGS)	Arsenic	Pentachlorophenol	Total CPAHs
A	4	**2300**	ND	ND
B	4	**1200**	ND	ND
C	4	170/172	ND	ND
D	4	**4100**	ND	ND
E	4	**320**	ND	ND
F	4	67/67.2	ND	ND
G	4	90/90.2	ND	ND
H	4	**610**	ND	ND
I	4	**640**	27.1	ND
J	4	4.2/4.17	10.2	ND
K	4	23/23.1	15.4	ND
L	4	9.2/9.15	ND	ND
M	4	**340**	ND	ND
N	4	26/30.7	ND	ND
O	0	**630**	43.1	26.6
P	0	**1300**	83.3	48.8
Q	0	220/250	53.3	91.5
R	0	150/189	11	ND
S	4	290/286	ND	ND
T	2	**670**	32.1	ND
U	4	120	ND	ND
V	4	7.5/7.49	ND	ND
W	4	150/153	ND	ND
X	4	66/65.6	27.7	ND
Y	4	3.5/3.53	12	ND
Z	4	6.7/6.72	ND	ND
AA	4	19/18.9	223	24.1
AG	1	**730**	**2090**	**1006.4**
AH	1	260	**2420**	**489.7**
AI	1	180	313	**218.1**
AJ	4	59/58.6	ND	ND
AK	4	5.3/5.26	ND	ND
AL	4	140/144	31.6	22.5
AM	1	78	37.2	**106.4**
AN	4	15	ND	ND
AO	4	5.9/5.93	ND	ND
AP	4	20/19.6	25.4	ND
AQ	4	3.9/3.88	ND	ND
AR	2	2.7/2.73	ND	ND
AS	4	16/16.3	35/33.6	ND/5.83
AT	4	2.7/2.66	ND	ND
AU	1	ND/4.13	306	65.3
Floor Composite	4	**1700**	ND	ND

Note: **Bold** results exceed action levels.

Key:

BGS = Below ground surface.

NA = Not analyzed.

ND = Not detected.

When two results are presented for an analyte, the first result is the screening result and the second is the confirmation result.

When one result is presented for an analyte, this means that the screening result complied with method QA/QC requirements and was accepted as a confirmation result.

Table 3-15

SUMMARY OF REMOVAL DATA
REMEDIAL ACTION AREA RA13B
McCORMICK AND BAXTER SITE
PORTLAND, OREGON
UNITS: mg/kg

Location	Depth (feet BGS)	Arsenic	Pentachlorophenol	Total CPAHs
A	4	3.5/3.53	38.1	ND
B	4	16/15.7	34	ND
C	4	5/5.02	ND	ND
D	4	7.7	**2770**	ND
E	4	100	**1230**	ND
F	4	3.3/3.28	ND	ND
G	4	3/2.97	ND	ND
H	4	6.3/6.33	15.2	ND
I	4	5.6/5.65	ND	ND
J	4	3.7/3.75	208	ND
K	4	ND	ND	ND
L	4	38	**686**	ND
M	4	2.7/2.71	74	ND
N	4	15/14.9	35.6	ND
O	4	150/153	ND	ND
P	4	8.4	ND	ND
Q	4	23/23.3	12.7	ND
R	4	170/175	ND	ND
S	4	180/177	ND	ND
T	4	7.5/7.54	ND	ND
U	4	85/84.8	263	20.25
V	4	4	ND	ND
W	4	3.3/3.25	10.7	ND
X	4	24/23.8	ND	ND
Y	4	390/394	62.3	17.6
Z	4	22/21.9	ND	ND
AA	4	6.6/8.01	ND	ND
Floor Composite	4	39/39.1	ND/11.3	ND/5.11

Note: **Bold** results exceed action levels.

Key:

BGS = Below ground surface.

NA = Not analyzed.

ND = Not detected.

When two results are presented for an analyte, the first result is the screening result and the second is the confirmation result.

When one result is presented for an analyte, this means that the screening result complied with method QA/QC requirements and was accepted as a confirmation result.

Table 3-16

SUMMARY OF REMOVAL DATA
REMEDIAL ACTION AREA RA14
McCORMICK AND BAXTER SITE
PORTLAND, OREGON
UNITS: mg/kg

Location	Depth (feet BGS)	Arsenic	Pentachlorophenol	Total CPAHs
A	1	210/214	80.9/77.9	ND/18.16
B	1	33/33.3	361/409	**39.3/144.8**
C	1	4.5/4.47	ND	ND
D	1	3.5	**732**	**639.7**
E	1	15	**2610**	**721.4**
F	2	3.5/3.52	ND	ND
G	2	3.8/3.77	ND	ND
H	2	3.1/3.13	ND	ND
I	2	4.5/4.46	ND	ND
J	2	3.1/3.06	ND	ND
K	1	3.4/3.41	168	14.12
L	1	24/23.7	127	36.05
M	1	21	187	**117**
N	1	ND	47.7	ND
O	1	ND	28.6	25.8
P	2	6.5/6.49	ND	ND
Q	2	2.5/ND	ND	ND
R	2	2.5/ND	ND	ND
S	1	8.4/10.1	ND	ND
T	1	2.6/3.33	ND	ND
U	1	2.8/3.59	ND	11.16/ND

Note: **Bold** results exceed action levels.

Key:

BGS = Below ground surface.

NA = Not analyzed.

ND = Not detected.

When two results are presented for an analyte, the first result is the screening result and the second is the confirmation result.

When one result is presented for an analyte, this means that the screening result complied with method QA/QC requirements and was accepted as a confirmation result.

Table 3-17

SUMMARY OF REMOVAL DATA
REMEDIAL ACTION AREA RA15
McCORMICK AND BAXTER SITE
PORTLAND, OREGON
UNITS: mg/kg

Location	Depth (feet BGS)	Arsenic	Pentachlorophenol	Total CPAHs
A	1	**520**	29	ND
B	1	**730**	ND	ND
C	1	**460**	60.6	19.87
D	1	**490**	205	**147.53**
E	1	**340**	114	85.99
F	1	**350**	27.6	ND
G	1	**470**	32.2	5.02
H	2	**440**	NA	NA
I	2	250/254	47.1	10.3
J	2	63/63.1	ND	ND
K	2	**370**	NA	NA
L	2	23/18.3	ND	ND
M	2	170/149	78.6	60.7
N	2	6.4/5.56	ND	ND
O	2	69/69.3	ND	ND
P	2	270	33.6/33.5	ND
Q	2	18/17.8	27.8	55.2
R	3	57/56.8	ND	ND
S	3	200/195	ND	ND
T	3	120/119	ND	ND
U	3	120/116	ND	24.9
V	3	110/106	ND	ND

Note: **Bold** results exceed action levels.

Key:

BGS = Below ground surface.

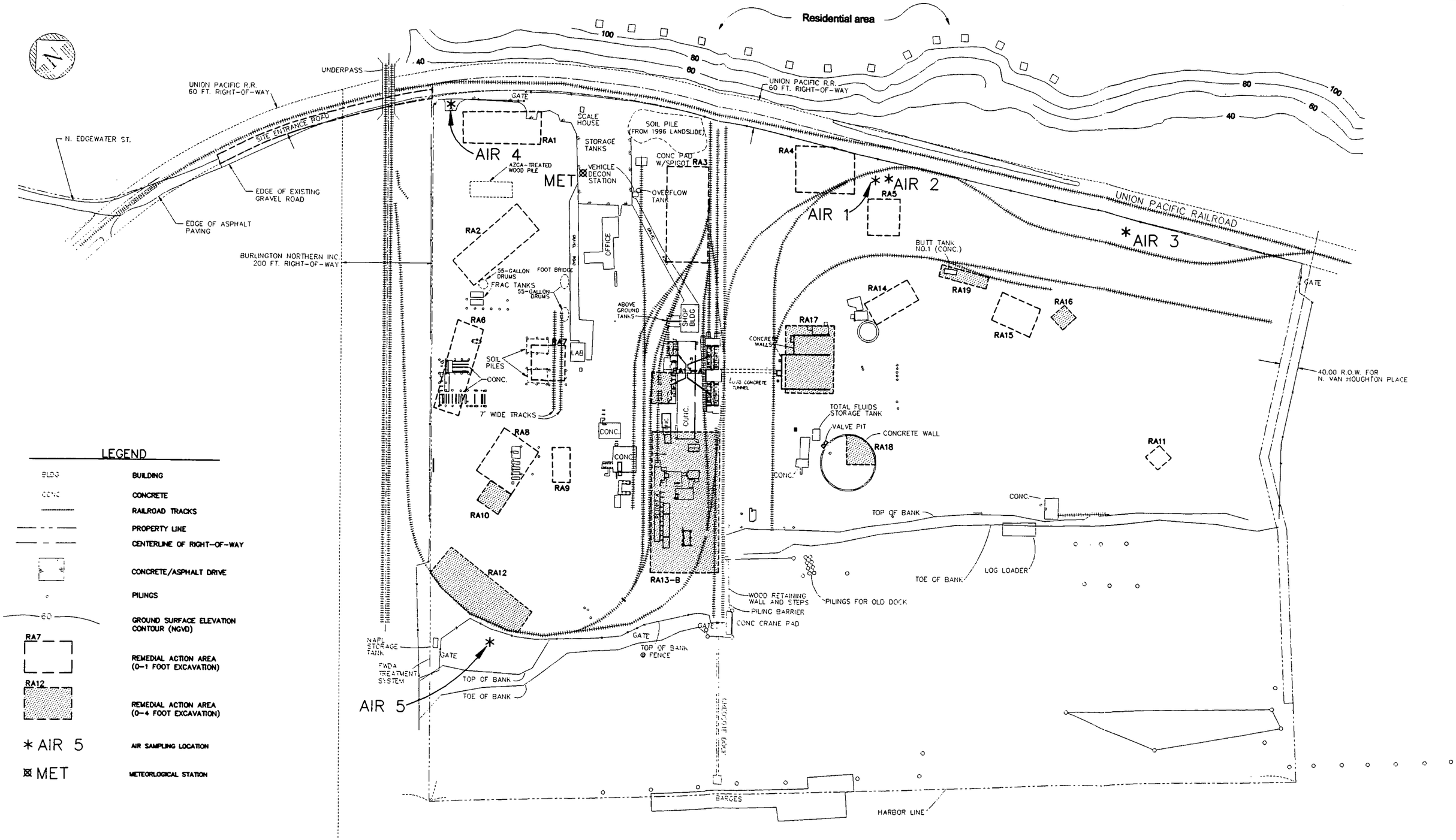
NA = Not analyzed.

ND = Not detected.

When two results are presented for an analyte, the first result is the screening result and the second is the confirmation result.

When one result is presented for an analyte, this means that the screening result complied with method QA/QC requirements and was accepted as a confirmation result.

749.0H04.00.29/OH4F2-1B.DWG/C.NANCARROW/A.FRANZEN-ENG'R/B.MORRIS-AUTOCAD/07-22-99/SEATTLE,WA



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CHECKED BY: KEVIN SMITH
DRAWN BY: CHAD NANCARROW/B. MORRIS
APPROVED BY: XXXXXX

FIGURE 2-1
AIR SAMPLE LOCATION MAP
McCORMICK & BAXTER CREOSOTING CO.
PORTLAND, OREGON

SCALE	DATE ISSUED	CAD FILE NO.	DRAWING NO
NOTED	07-22-99	OH4F2-1B.DWG	X of X

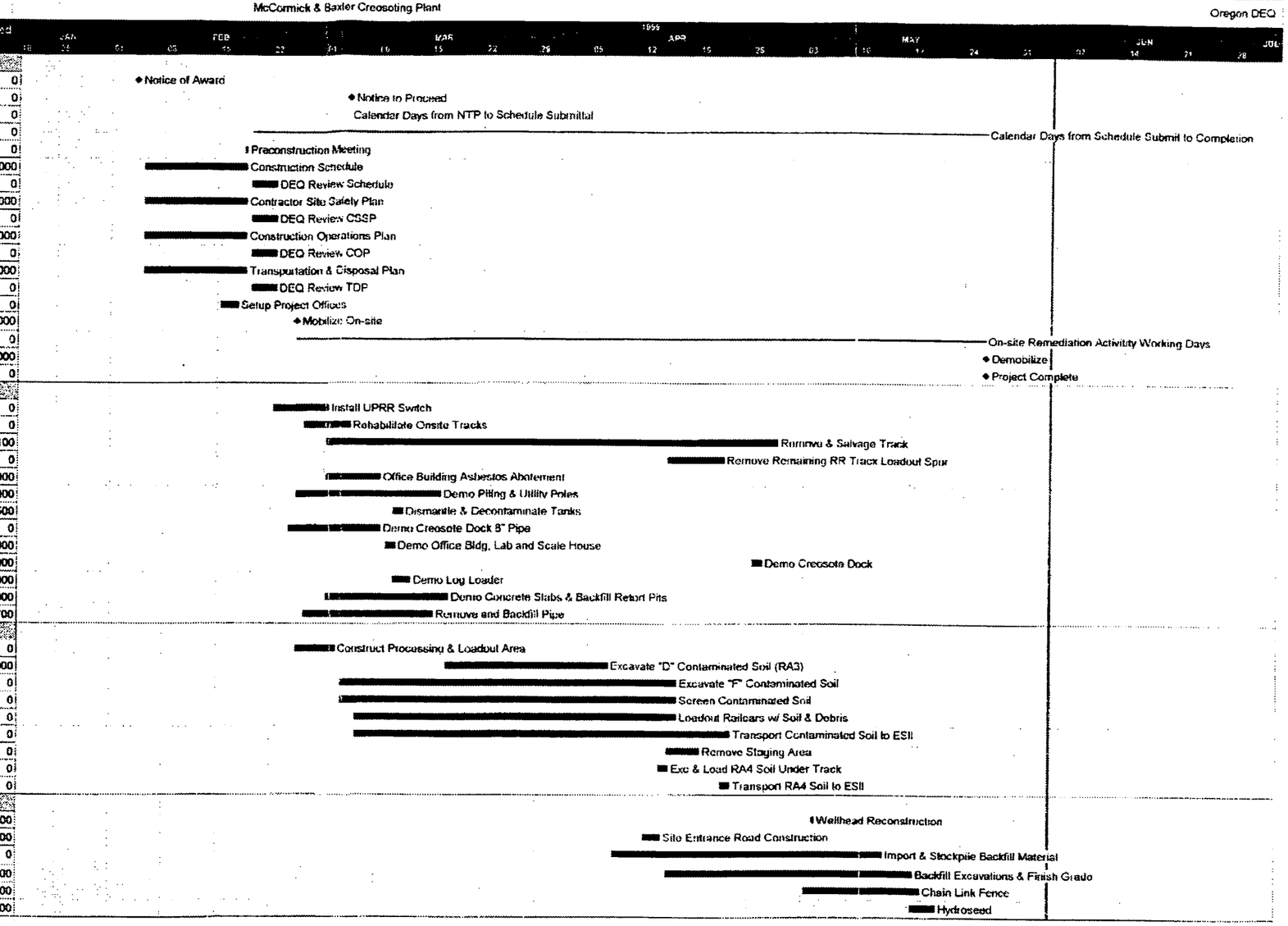
PLOTTED 6-99

Source: Wilder Construction Co.

McCormick & Baxter Creosoting Plant

Oregon DEQ

Act ID	Description	Orig Dur	Early Start	Early Finish	Budgeted Cost
General Requirements					
1000	Notice of Award	0	04FEB99 A		0
1010	Notice to Proceed	0	04MAR99 A		0
1012	Calendar Days from NTP to Schedule Submittal	0 *	04MAR99 A	04MAR99 A	0
1014	Calendar Days from Schedule Submit to Completion	97d *	19FEB99 A	26MAY99 A	0
1020	Preconstruction Meeting	1d	18FEB99 A	18FEB99 A	0
1500	Construction Schedule	10d	05FEB99 A	18FEB99 A	5,000
1502	DEQ Review Schedule	5d	19FEB99 A	22FEB99 A	0
1510	Contractor Site Safety Plan	10d	05FEB99 A	18FEB99 A	5,000
1512	DEQ Review CSSP	5d	19FEB99 A	22FEB99 A	0
1520	Construction Operations Plan	10d	05FEB99 A	18FEB99 A	5,000
1522	DEQ Review COP	5d	19FEB99 A	22FEB99 A	0
1530	Transportation & Disposal Plan	10d	05FEB99 A	18FEB99 A	5,000
1532	DEQ Review TDP	5d	19FEB99 A	22FEB99 A	0
1800	Setup Project Offices	2d	15FEB99 A	17FEB99 A	0
1900	Mobilize On-site	0	25FEB99 A		139,000
1950	On-site Remediation Activitly Working Days	85d *	25FEB99 A	26MAY99 A	0
1998	Demobilize	0		26MAY99 A	127,000
1999	Project Complete	0		26MAY99 A	0
Railroad Track & Demolition Work					
2000	Install UPRR Switch	15d	22FEB99 A	01MAR99 A	0
2010	Rehabilitate Onsite Tracks	2d	26FEB99 A	04MAR99 A	0
2020	Remove & Salvage Track	23d	01MAR99 A	29APR99 A	-3,100
2025	Remove Remaining RR Track Loadout Spur	2d	15APR99 A	22APR99 A	0
2030	Office Building Asbestos Abatement	5d	01MAR99 A	08MAR99 A	16,000
2032	Demo Piling & Utility Poles	2d	25FEB99 A	16MAR99 A	11,000
2034	Dismantle & Decontaminate Tanks	2d	10MAR99 A	11MAR99 A	5,500
2050	Demo Creosote Dock 8" Pipe	2d	24FEB99 A	08MAR99 A	0
2054	Demo Office Bldg, Lab and Scale House	3d	09MAR99 A	10MAR99 A	20,000
2070	Demo Creosote Dock	5d	26APR99 A	27APR99 A	60,000
2080	Demo Log Loader	3d	10MAR99 A	12MAR99 A	45,000
2084	Demo Concrete Slabs & Backfill Retort Pits	7d	01MAR99 A	17MAR99 A	44,000
2200	Remove and Backfill Pipe	9d	26FEB99 A	15MAR99 A	23,700
Excavation, Sorting and Disposal					
3000	Construct Processing & Loadout Area	5d	25FEB99 A	02MAR99 A	0
3005	Excavate "D" Contaminated Soil (RA3)	8d	17MAR99 A	07APR99 A	720,000
3012	Excavate "F" Contaminated Soil	22d	03MAR99 A	16APR99 A	0
3020	Screen Contaminated Soil	30d	03MAR99 A	16APR99 A	0
3030	Loadout Railcars w/ Soil & Debris	31d	05MAR99 A	16APR99 A	0
3035	Transport Contaminated Soil to ESII	37d	05MAR99 A	23APR99 A	0
3040	Remove Staging Area	2d	15APR99 A	19APR99 A	0
3050	Exc & Load RA4 Soil Under Track	2d	14APR99 A	15APR99 A	0
3060	Transport RA4 Soil to ESII	2d	22APR99 A	23APR99 A	0
Site Restoration					
4000	Wellhead Reconstruction	3d	04MAY99 A	04MAY99 A	15,000
4020	Site Entrance Road Construction	4d	12APR99 A	14APR99 A	25,000
4025	Import & Stockpile Backfill Material	8d	08APR99 A	13MAY99 A	0
4030	Backfill Excavations & Finish Grade	13d	15APR99 A	17MAY99 A	250,000
4035	Chain Link Fence	3d	03MAY99 A	18MAY99 A	12,000
4040	Hydroseed	2d	17MAY99 A	20MAY99 A	20,000



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- Early bar
- Progress bar
- Critical bar
- Summary bar
- Progress point
- Critical point
- Summary point
- Start milestone point
- Finish milestone point

McCORMICK AND BAXTER CREOSOTING CO. SITE
Portland, Oregon

Figure 2-2
AS-BUILT CONSTRUCTION SCHEDULE

Date:	Drawn by:	Job No.:	Dwg.No.:
9/9/99	AES	000749OH040029	OH04 2-2

3. Analytical Results

3.1 Data Quality Assurance/Quality Control

The quality of analytical data generated during the soil screening and confirmation sampling at the McCormick & Baxter site was reviewed through evaluation of field and QA and QC analyses. Laboratory sample analyses were performed by North Creek Analytical in Beaverton, Oregon. E & E performed data validation on 20% of the confirmation samples. Copies of the E & E data validation memoranda for the validated data packages are included in Appendix E. Based on the data validation, the analytical results are considered valid for all uses.

E & E did not perform QA/QC data validation on the air samples collected at the McCormick & Baxter site. However, duplicate samples were collected to provide an indication of the overall sample variability. The duplicate samples have been identified on the corresponding analytical result (shown on the relevant tables in this section). The relative percent difference for all detectable analytes was 25% or below, indicating that variability due to field sampling procedures was minimal.

3.2 Soil Sampling Analytical Results

3.2.1 RA3 and RA12 TCLP Soil Results

Results of the TCLP analysis of composite soil samples from RA3 and RA12 are presented in Table 3-1. (The sampling rationale and procedures are discussed in Section 2.2.4.)

3.2.2 24-Hour Soil Screening/Confirmation Results

Soil samples were collected for analysis of COCs previously detected at levels exceeding action levels (see Tables 3-2—3-21). All laboratory analysis was performed by North Creek Analytical. Screening analysis results were transmitted to E & E within a

Table 3-18

SUMMARY OF REMOVAL DATA
REMEDIAL ACTION AREA RA16
McCORMICK AND BAXTER SITE
PORTLAND, OREGON
UNITS: mg/kg

Location	Depth (feet BGS)	Arsenic	Pentachlorophenol	Total CPAHs
A	4	**320**	NA	NA
B	4	240/244	15	ND
C	4	**630**	NA	NA
D	4	**340**	NA	NA
E	4	270/274	ND	ND
F	4	8.7/8.73	ND	ND
G	4	53/52.7	ND	ND
Floor Composite	4	260/261	ND	ND

Note: **Bold** results exceed action levels.

Key:

BGS = Below ground surface.

NA = Not analyzed.

ND = Not detected.

When two results are presented for an analyte, the first result is the screening result and the second is the confirmation result.

When one result is presented for an analyte, this means that the screening result complied with method QA/QC requirements and was accepted as a confirmation result.

Table 3-19

SUMMARY OF REMOVAL DATA
REMEDIAL ACTION AREA RA17
McCORMICK AND BAXTER SITE
PORTLAND, OREGON
UNITS: mg/kg

Location	Depth (feet BGS)	Arsenic	Pentachlorophenol	Total CPAHs
A	4	3.7/4.29	364/348	26.96/19.16
B	4	3.5	**526**	ND
C	4	2.8/3.17	54.1/33.9	53.4/38.4
D	4	3.7/3.22	ND	ND
E	4	3.3	**877**	17.99
F	4	2.7/2.96	14.5/13.6	ND
G	4	ND	ND	**378.4**
I	4	42/40.8	26.3/21	**121.1/116.2**
J	4	NA	ND	ND
K	4	NA	ND	20.38/13.9
L	4	NA	ND	ND
M	4	NA	ND	ND
N	4	4.9/2.76	ND	ND
O	4	6.9	ND	**263.9**
P	4	ND	ND	59.96/63.47
R	4	ND	10.6	ND
S	4	ND	ND	ND
T	1	4/4.05	34.1	46.3
U	1	2.7/2.69	ND	14.1
Floor Composite	4	3.2	183	**138.16**

Note: **Bold** results exceed action levels.

Key:

BGS = Below ground surface.

NA = Not analyzed.

ND = Not detected.

When two results are presented for an analyte, the first result is the screening result and the second is the confirmation result.

When one result is presented for an analyte, this means that the screening result complied with method QA/QC requirements and was accepted as a confirmation result.

Table 3-20

SUMMARY OF REMOVAL DATA
REMEDIAL ACTION AREA RA18
McCORMICK AND BAXTER SITE
PORTLAND, OREGON
UNITS: mg/kg

Location	Depth (feet BGS)	Arsenic	Pentachlorophenol	Total CPAHs
A	4	13/12.8	13.6	5.3
B	1	42	ND	**510.3**
C	2	ND	ND	ND
D	1	ND	ND	ND
E	2	3.5/3.25	ND	ND
F	2	4.7/3.89	ND	ND
G	2	9.9/9.23	ND	ND
H	2	2.7/2.65	ND	ND
I	3	2.9	ND	625.2
J	4	2.5/ND	ND	46.88/33.9
K	4	ND	ND	ND
L	4	6.5	13.3	**217.7**
M	4	ND	ND	ND
N	4	2.9/3.08	25.8/26.5	ND
O	4	ND	ND	15.72
P	2	ND/3.87	ND	ND
P	4	ND	ND	ND
Q	2	ND/3.9	ND	ND
Q	4	ND/3.6	ND	ND
Floor Composite	4	4.2	ND	**696.9**

Note: **Bold** results exceed action levels.

Key:

BGS = Below ground surface.

NA = Not analyzed.

ND = Not detected.

When two results are presented for an analyte, the first result is the screening result and the second is the confirmation result.

When one result is presented for an analyte, this means that the screening result complied with method QA/QC requirements and was accepted as a confirmation result.

Table 3-21

SUMMARY OF REMOVAL DATA
REMEDIAL ACTION AREA RA19
McCORMICK AND BAXTER SITE
PORTLAND, OREGON
UNITS: mg/kg

Location	Depth (feet BGS)	Arsenic	Pentachlorophenol	Total CPAHs
A	4	4.3/4.31	ND	ND
B	4	5.3/5.27	ND	ND
C	4	2.5/ND	ND	ND
D	4	2.9/2.93	ND	ND
E	4	3.3/3.35	ND	ND
F	4	2.7	ND	**115.1**
G	4	3.4/3.37	ND	ND
H	4	3/3.04	ND	54.4
I	4	2.6/2.57	ND	ND
J	4	2.5/2.54	ND	ND
K	4	3.1/3.09	ND	ND
L	4	3.3/3.26	ND	ND
M	1	3.2/3.19	ND	25.62
N	1	15/14.5	ND	ND
O	2	ND	ND	ND
P	1	**410**	22.8	6.43
Q	1	190/193	ND	ND
R	1	ND	ND	**115.26**
S	1	ND	ND	ND
T	4	ND	ND	ND
U	3	ND	ND	156
V	3	ND	ND	ND
W	2	**350/351**	ND	ND
X	2	**340/339**	ND	ND
Y	2	110/114	ND	ND
Z	4	3	ND	**184**
AA	4	2.6/2.57	ND	19.1/42.2
AB	4	ND	ND	ND
AC	3	2.5/3.22	ND	ND
AD	3	ND/2.65	ND	ND
AE	2	240/271	20.3/18.8	24.16/22.33
AF	2	120/137	ND	ND
AG	2	**260/306**	ND	ND
AH	3	250/247	NA	NA
AI	3	270/269	NA	NA
AJ	3	150/149	NA	NA
AK	3	84/83.8	NA	NA
Floor Composite	4	82	ND	**102.4**

Note: **Bold** results exceed action levels.

Key:

BGS = Below ground surface.

NA = Not analyzed.

ND = Not detected.

When two results are presented for an analyte, the first result is the screening result and the second is the confirmation result.

When one result is presented for an analyte, this means that the screening result complied with method QA/QC requirements and was accepted as a confirmation result.

Table 3-22 Air Sampling Results
Arsenic (ug/m^3) per EPA Method IO - 3.5
McCormick & Baxter Site
Portland, Oregon

Sampling Station	Sampling Period	Air Sample ID	Arsenic Concentration[1] (ug/m^3)
Air-1	Baseline Monitoring	H1-01	0.00032
		H1-02	0.000099
		H1-03	0.00024
	Soil Removal Activities	H1-04	0.0010
Air-2	Baseline Monitoring	H2-01	0.00039
		H2-02	0.00014
		H2-03	0.00024
	Soil Removal Activities	H2-04	0.00096
Air-3	Soil Removal Activities	H3-04	0.0033
Air-4	Baseline Monitoring	H4-01	0.00048
		H4-02	0.00012
		H4-03	0.00061
	Soil Removal Activities	H4-04	0.0022
Air-5	Baseline Monitoring	H5-01	0.00050
		H5-02	0.00013
		H5-03	0.00042
	Soil Removal Activities	H5-04	0.00072

[1] Arsenic concentrations in air calculated using a flow rate of 1.132 m^3/min.

Shaded cells indicate arsenic concentration above the EPA Region 9 Preliminary Remedial Goal (1998) of 0.00045 ug/m^3.

Table 3-23

Air Sampling Results
Semivolatile Organic Compounds (ug/m3) per EPA Method TO-13 GC/MS Full Scan
McCormick & Baxter Site
Portland, Oregon

	Air Sample ID												
	Baseline Monitoring									Soil Removal Activities			
Analyte	P1-01	P1-02	P1-03	P4-01	P4-02	P4-03	P5-01	P5-02	P5-03	P1-04	P3-04	P4-04	P5-04
Naphthalene	0.051	0.017	0.041	0.064	0.022	0.065	0.13	0.021	0.081	0.60	4.5	0.73	1.5
2-Methylnaphthalene	0.037	0.012	0.027	0.046	0.018	0.040	0.066	0.017	0.050	0.21	1.4	0.24	0.46
2-Chloronaphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthene	0.0057	ND	0.0037	0.0081	ND	0.0062	0.014	ND	0.010	0.069	0.31	0.081	0.13
Fluorene	ND	ND	ND	0.0062	ND	0.0043	0.0086	ND	0.0061	0.029	0.12	0.034	0.050
Phenanthrene	0.0063	ND	0.0041	0.0088	0.0037	0.0056	0.010	ND	0.0076	0.018	0.067	0.024	0.027
Anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ideno(1,2,3-c,d)pyrene[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total cPAHs[2]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

[1] Analyte listed is a carcinogenic polyaromatic hydrocarbon (cPAH).
[2] Total cPAHs equals total carcinogenic polyaromatic hydrocarbons.

Pentachlorophenol and total cPAH concentrations did not exceed EPA Region 9 Preliminary Remedial Goals (1999) of 0.056 ug/m^3 and 0.0022 ug/m^3 respectively.
Air sample locations are Air-1 (P1), Air-3 (P3), Air-4 (P4), and Air-5 (P5).

Table 3-24

AIR SAMPLING RESULTS
2,3,7,8 - TCDD DIOXIN TOXIC EQUIVALENT CONCENTRATIONS (pg/m^3) PER EPA METHOD TO-9
McCORMICK & BAXTER SITE
PORTLAND, OREGON

	Air Sample ID												
	Baseline Monitoring									Soil Removal Activities			
Analyte	P1-01	P1-02	P1-03	P4-01	P4-02	P4-03	P5-01	P5-02	P5-03	P1-04	P3-04	P4-04	P5-04
2,3,7,8-TCDD[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,7,8-PeCDD[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.013	0.022	0.036	0.0054
1,2,3,4,7,8-HxCDD[1]	ND	ND	ND	0.0029	ND	ND	ND	ND	ND	0.0050	0.0081	0.011	0.0014
1,2,3,6,7,8-HxCDD[1]	ND	ND	ND	0.0029	ND	ND	ND	ND	ND	0.0096	0.021	0.032	0.0040
1,2,3,7,8,9-HxCDD[1]	ND	ND	ND	0.0026	ND	ND	ND	ND	ND	0.0075	0.013	0.020	0.0021
1,2,3,4,6,7,8-HpCDD[1]	0.0016	0.0010	0.00084	0.0019	0.0011	0.0018	0.0013	0.00060	0.0018	0.011	0.028	0.040	0.0050
OCDD[1]	0.00067	0.00067	0.00055	0.00084	0.00095	0.00094	0.00060	0.00030	0.0011	0.0060	0.016	0.028	0.0040
2,3,7,8-TCDF[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,7,8-PeCDF[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00054	0.00074	ND
2,3,4,7,8-PeCDF[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.010	0.014	ND
1,2,3,4,7,8-HxCDF[1]	ND	ND	ND	0.010	0.012	0.0069	ND	ND	ND	0.0071	0.026	0.044	0.0060
1,2,3,6,7,8-HxCDF[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,3,4,6,7,8-HxCDF[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0057	0.0050	0.0015
1,2,3,7,8,9-HxCDF[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0024	0.0028	ND
1,2,3,4,6,7,8-HpCDF[1]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00022	0.00028	ND
1,2,3,4,7,8,9-HpCDF[1]	ND	ND	ND	0.00086	0.0014	0.00047	0.00044	ND	ND	0.0011	0.0077	0.0099	0.0015
OCDF[1]	0.000084	0.000026	0.000021	0.00012	0.000043	ND	0.00012	0.000028	0.000041	0.000085	0.00031	0.00036	0.000067
Total TEQ Concentration[2]	0.0023	0.0017	0.0014	0.022	0.016	0.010	0.0025	0.00094	0.0030	0.061	0.16	0.25	0.031

[1] See Table 3-25 for toxic equivalency factor (TEF) used to calculate toxic equivalency (TEQ).
[2] Shaded cells indicate total TEQ concentration above the EPA Region 9 Preliminary Remedial Goal (1999) of 0.045 pg/m^3.

Air sample locations are Air-1 (P1), Air-3 (P3), Air-4 (P4), and Air-5 (P5).

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Table 3-25 TOXICITY EQUIVALENCY FACTORS FOR INDIVIDUAL DIOXIN AND FURAN CONGENERS
AIR SAMPLING DURING SOIL REMOVAL
McCORMICK & BAXTER SITE
PORTLAND, OREGON

Congener	Toxic Equivalence Factor
DIOXINs	
2,3,7,8 - TCDD	1
1,2,3,7,8-PeCDD	0.5
1,2,3,4,7,8 - HxCDD	0.1
1,2,3,6,7,8 - HxCDD	0.1
1,2,3,7,8,9 - HxCDD	0.1
1,2,3,4,6,7,8 - HpCDD	0.01
OCDD	0.001
FURANs	
2,3,7,8 - TCDF	0.1
1,2,3,7,8 - PeCDF	0.05
2,3,4,7,8 - PeCDF	0.5
1,2,3,4,7,8 - HxCDF	0.1
1,2,3,6,7,8 - HxCDF	0.1
1,2,3,7,8,9 - HxCDF	0.1
2,3,4,6,7,8 - HxCDF	0.1
1,2,3,4,6,7,8 - HpCDF	0.01
1,2,3,4,7,8,9 - HpCDF	0.01
OCDF	0.001

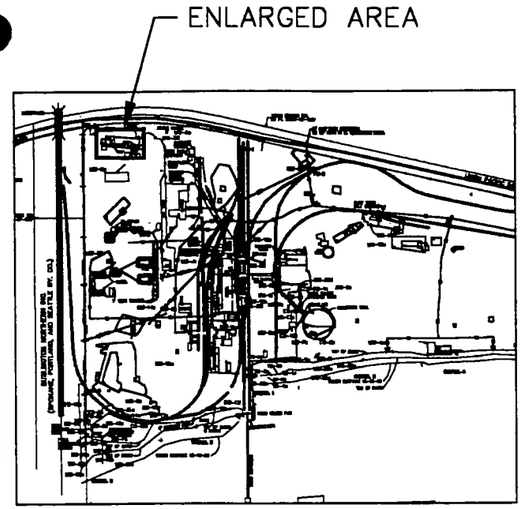
4. As-Built Drawings

4.1 Remedial Action Area Figures

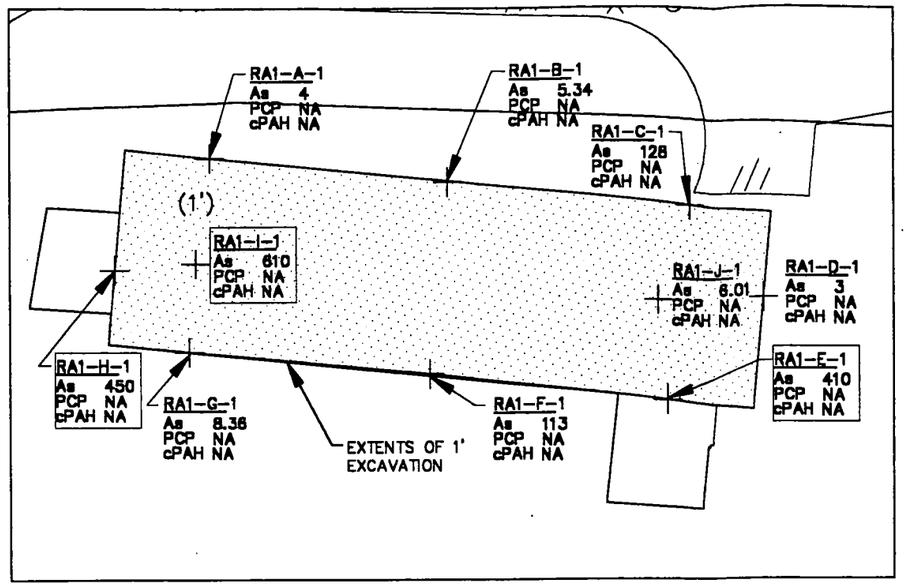
The progress and extent of excavations at each RA area are presented in Figures 4-1—4-15. Shading in the figures indicates multiple re-excavation of the RA areas to remove soil containing contaminants above the action levels. Analytical data from the summary tables in Section 3 are included on the figures. The extent of excavation was surveyed by E & E during the sample collection process. All maps are tied to the Oregon State Plan Coordinates.

4.2 Final As-Built Site Plan

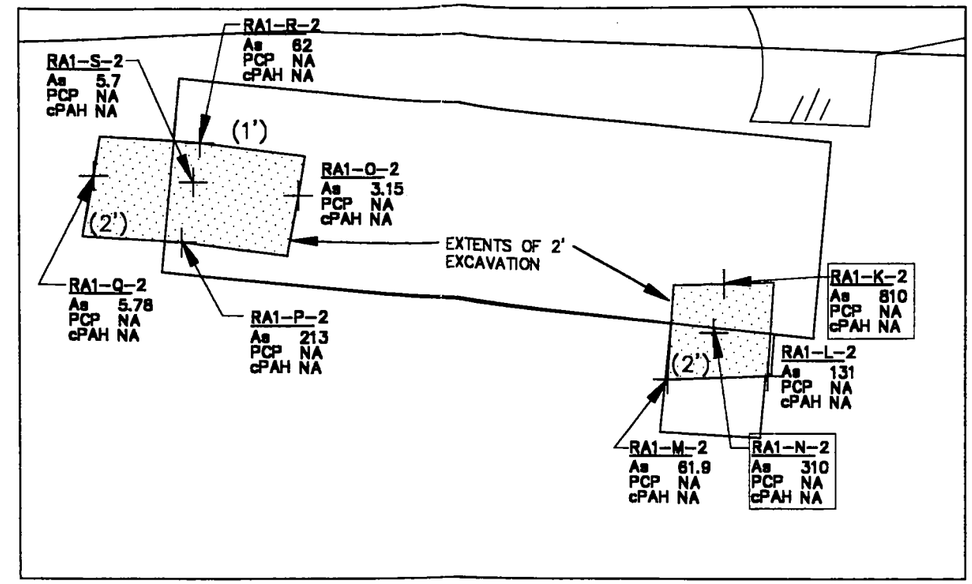
The final as-built drawing (Figure 4-16) shows the maximum areal extent of all RA areas in addition to the concrete/debris consolidation area. Creosote piping, stormwater piping, fencing, and entrance road modifications are also shown. This figure is also tied to the Oregon State Plan Coordinates.



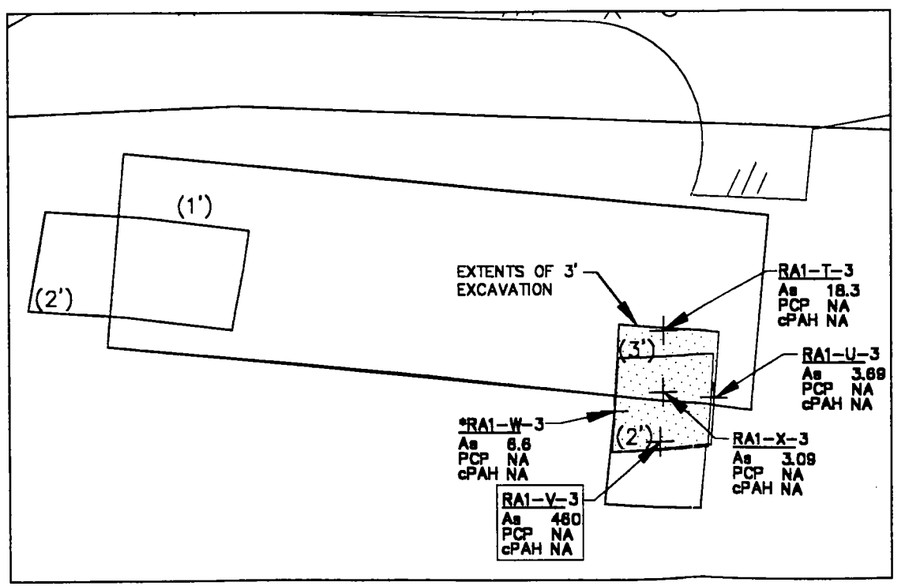
LOCATION MAP



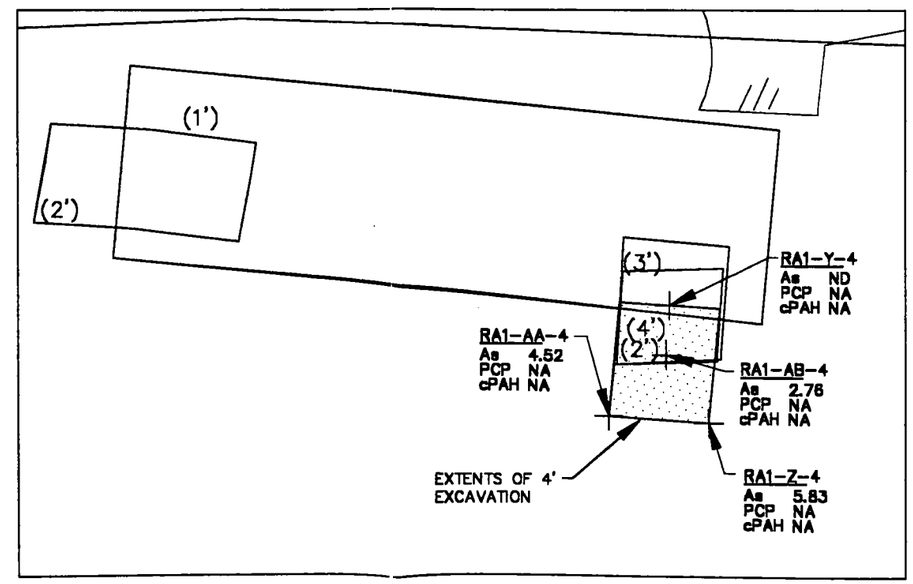
RA AREA RA1 – 1' DEPTH



RA AREA RA1 – 2' DEPTH



RA AREA RA1 – 3' DEPTH



RA AREA RA1 – 4' DEPTH

LEGEND

ANALYTICAL RESULTS ARE IN mg/kg.

RA1-H-1 As 450 PCP NA cPAH NA	SAMPLE LOCATION WITH ANALYTICAL RESULTS.
RA1-H-1 As 450 PCP NA cPAH NA	SAMPLE LOCATION WITH ANALYTICAL RESULTS ABOVE THE ACTION LEVEL.
	EXCAVATION AS A RESULT OF ANALYTICAL RESULTS EXCEEDING THE ACTION LEVEL.

NOTES

1. REMEDIAL ACTION LEVELS AS FOLLOWS:

AS	300 mg/kg
PCP	500 mg/kg
cPAH	100 mg/kg

2. SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS BELOW ACTION LEVELS ARE CONFIRMATION RESULTS.
3. SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS ABOVE ACTION LEVELS ARE SCREENING RESULTS.
4. "*" DENOTES APPROXIMATE SAMPLE LOCATION.

SCALE IN FEET

0 30 60 120

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Seattle, Washington

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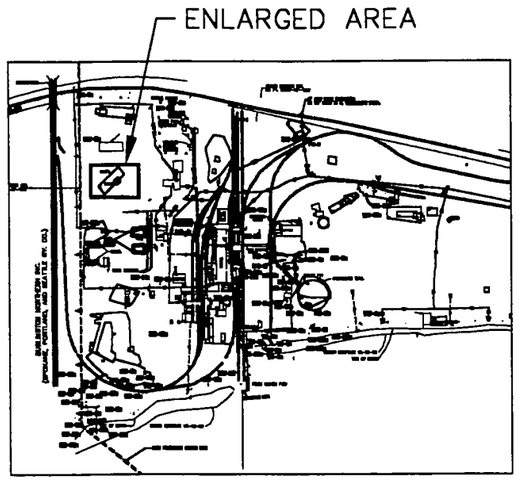
DRAWN BY: M. COEHEN
APPROVED BY: XX

FIGURE 4-1
PHASE I SOIL REMEDIAL ACTION (RA)
AREA RA1
McCORMICK & BAXTER
CREOSOTING CO.
PORTLAND, OREGON

SCALE: NOTED
DATE SCALED: 04-XX-96
CAD FILE NO.: CH4RA1.DWG
DRAWING NO.: 1 of 13

SEA PLOT XX-XX-XX XXX



LEGEND

ANALYTICAL RESULTS ARE IN mg/kg.

RA2-A-1
As 26
PCP NA
cPAH NA

SAMPLE LOCATION WITH ANALYTICAL RESULTS.

RA2-A-1
As 26
PCP NA
cPAH NA

SAMPLE LOCATION WITH ANALYTICAL RESULTS ABOVE THE ACTION LEVEL.

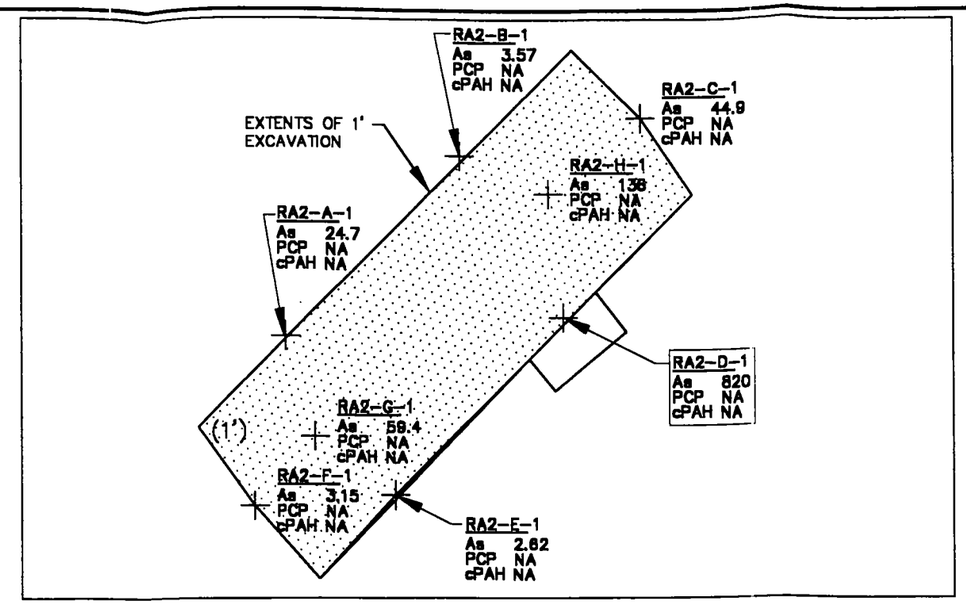
EXCAVATION AS A RESULT OF ANALYTICAL RESULTS EXCEEDING THE ACTION LEVEL.

NOTES

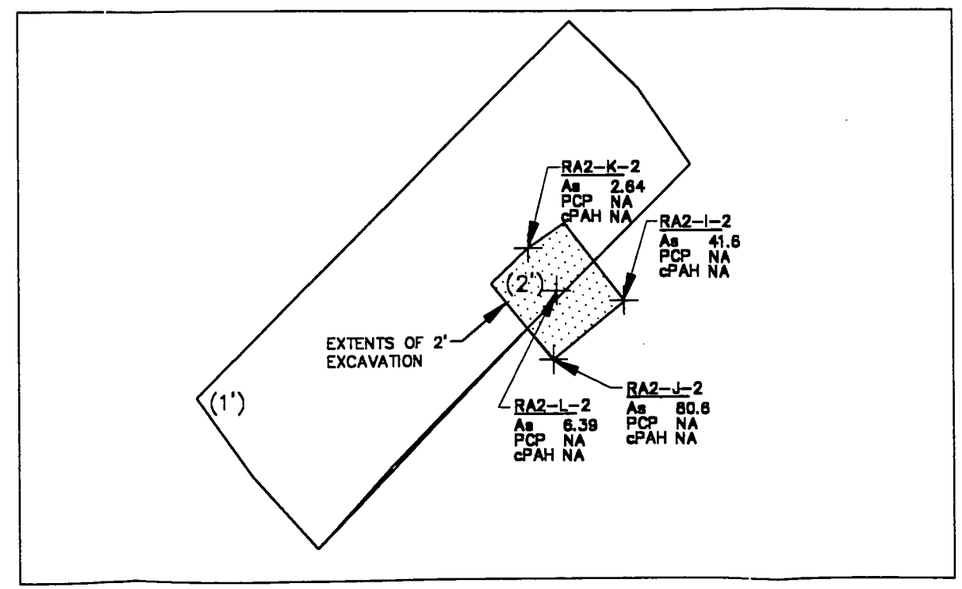
1. REMEDIAL ACTION LEVELS AS FOLLOWS:

AS	300 mg/kg
PCP	500 mg/kg
cPAH	100 mg/kg

2. SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS BELOW ACTION LEVELS ARE CONFIRMATION RESULTS.
3. SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS ABOVE ACTION LEVELS ARE SCREENING RESULTS.



RA AREA RA2 – 1' DEPTH



RA AREA RA2– 2' DEPTH

SCALE IN FEET
0 30 60 120

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FIGURE 4-2
PHASE I SOIL REMEDIAL ACTION (RA) AREA RA2
McCORMICK & BAXTER CREOSOTING CO.
PORTLAND, OREGON

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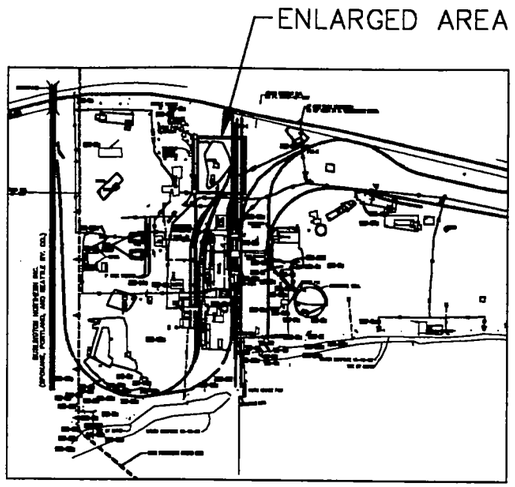
SEA PLOTTED: XX-XX-XX XXX

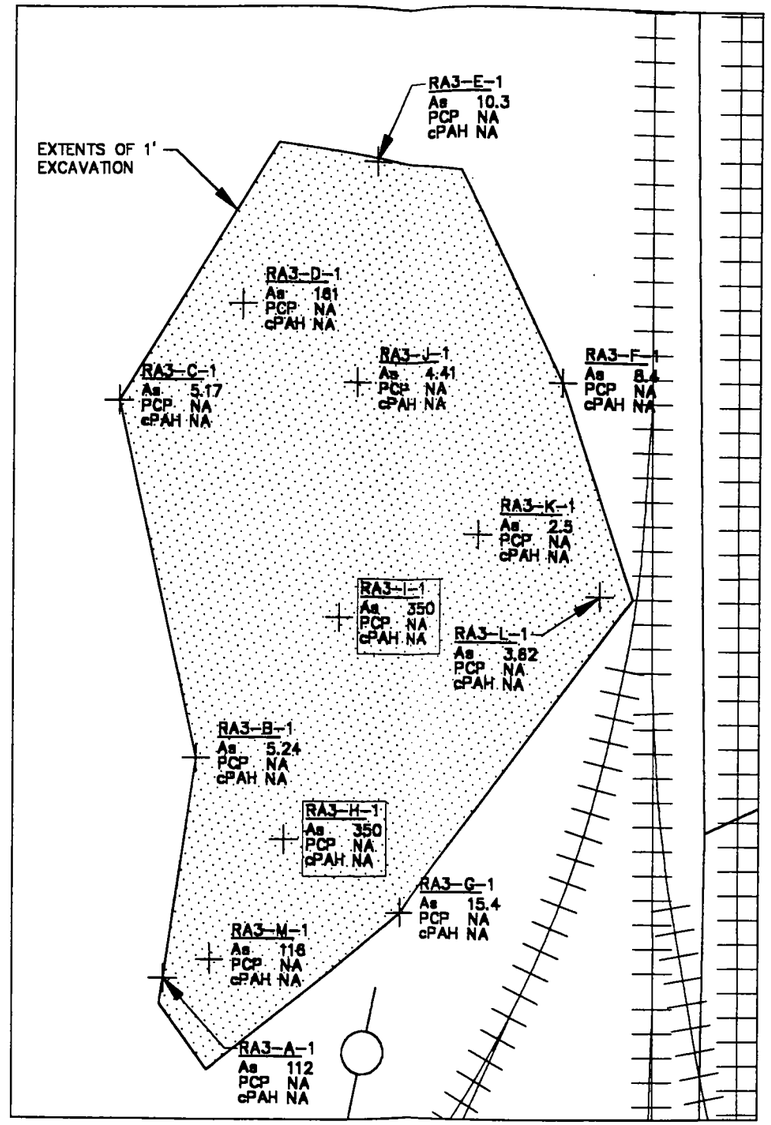


LOCATION MAP

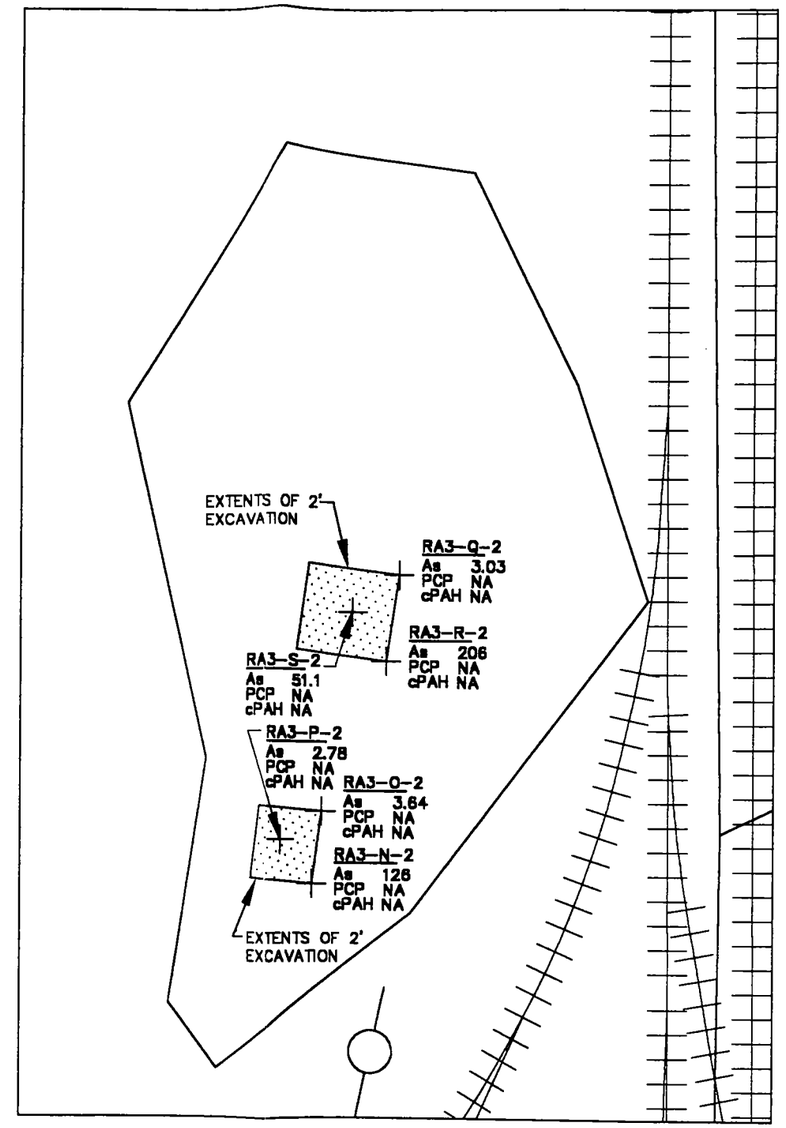
LEGEND

ANALYTICAL RESULTS ARE IN mg/kg.

RA3-A-1 As 100 PCP NA cPAH NA	SAMPLE LOCATION WITH ANALYTICAL RESULTS.
RA3-A-1 As 100 PCP NA cPAH NA	SAMPLE LOCATION WITH ANALYTICAL RESULTS ABOVE THE ACTION LEVEL.
	EXCAVATION AS A RESULT OF ANALYTICAL RESULTS EXCEEDING THE ACTION LEVEL.



RA AREA RA3 – 1' DEPTH



RA AREA RA3– 2' DEPTH

NOTES

1. REMEDIAL ACTION LEVELS AS FOLLOWS:

AS	300 mg/kg
PCP	500 mg/kg
cPAH	100 mg/kg

2. SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS BELOW ACTION LEVELS ARE CONFIRMATION RESULTS.
3. SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS ABOVE ACTION LEVELS ARE SCREENING RESULTS.

SCALE IN FEET

0 30 60 120

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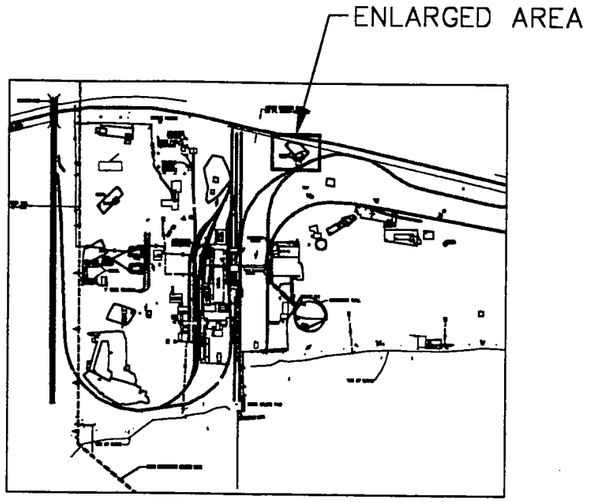
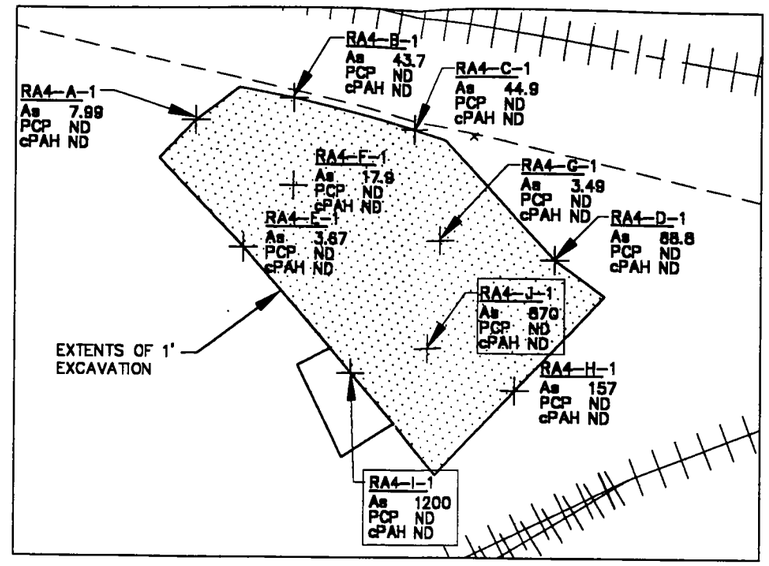
FIGURE 4-3
PHASE I SOIL REMEDIAL ACTION (RA)
AREA RA3
McCORMICK & BAXTER
CREOSOTING CO.
PORTLAND, OREGON

SCALE: NOTED | DATE ISSUED: 04-26-96 | C.A.D. FILE NO.: CH4SRA3.DWG | DRAWING NO.: 3 of 15

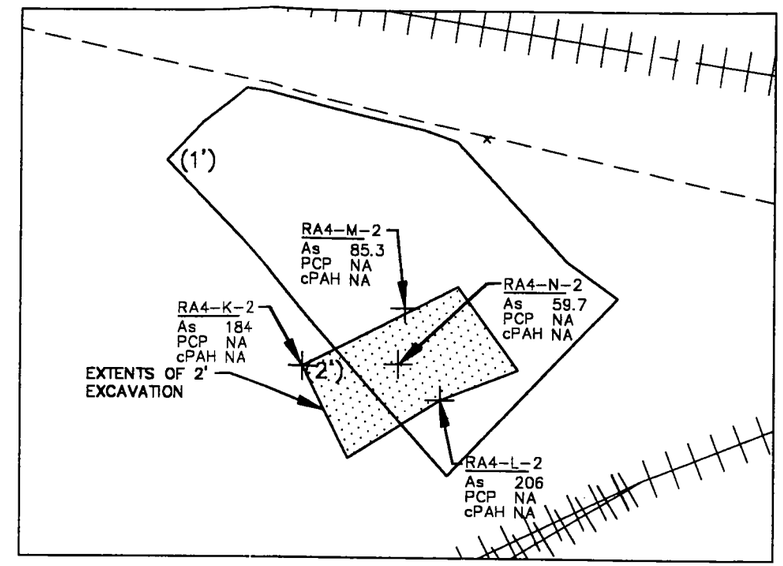
SEA PL XX-XX-XX XXX



LOCATION MAP



RA AREA RA4 – 1' DEPTH



RA AREA RA4– 2' DEPTH

LEGEND

ANALYTICAL RESULTS ARE IN mg/kg.

RA4-A-1
As 8.0
PCP ND
cPAH ND
— SAMPLE LOCATION WITH ANALYTICAL RESULTS.

RA1-A-1
As 8.0
PCP ND
cPAH ND
— SAMPLE LOCATION WITH ANALYTICAL RESULTS ABOVE THE ACTION LEVEL.

— EXCAVATION AS A RESULT OF ANALYTICAL RESULTS EXCEEDING THE ACTION LEVEL.

NOTES

1. REMEDIAL ACTION LEVELS AS FOLLOWS:

AS	300 mg/kg
PCP	500 mg/kg
cPAH	100 mg/kg

2. SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS BELOW ACTION LEVELS ARE CONFIRMATION RESULTS.
3. SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS ABOVE ACTION LEVELS ARE SCREENING RESULTS.

SCALE IN FEET
0 30 60 120

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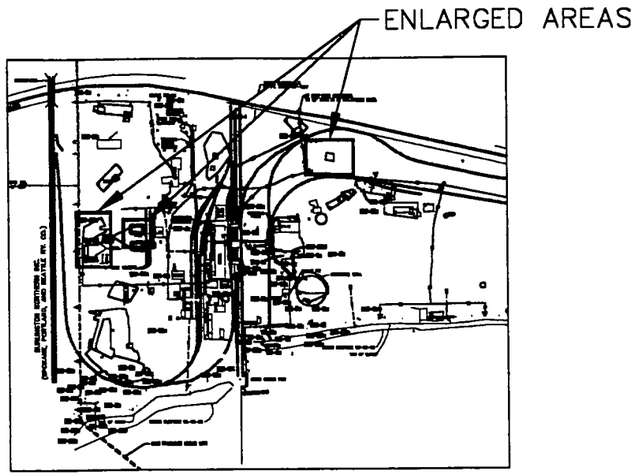
FIGURE 4-4
PHASE I SOIL REMEDIAL ACTION (RA)
AREA RA4
McCORMICK & BAXTER
CREOSOTING CO.
PORTLAND, OREGON

SCALE: NOTED | DATE DRAWN: 04-26-99 | C.A.D. FILE NO.: 0H4SRA4.DWG | DRAWING NO.: 4 of 13

749.OH04.00.25/OH4SRA5.DWG/M.COENEN-ENG'R/M.COENEN-AUTOCAD/04-26-99/SEATTLE,WA



LOCATION MAP

LEGEND

ANALYTICAL RESULTS ARE IN mg/kg.

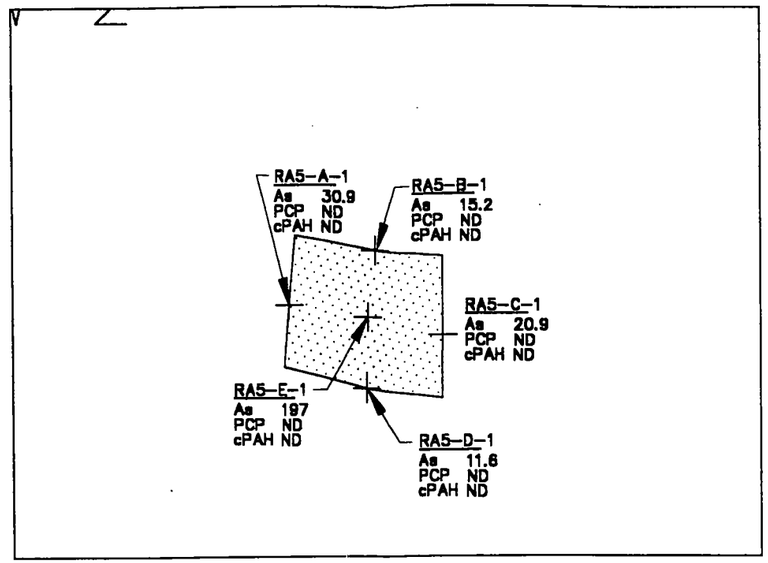
RA5-A-1 As 450 PCP NA cPAH NA	SAMPLE LOCATION WITH ANALYTICAL RESULTS.
RA5-A-1 As 8.0 PCP NA cPAH NA	SAMPLE LOCATION WITH ANALYTICAL RESULTS ABOVE THE ACTION LEVEL.
	EXCAVATION AS A RESULT OF ANALYTICAL RESULTS EXCEEDING THE ACTION LEVEL.

NOTES

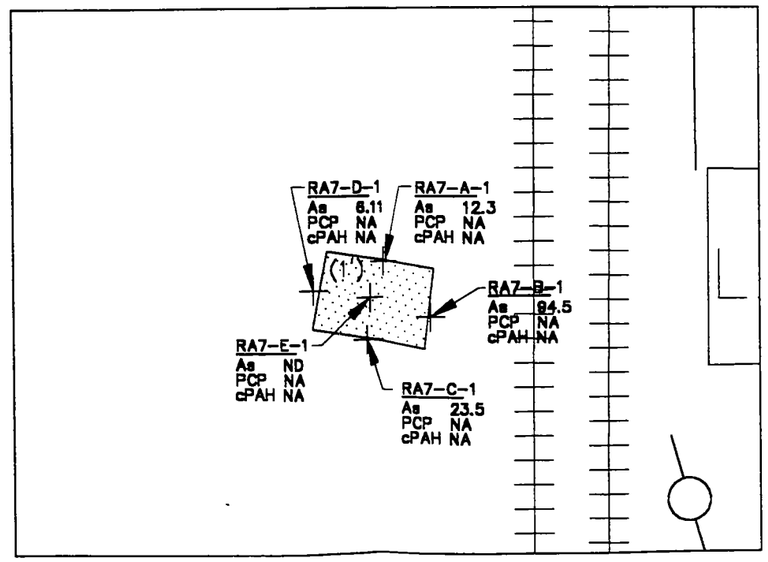
1. REMEDIAL ACTION LEVELS ARE AS FOLLOWS:

AS	300 mg/kg
PCP	500 mg/kg
cPAH	100 mg/kg

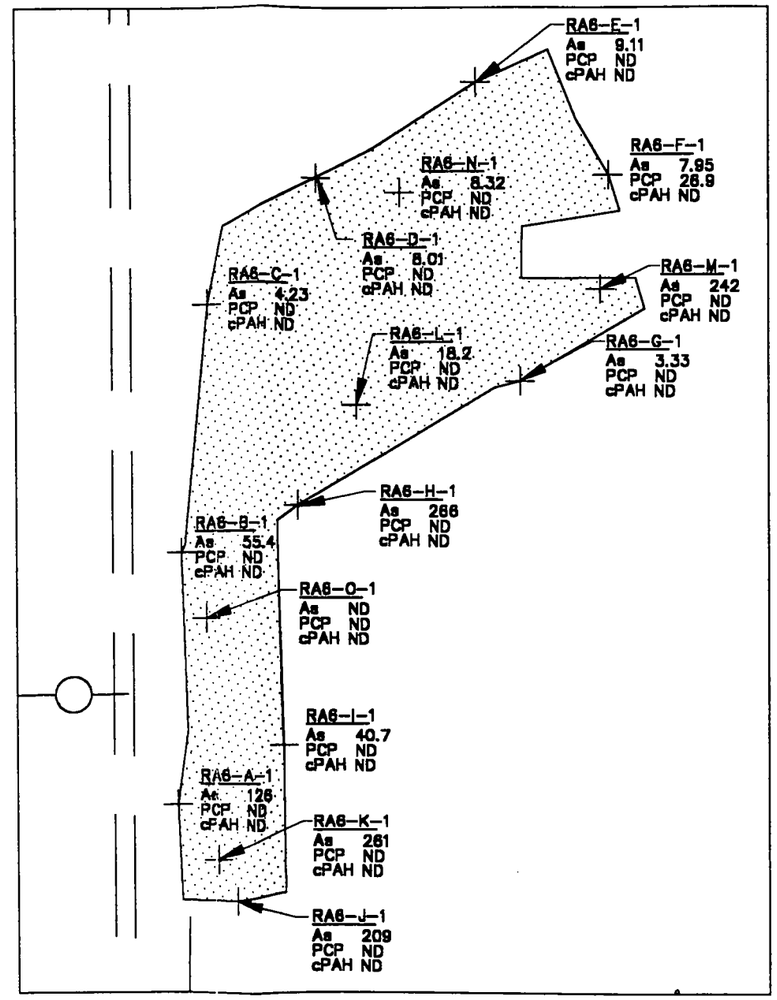
2. SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS BELOW ACTION LEVELS ARE CONFIRMATION RESULTS.
3. SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS ABOVE ACTION LEVELS ARE SCREENING RESULTS.



RA AREA RA5 – 1' DEPTH



RA AREA RA7 – 1' DEPTH



RA AREA RA6 – 1' DEPTH

SCALE IN FEET

0 30 60 120

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Seattle, Washington

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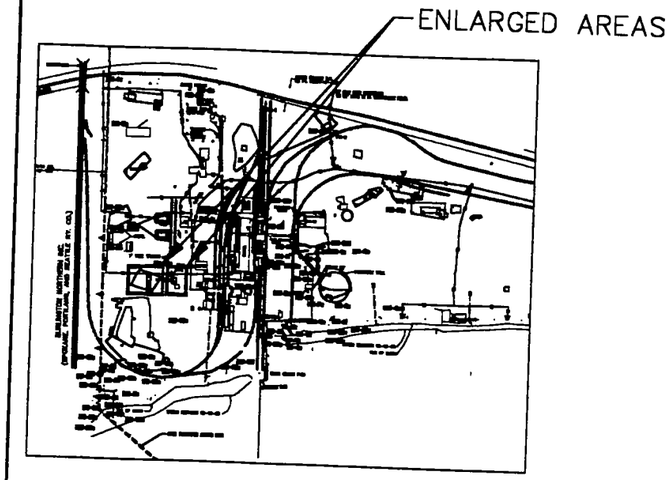
APPROVED BY: XX

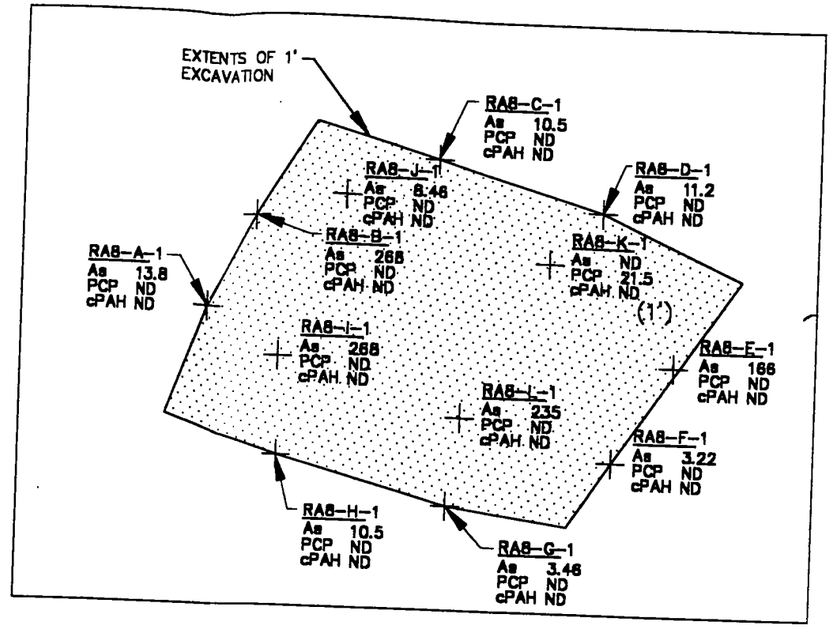
FIGURE 4-5
PHASE I SOIL REMEDIAL ACTION (RA) AREAS RA5, RA6, AND RA7
McCORMICK & BAXTER CREOSOTING CO.
PORTLAND, OREGON

SCALE: NOTED | DATE ISSUED: 04-26-99 | CAD FILE NO.: OH4SRA5.DWG | DRAWING NO.: 5 of 15

SEA PLOTTED: XX-XX-XX XXX



LOCATION MAP



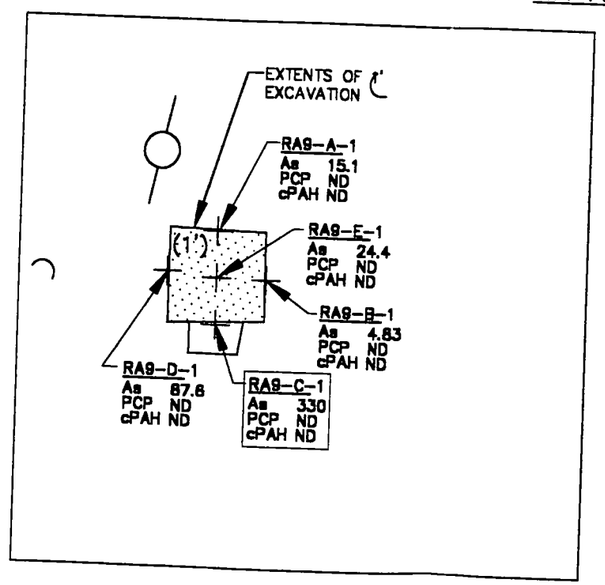
RA AREA RA8 – 1' DEPTH

LEGEND

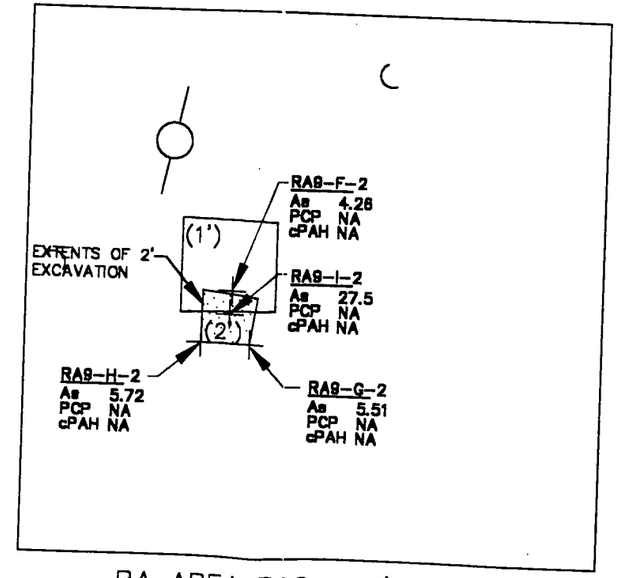
RA8-A-1 As 12 PCP ND cPAH ND — SAMPLE LOCATION WITH ANALYTICAL RESULTS.

RA8-A-1 As 12 PCP ND cPAH ND — SAMPLE LOCATION WITH ANALYTICAL RESULTS ABOVE THE ACTION LEVEL.

EXCAVATION AS A RESULT OF ANALYTICAL RESULTS EXCEEDING THE ACTION LEVEL.



RA AREA RA9 – 1' DEPTH



RA AREA RA9 – 2' DEPTH

NOTES

1. REMEDIAL ACTION LEVELS AS FOLLOWS:

AS	300
PCP	500
cPAH	100

2. SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS BELOW ACTION LEVELS ARE CONFIRMATION RESULTS.
3. SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS ABOVE ACTION LEVELS ARE SCREENING RESULTS.

SCALE IN FEET
0 30 60 120

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Seattle, Washington

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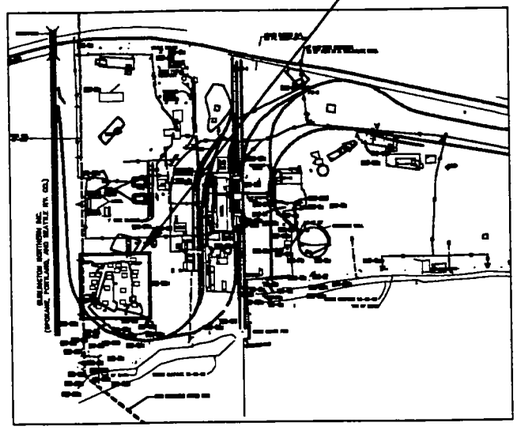
CHECKED BY: XX
DRAWN BY: M. COEHEN

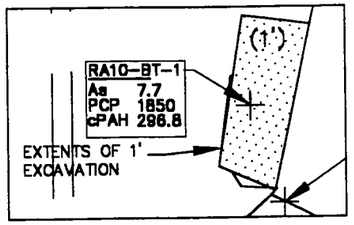
FIGURE 4-6
PHASE I SOIL REMEDIAL ACTION (RA) AREAS RA8 AND RA9
McCORMICK & BAXTER CREOSOTING CO.
PORTLAND, OREGON

SCALE: NOTED
DATE ISSUED: 04-25-88
DRAWING NO.: 6 of 13

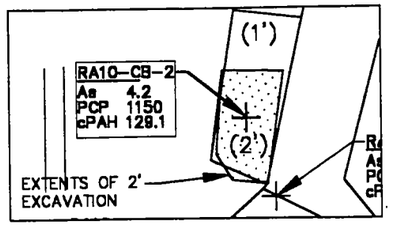
749.0H04.00.25/OH4SRA7.DWG/M.COENEN-ENG'R/M.COENEN-AUTOCAD/04-28-99/SEATTLE,WA



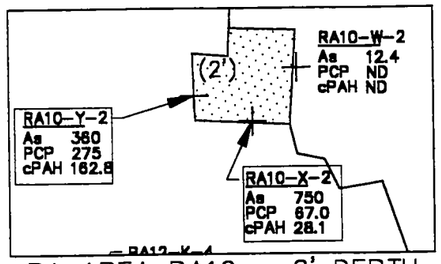
LOCATION MAP



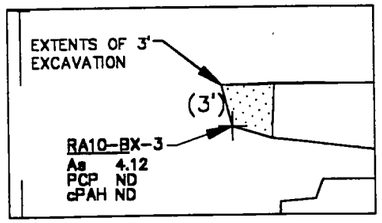
RA AREA RA10 – 1' DEPTH



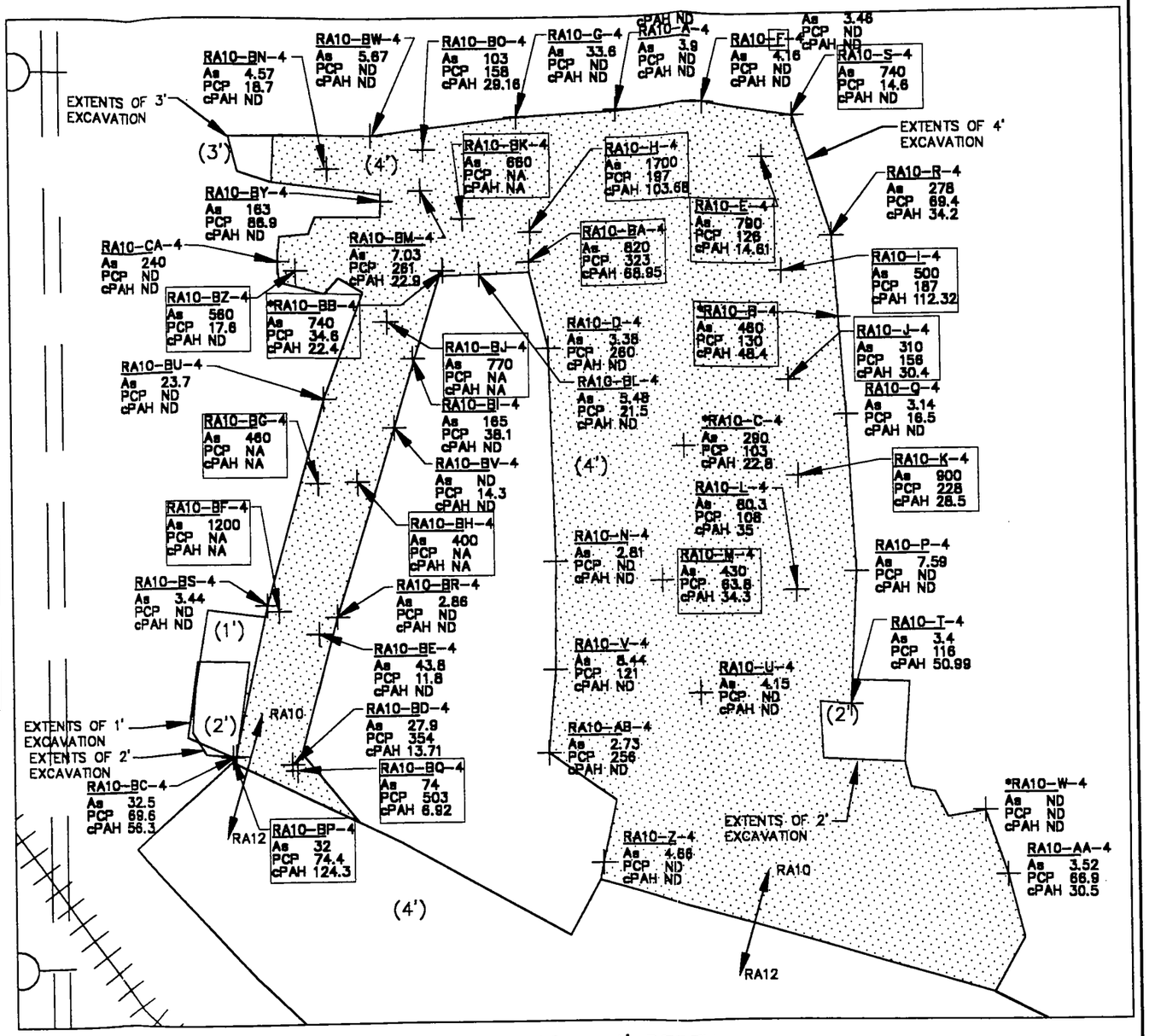
RA AREA RA10 – 2' DEPTH



RA AREA RA10 – 2' DEPTH



RA AREA RA10 – 3' DEPTH



RA AREA RA10 – 4' DEPTH

LEGEND

ANALYTICAL RESULTS ARE IN mg/kg.

RA10-A-4 As 3.9 PCP ND cPAH ND — SAMPLE LOCATION WITH ANALYTICAL RESULTS.

RA10-A-4 As 3.9 PCP ND cPAH ND — SAMPLE LOCATION WITH ANALYTICAL RESULTS ABOVE THE ACTION LEVEL.

EXCAVATION AS A RESULT OF ANALYTICAL RESULTS EXCEEDING THE ACTION LEVEL.

NOTES

1. REMEDIAL ACTION LEVELS AS FOLLOWS:

AS	300 mg/kg
PCP	500 mg/kg
cPAH	100 mg/kg

2. SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS BELOW ACTION LEVELS ARE CONFIRMATION RESULTS.
3. SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS ABOVE ACTION LEVELS ARE SCREENING RESULTS.
4. "*" DENOTES APPROXIMATE SAMPLE LOCATION.

SCALE IN FEET

0 30 60 120

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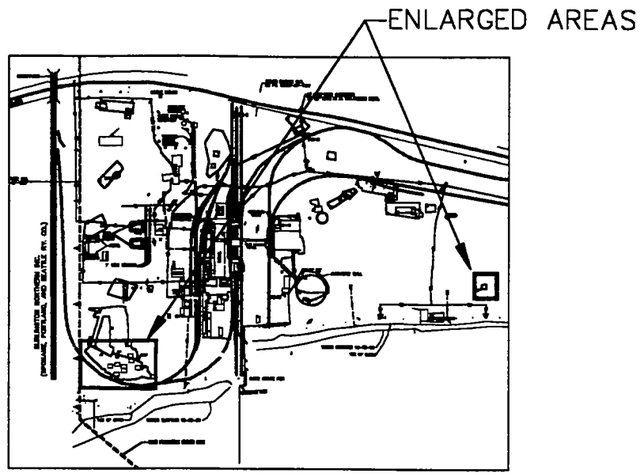
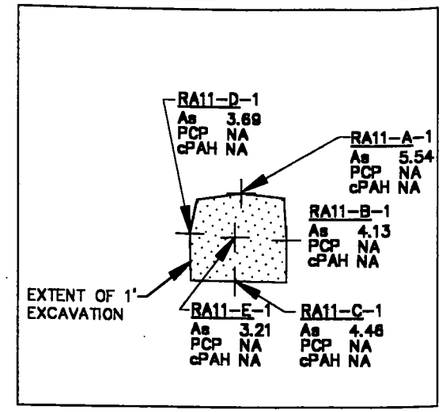
FIGURE 4-7
PHASE I SOIL REMEDIAL ACTION (RA)
AREA RA10
McCORMICK & BAXTER
CREOSOTING CO.
PORTLAND, OREGON

SCALE: NOTED | DATE ISSUED: 04-28-99 | CAD FILE NO.: OH4SRA7.DWG | DRAWING NO.: 7 of 15

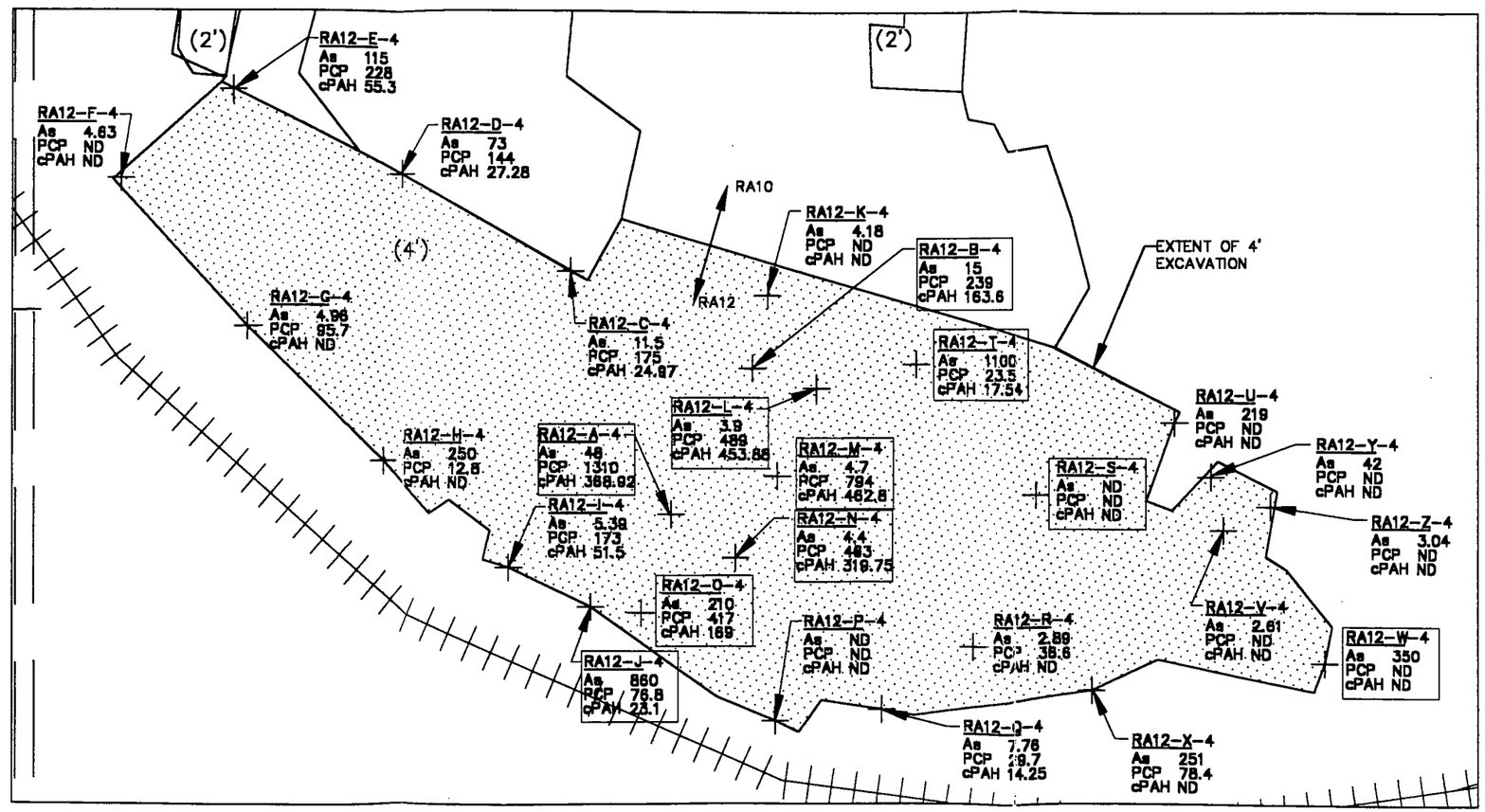
SEA PLOTTED: XXX



LOCATION MAP



RA AREA RA11 – 1' DEPTH



RA AREA RA12 – 4' DEPTH

LEGEND

ANALYTICAL RESULTS ARE IN mg/kg.

RA11-A-1
As 4.5
PCP NA
cPAH NA — SAMPLE LOCATION WITH ANALYTICAL RESULTS.

RA11-A-1
As 4.5
PCP NA
cPAH NA — SAMPLE LOCATION WITH ANALYTICAL RESULTS ABOVE THE ACTION LEVEL.

EXCAVATION AS A RESULT OF ANALYTICAL RESULTS EXCEEDING THE ACTION LEVEL.

NOTES

1. REMEDIAL ACTION LEVELS AS FOLLOWS:

AS	300 mg/kg
PCP	500 mg/kg
cPAH	100 mg/kg

2. SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS BELOW ACTION LEVELS ARE CONFIRMATION RESULTS.
3. SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS ABOVE ACTION LEVELS ARE SCREENING RESULTS.

SCALE IN FEET

0 30 60 120

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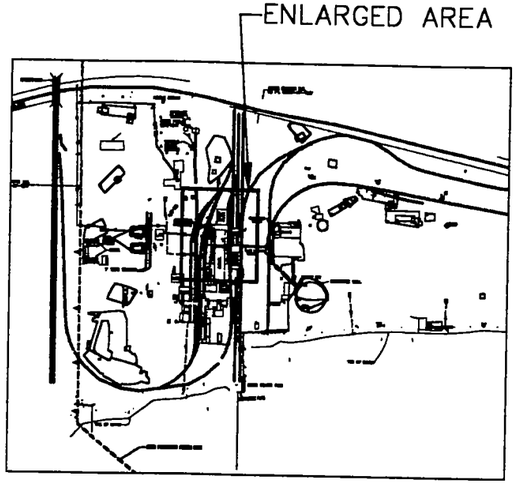
APPROVED BY: XX

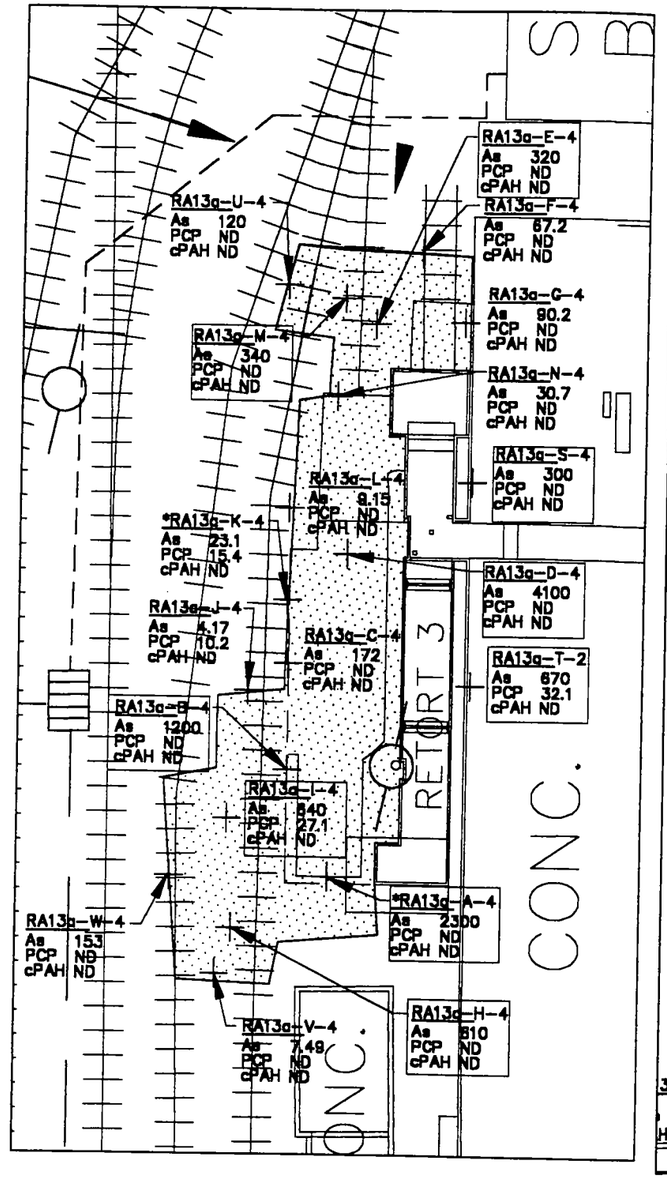
FIGURE 4-8
PHASE I SOIL REMEDIAL ACTION (RA) AREAS RA11 AND RA12
McCORMICK & BAXTER CREOSOTING CO.
PORTLAND, OREGON

SCALE: NOTED | DATE PLOTTED: 04-28-99 | CAD FILE NO.: CH-SEAM.DWG | DRAWING NO.: 8 of 18

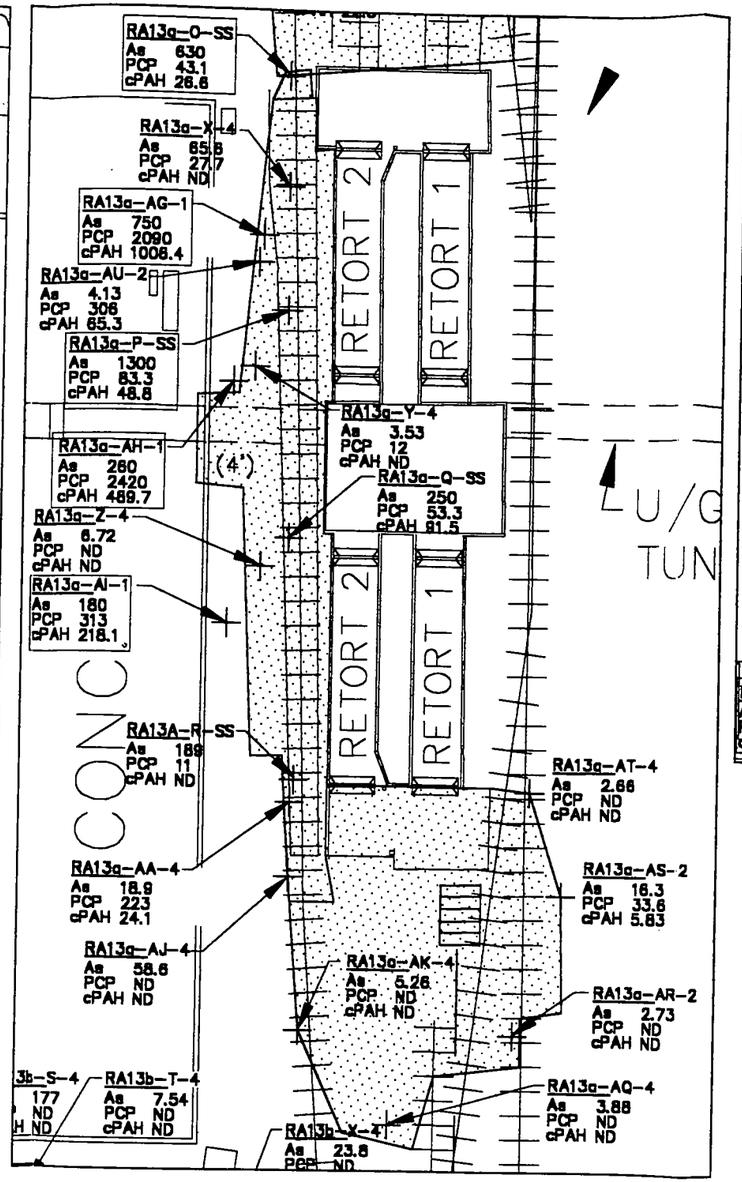
SEA PLOT XX-XX-XX XXX



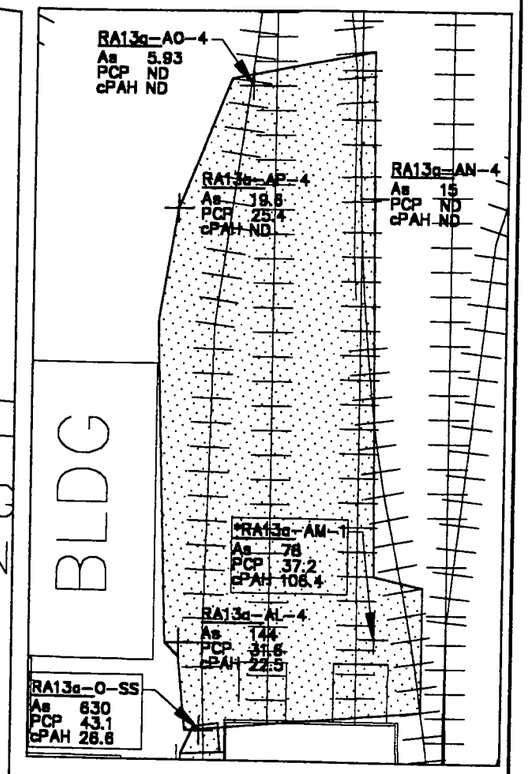
LOCATION MAP



RA AREA RA13a RETORT 3
1' AND 4' DEPTHS



RA AREA RA13a RETORT 1 AND 2
1' AND 4' DEPTHS



RA AREA RA13a SHOP AREA
4' DEPTH

LEGEND

ANALYTICAL RESULTS ARE IN mg/kg.

RA13a-A-4
As 2300
PCP ND
cPAH ND — SAMPLE LOCATION WITH ANALYTICAL RESULTS.

RA13a-A-4
As 2300
PCP ND
cPAH ND — SAMPLE LOCATION WITH ANALYTICAL RESULTS ABOVE THE ACTION LEVEL.

EXCAVATION AS A RESULT OF ANALYTICAL RESULTS EXCEEDING THE ACTION LEVEL.

NOTES

1. REMEDIAL ACTION LEVELS AS FOLLOWS:

AS	300 mg/kg
PCP	500 mg/kg
cPAH	100 mg/kg

2. SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS BELOW ACTION LEVELS ARE CONFIRMATION RESULTS.
3. SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS ABOVE ACTION LEVELS ARE SCREENING RESULTS.
4. "+" DENOTES APPROXIMATE SAMPLE LOCATION.

SCALE IN FEET
0 30 60 120

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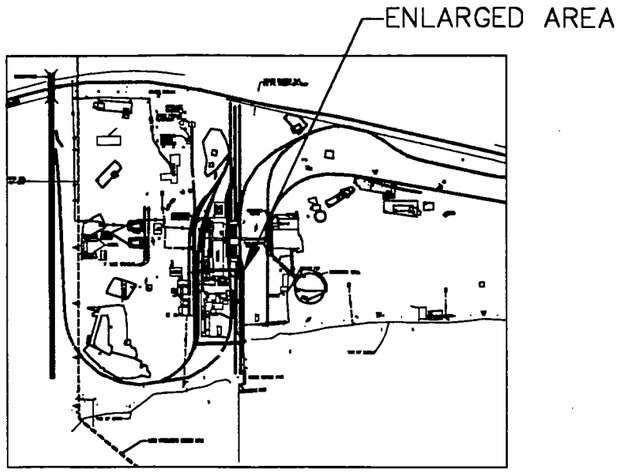
FIGURE 4-9
PHASE I SOIL REMEDIAL ACTION (RA)
AREA RA13a
McCORMICK & BAXTER
CREOSOTING CO.
PORTLAND, OREGON

SCALE: NOTED
DATE ISSUED: 04-26-99
CAD FILE NO.: GH4RA4.DWG
DRAWING NO.: 8 of 15

SEA PLOTTED: XX-XX-XX XXX



LOCATION MAP

LEGEND

ANALYTICAL RESULTS ARE IN mg/kg.

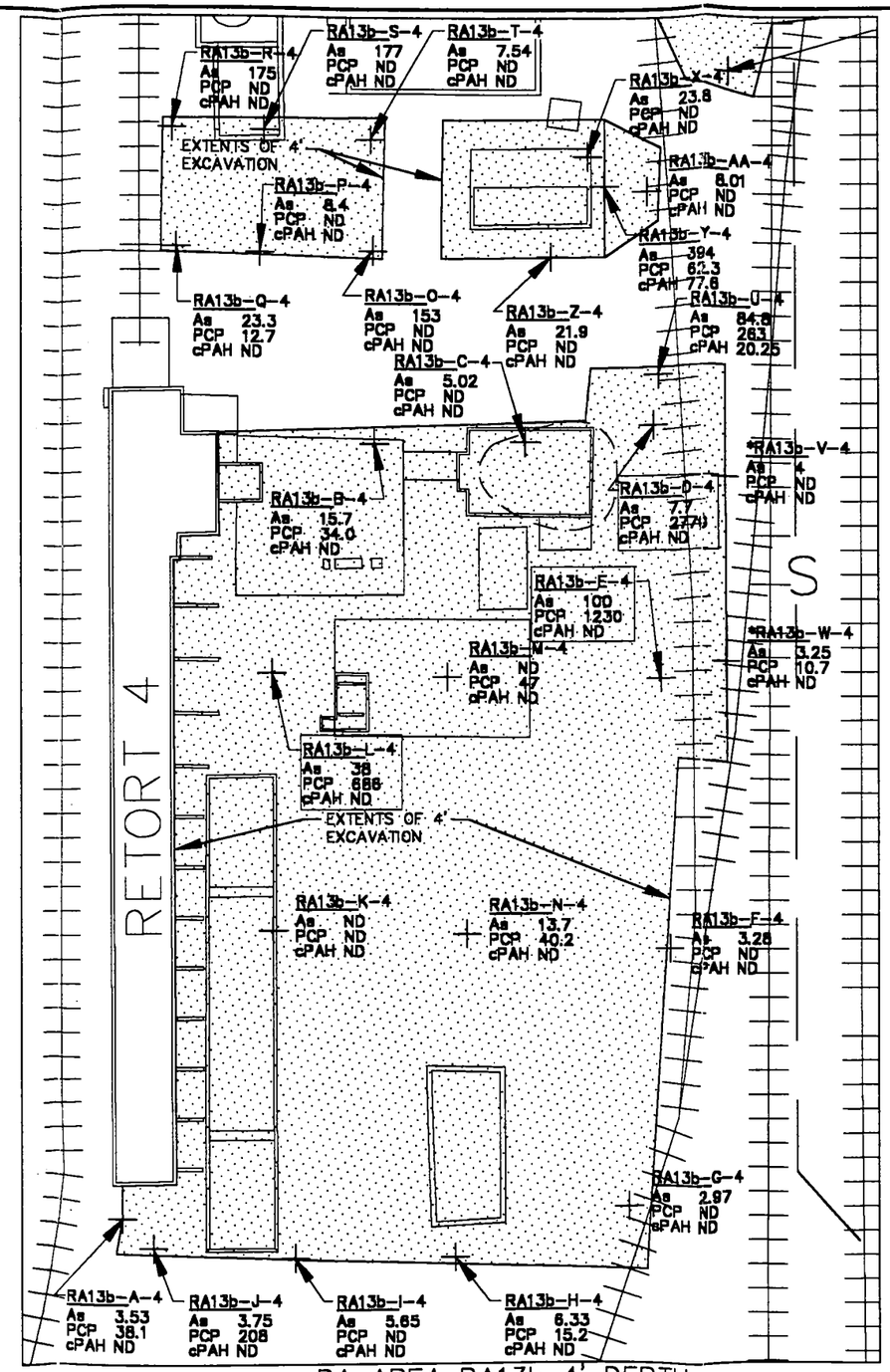
RA13b-A-1 As 3.5 PCP 38.1 cPAH ND	SAMPLE LOCATION WITH ANALYTICAL RESULTS.
RA13b-A-1 As 3.5 PCP 38.1 cPAH ND	SAMPLE LOCATION WITH ANALYTICAL RESULTS ABOVE THE ACTION LEVEL.
	EXCAVATION AS A RESULT OF ANALYTICAL RESULTS EXCEEDING THE ACTION LEVEL.

NOTES

1. REMEDIAL ACTION LEVELS AS FOLLOWS:

AS	300 mg/kg
PCP	500 mg/kg
cPAH	100 mg/kg

2. SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS BELOW ACTION LEVELS ARE CONFIRMATION RESULTS.
3. SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS ABOVE ACTION LEVELS ARE SCREENING RESULTS.
4. "*" DENOTES APPROXIMATE SAMPLE LOCATION.



RA AREA RA13b 4' DEPTH

SCALE IN FEET

0 30 60 120

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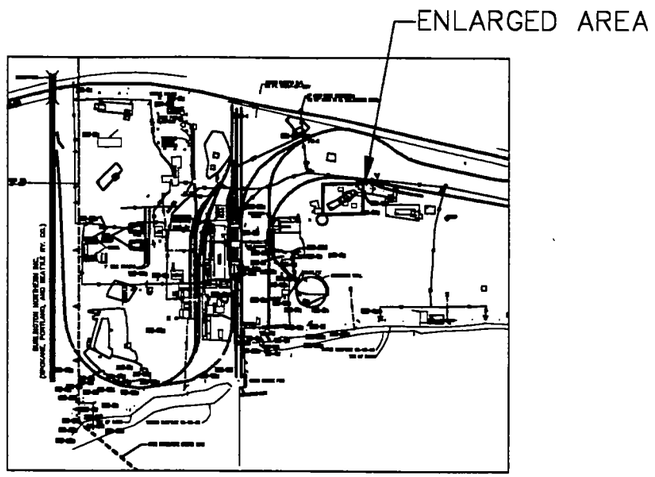
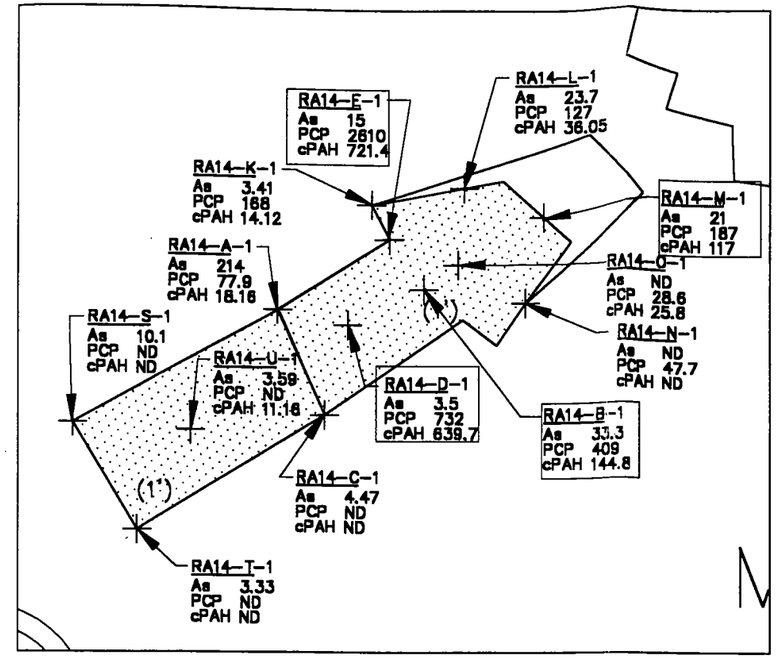
FIGURE 4-10
PHASE I SOIL REMEDIAL ACTION (RA)
AREA RA13b
McCORMICK & BAXTER
CREOSOTING CO.
PORTLAND, OREGON

SCALE: NOTED | DATE ISSUED: 04-27-99 | C.A.D. FILE NO.: CH4SRA10.DWG | DRAWING NO.: 10 of 13

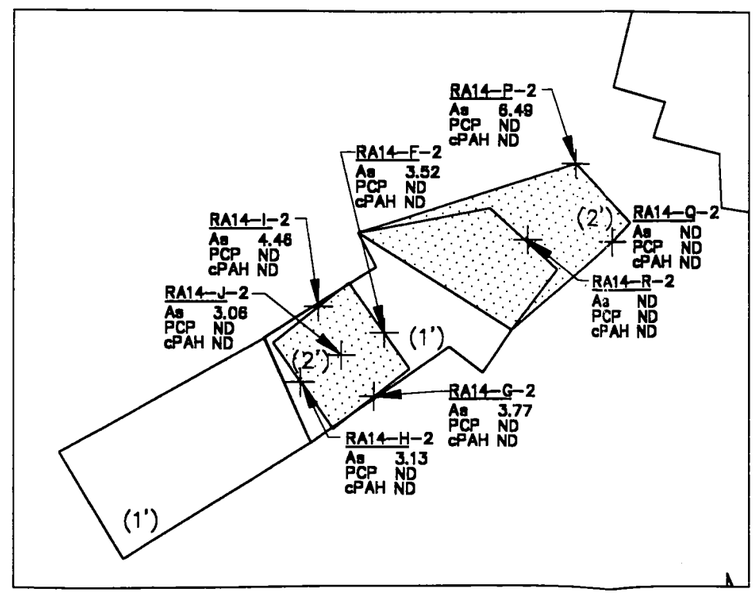
SEA PLOT XX-XX-XX XXX



LOCATION MAP



RA AREA RA14 1' DEPTH



RA AREA RA14 2' DEPTH

LEGEND

ANALYTICAL RESULTS ARE IN mg/kg.

RA14-A-1
As 3.5
PCP 38.1
cPAH ND

SAMPLE LOCATION WITH ANALYTICAL RESULTS.

RA14-A-1
As 210
PCP 80.9
cPAH ND

SAMPLE LOCATION WITH ANALYTICAL RESULTS ABOVE THE ACTION LEVEL.

EXCAVATION AS A RESULT OF ANALYTICAL RESULTS EXCEEDING THE ACTION LEVEL.

NOTES

1. REMEDIAL ACTION LEVELS AS FOLLOWS:

AS	300 mg/kg
PCP	500 mg/kg
cPAH	100 mg/kg

2. SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS BELOW ACTION LEVELS ARE CONFIRMATION RESULTS.
3. SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS ABOVE ACTION LEVELS ARE SCREENING RESULTS.

SCALE IN FEET

0 30 60 120

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Seattle, Washington

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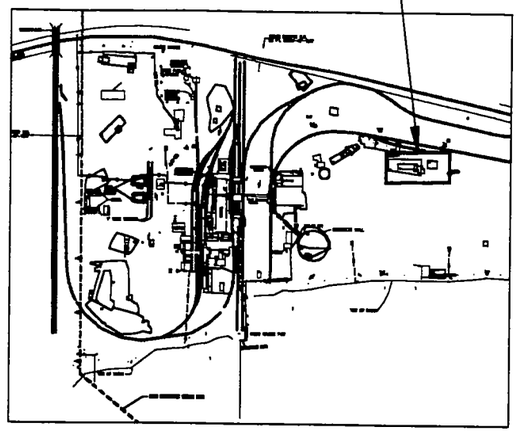
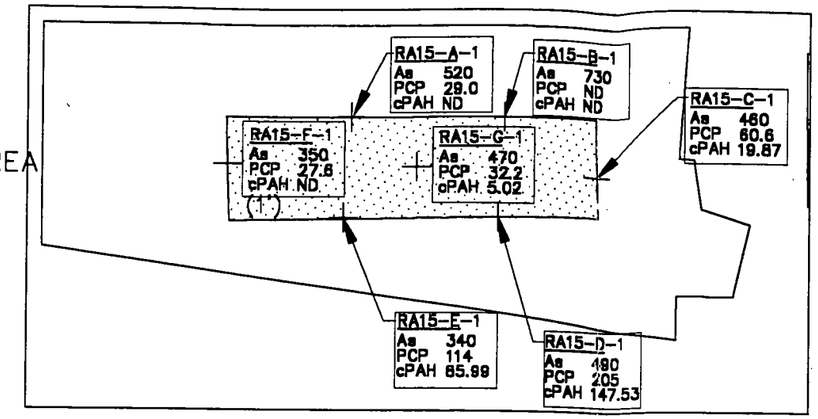
FIGURE 4-11
PHASE I SOIL REMEDIAL ACTION (RA)
AREA RA14
McCORMICK & BAXTER
CREOSOTING CO.
PORTLAND, OREGON

SCALE	DATE ISSUED	C.A.D. FILE NO.	DRAWING NO.
NOTED	04-28-99	OH45RA11.DWG	11 of 19

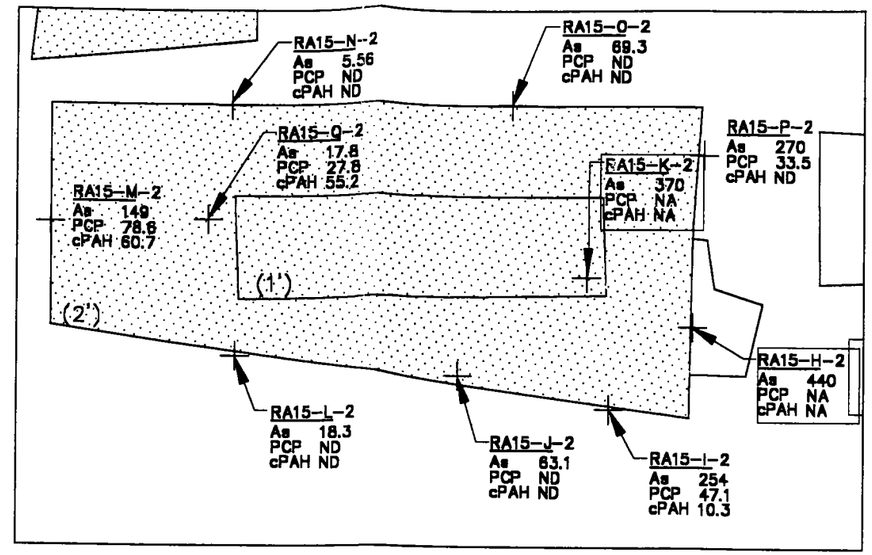
SEA PLOT XX-XX-XXX



LOCATION MAP



RA AREA RA15 1' DEPTH



RA AREA RA15 2' DEPTH

LEGEND

ANALYTICAL RESULTS ARE IN mg/kg.

RA15-A-1
As 520
PCP 29.0
cPAH ND

SAMPLE LOCATION WITH ANALYTICAL RESULTS.

RA15-A-1
As 520
PCP 29.0
cPAH ND

SAMPLE LOCATION WITH ANALYTICAL RESULTS ABOVE THE ACTION LEVEL.

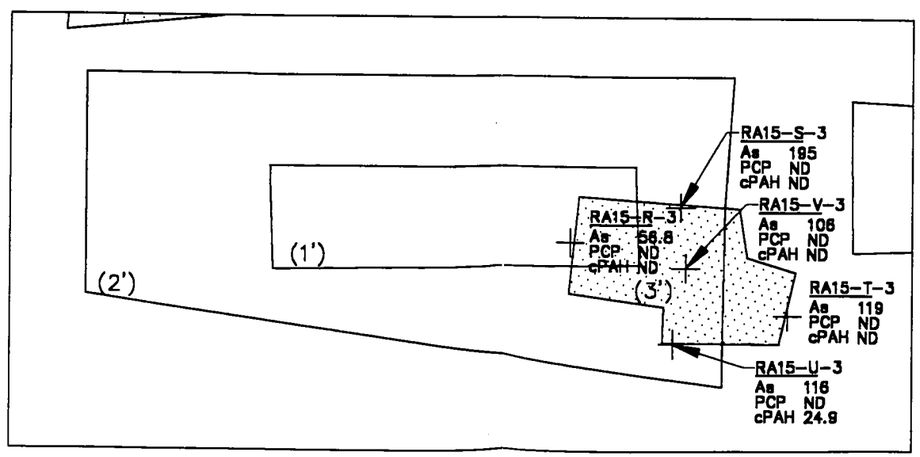
EXCAVATION AS A RESULT OF ANALYTICAL RESULTS EXCEEDING THE ACTION LEVEL.

NOTES

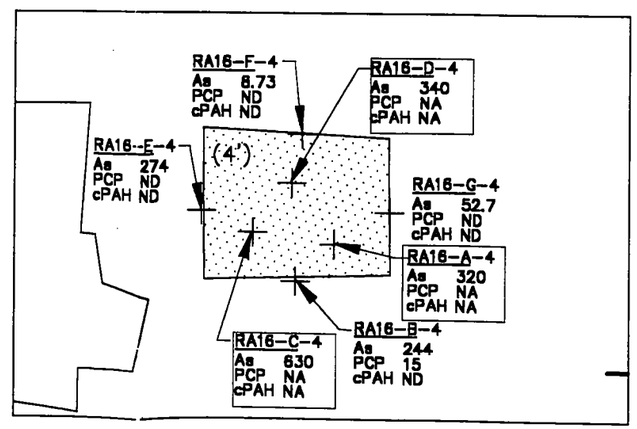
1. REMEDIAL ACTION LEVELS AS FOLLOWS:

AS	300 mg/kg
PCP	500 mg/kg
cPAH	100 mg/kg

2. SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS BELOW ACTION LEVELS ARE CONFIRMATION RESULTS.
3. SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS ABOVE ACTION LEVELS ARE SCREENING RESULTS.



RA AREA RA15 3' DEPTH



RA AREA RA16 4' DEPTH

SCALE IN FEET

0 30 60 120

NO.	DATE	BY	APP'D	DESCRIPTION

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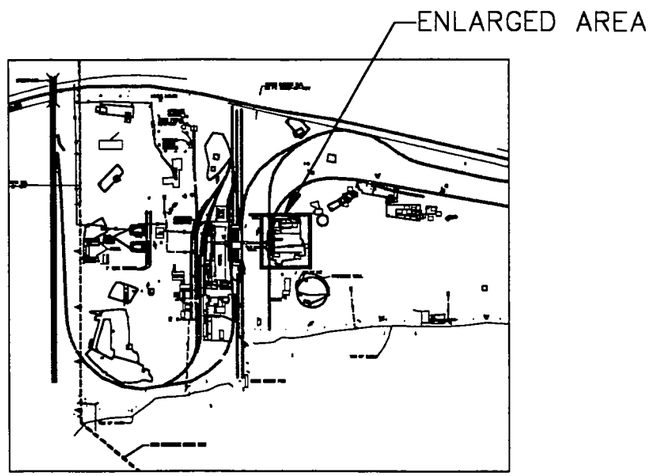
APPROVED BY: XX

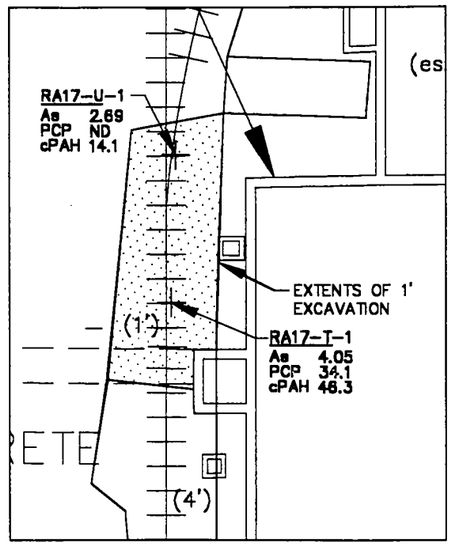
FIGURE 4-12
PHASE I SOIL REMEDIAL ACTION (RA) AREAS RA15 AND RA16
McCORMICK & BAXTER CREOSOTING CO.
PORTLAND, OREGON

SCALE: NOTED | DATE ISSUED: 04-28-99 | C.A.D. FILE NO.: OH4SRA12.DWG | DRAWING NO.: 12 of 15

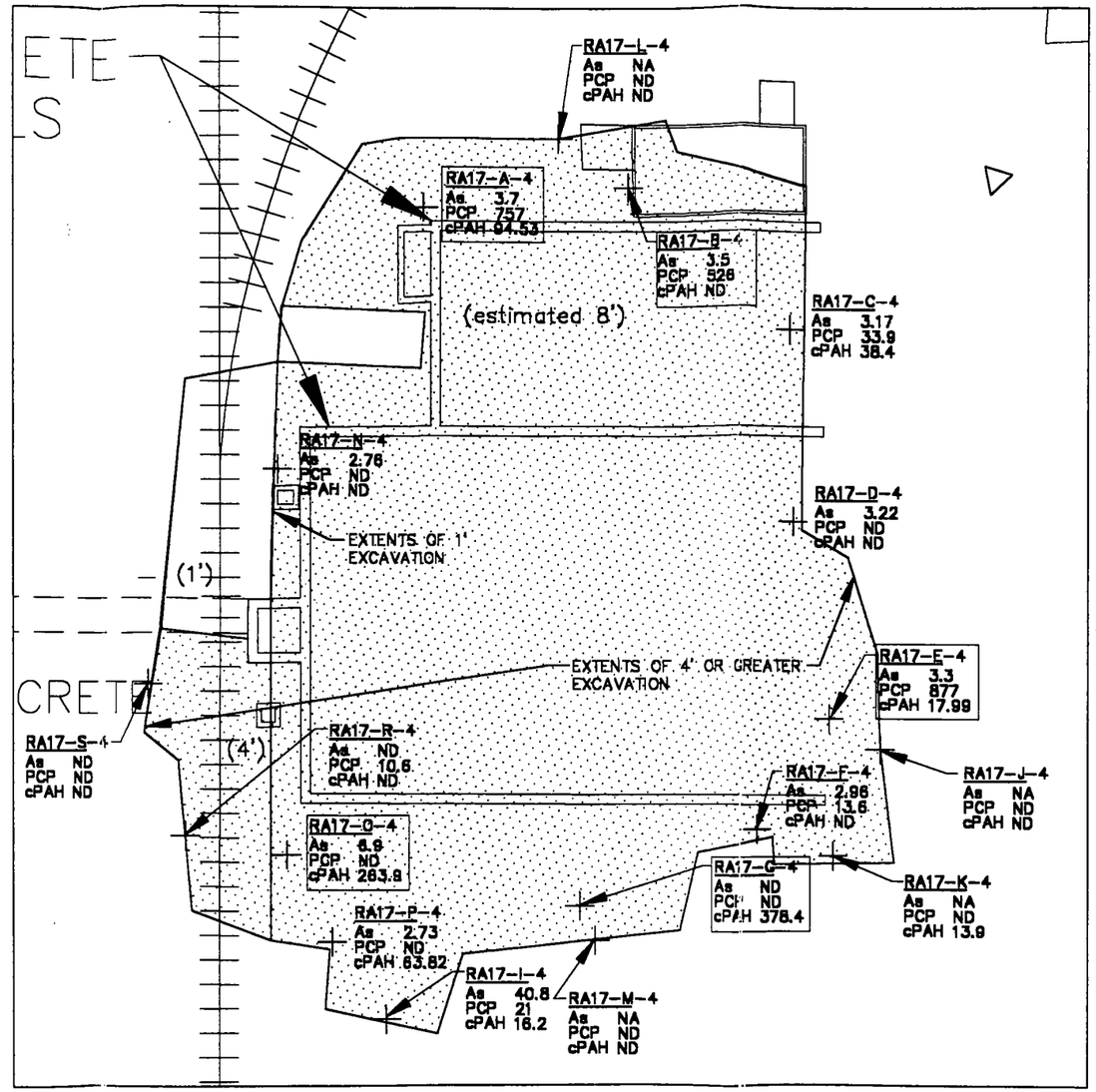
SEA PLOTTER XX-XX XXX



LOCATION MAP



RA AREA RA17 1' DEPTH



RA AREA RA17 4' OR GREATER DEPTH

LEGEND

ANALYTICAL RESULTS ARE IN mg/kg.

RA17-A-4
As 3.7
PCP 720
cPAH 80.19
— SAMPLE LOCATION WITH ANALYTICAL RESULTS.

RA17-A-1
As 3.7
PCP 720
cPAH 80.19
— SAMPLE LOCATION WITH ANALYTICAL RESULTS ABOVE THE ACTION LEVEL.

— EXCAVATION AS A RESULT OF ANALYTICAL RESULTS EXCEEDING THE ACTION LEVEL.

NOTES

1. REMEDIAL ACTION LEVELS AS FOLLOWS:

AS	300 mg/kg
PCP	500 mg/kg
cPAH	100 mg/kg

2. SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS BELOW ACTION LEVELS ARE CONFIRMATION RESULTS.

SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS ABOVE ACTION LEVELS ARE SCREENING RESULTS.

SCALE IN FEET
0 30 60 120

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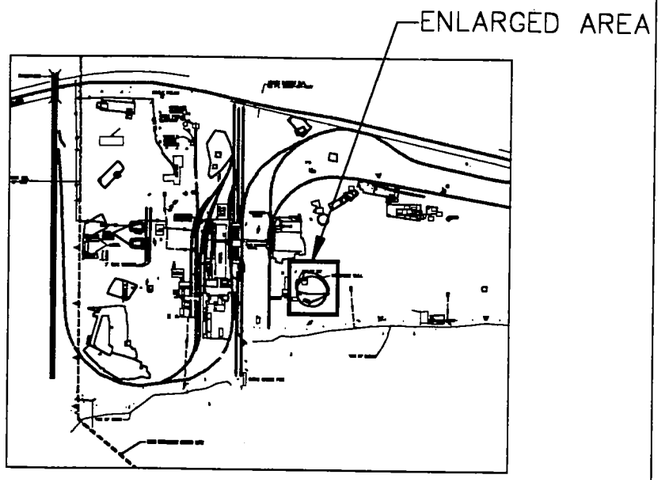
APPROVED BY: XX

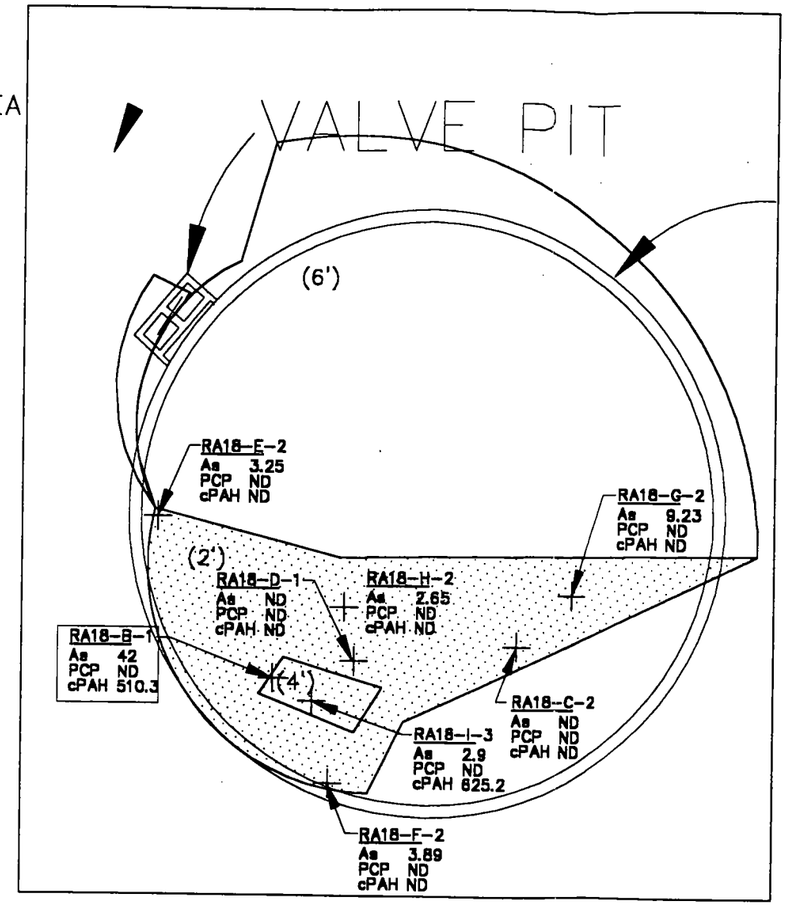
FIGURE 4-13
PHASE I SOIL REMEDIAL ACTION (RA)
AREA RA17
McCORMICK & BAXTER
CREOSOTING CO.
PORTLAND, OREGON

SCALE: NOTED | DATE DRAWN: 04-28-99 | D.A.D. FILE NO.: OH4SRA13.DWG | DRAWING NO.: 13 of 15

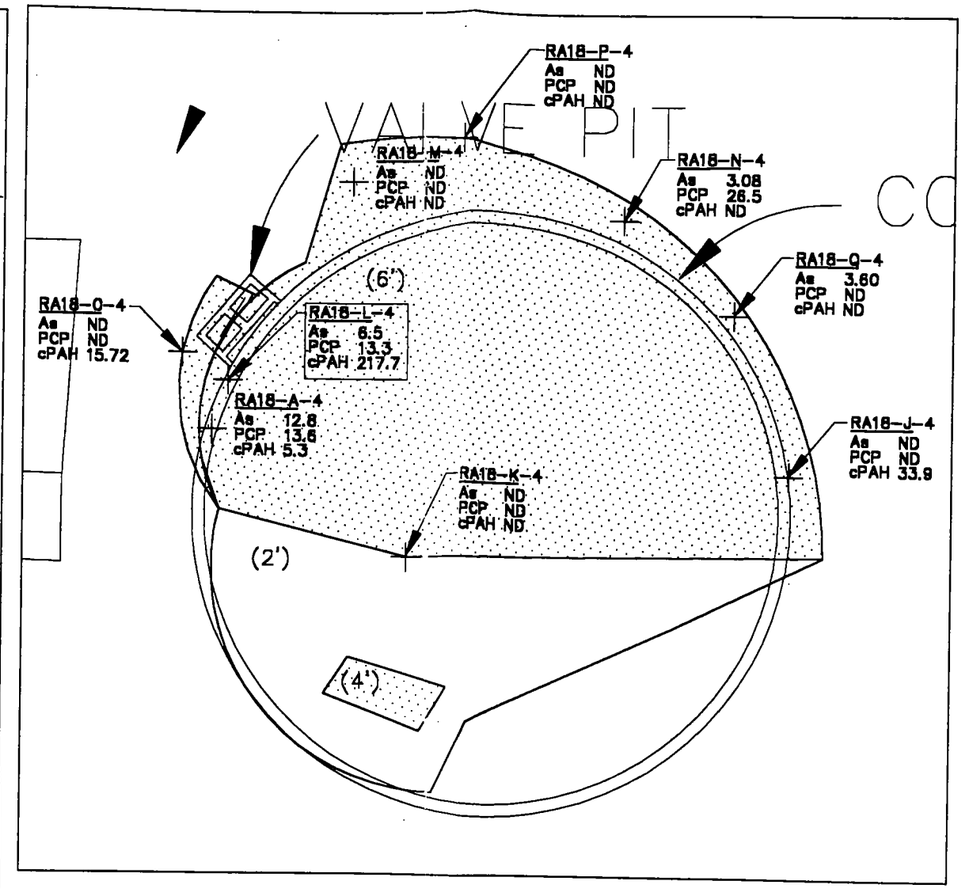
SCALE PLOTTED: XX-XX-XX, XXX



LOCATION MAP



RA AREA RA18 1' AND 2' DEPTHS



RA AREA RA18 4' OR GREATER DEPTH

LEGEND

ANALYTICAL RESULTS ARE IN mg/kg.

RA17-A-4 As 3.7 PCP 720 cPAH ND	SAMPLE LOCATION WITH ANALYTICAL RESULTS.
RA17-A-1 As 520 PCP 29.0 cPAH ND	SAMPLE LOCATION WITH ANALYTICAL RESULTS ABOVE THE ACTION LEVEL.
	EXCAVATION AS A RESULT OF ANALYTICAL RESULTS EXCEEDING THE ACTION LEVEL.

NOTES

1. REMEDIAL ACTION LEVELS AS FOLLOWS:

AS	300 mg/kg
PCP	500 mg/kg
cPAH	100 mg/kg

2. SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS BELOW ACTION LEVELS ARE CONFIRMATION RESULTS.
3. SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS ABOVE ACTION LEVELS ARE SCREENING RESULTS.

SCALE IN FEET
0 30 60 120

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Seattle, Washington

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DRAWN BY: M. COEHEN
APPROVED BY: XX

FIGURE 4-14
PHASE I SOIL REMEDIAL ACTION (RA)
AREA RA18
McCORMICK & BAXTER
CREOSOTING CO.
PORTLAND, OREGON

SCALE: NOTED
DATE ISSUED: 04-28-95
C.A.D. FILE NO.: CH4SRA14.DWG
DRAWING NO.: 14 of 15

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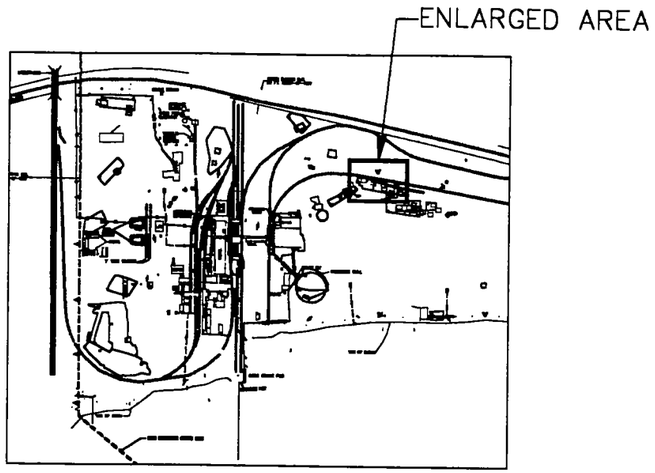
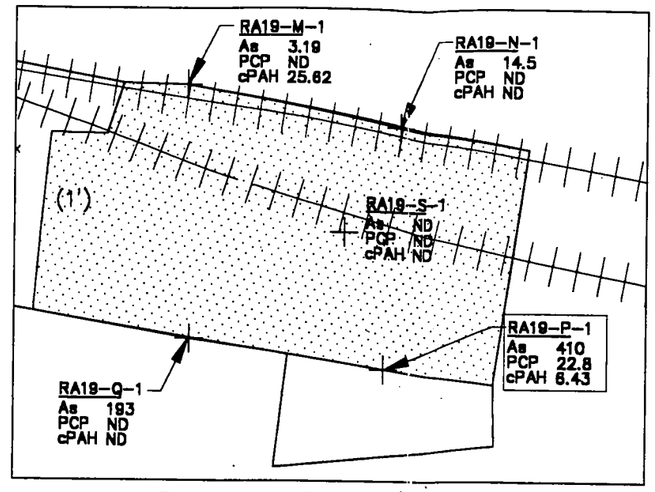
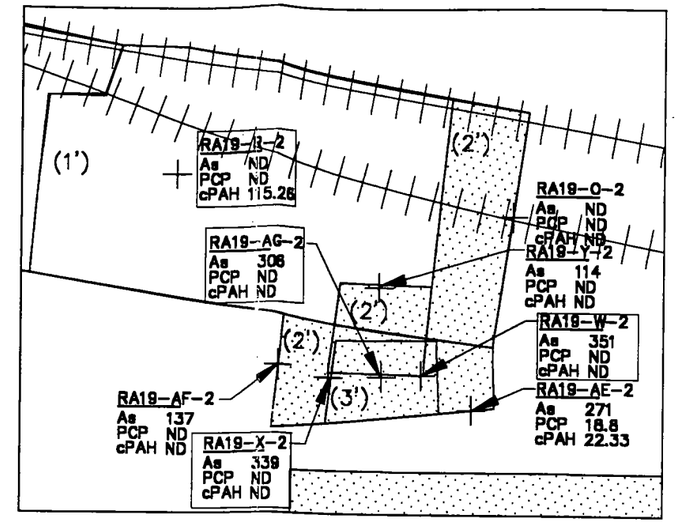


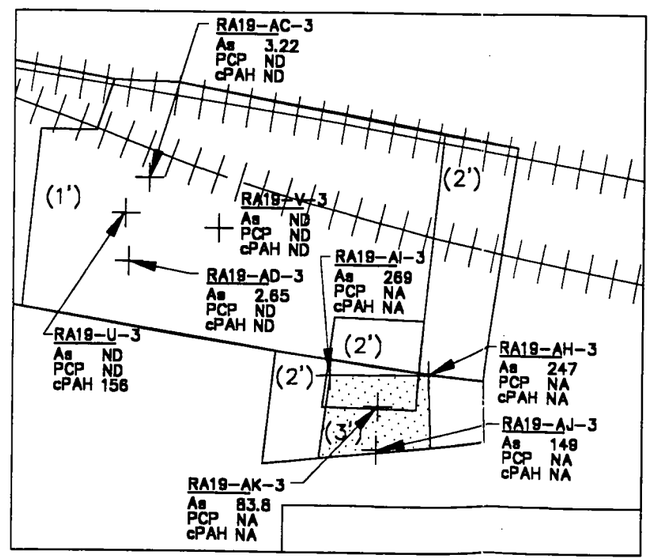
LOCATION MAP



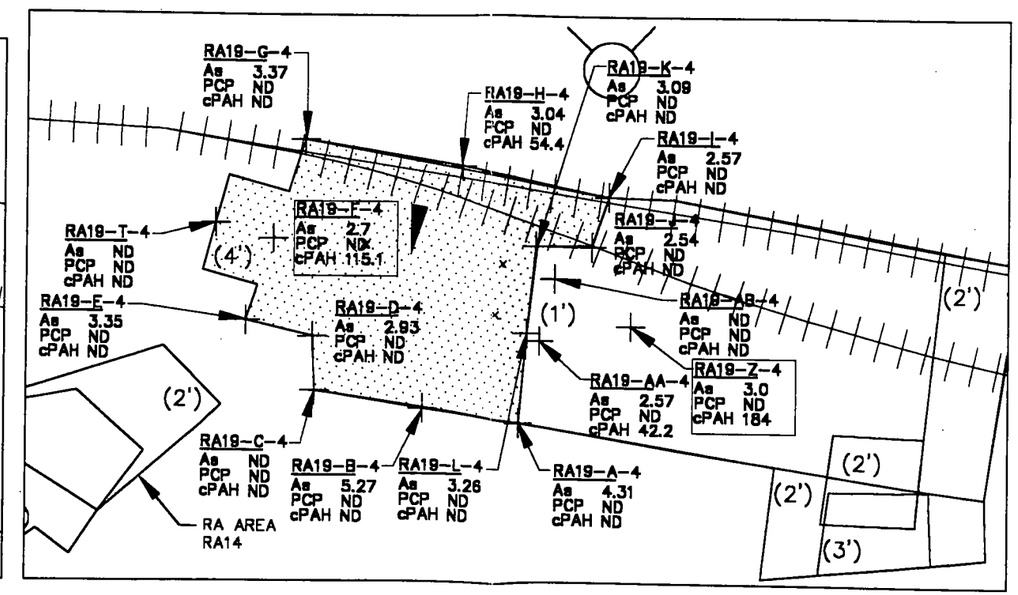
RA AREA RA19 1' DEPTH



RA AREA RA19 2' DEPTH



RA AREA RA19 3' DEPTH



RA AREA RA19 4' DEPTH

LEGEND

ANALYTICAL RESULTS ARE IN mg/kg.

RA19-A-4 As 4.3 PCP ND cPAH ND	SAMPLE LOCATION WITH ANALYTICAL RESULTS.
RA19-A-1 As 4.3 PCP ND cPAH ND	SAMPLE LOCATION WITH ANALYTICAL RESULTS ABOVE THE ACTION LEVEL.
	EXCAVATION AS A RESULT OF ANALYTICAL RESULTS EXCEEDING THE ACTION LEVEL.

NOTES

1. REMEDIAL ACTION LEVELS AS FOLLOWS:

AS	300 mg/kg
PCP	500 mg/kg
cPAH	100 mg/kg

2. SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS BELOW ACTION LEVELS ARE CONFIRMATION RESULTS.
3. SAMPLE LOCATIONS SHOWN WITH CONCENTRATIONS ABOVE ACTION LEVELS ARE SCREENING RESULTS.

SCALE IN FEET

0 30 60 120

ecology and environment, inc.
International Specialists in the Environment
Seattle, Washington

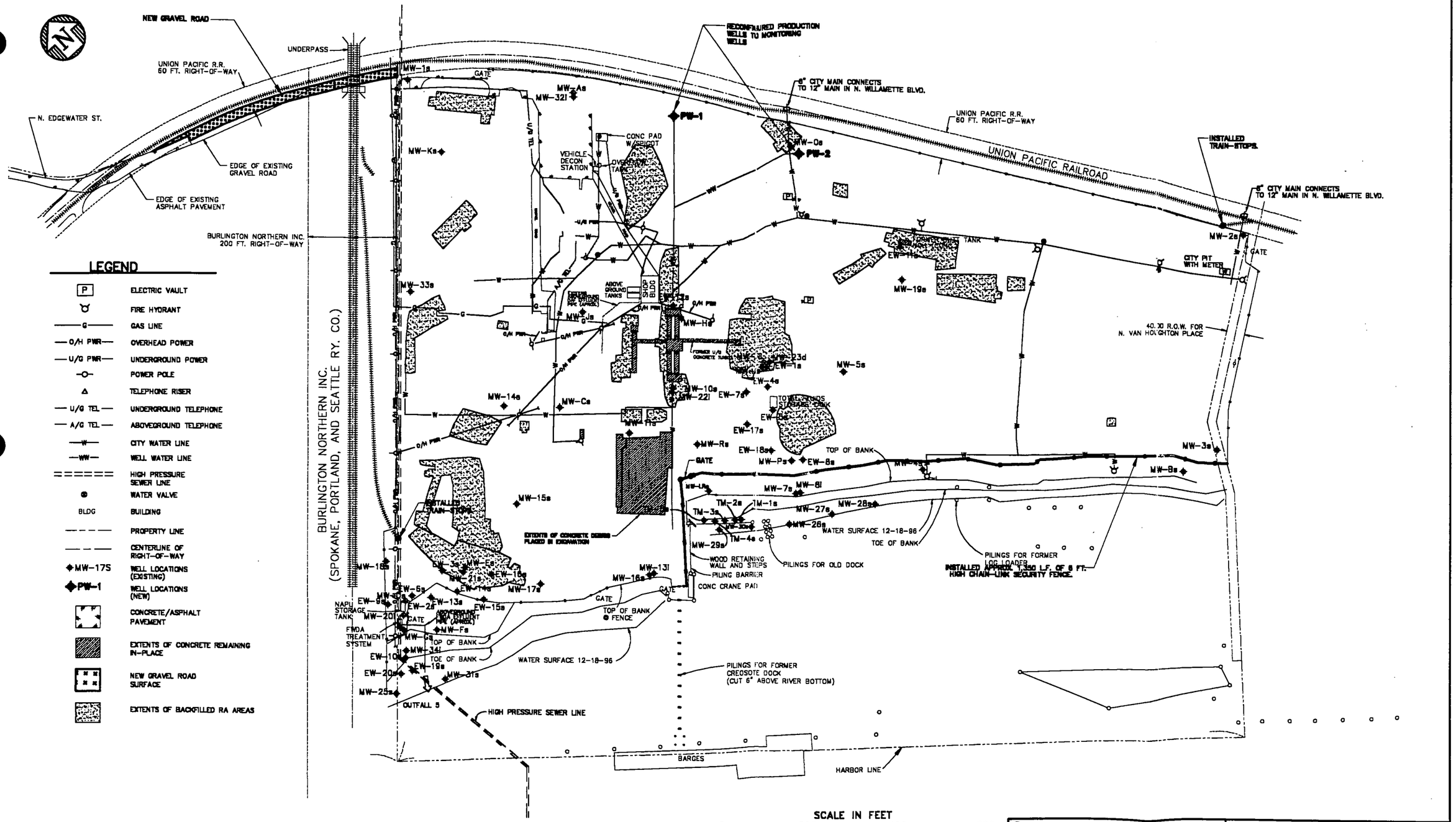
DESIGNED BY: M. COEMEN
CHECKED BY: XX
DRAWN BY: M. COEMEN
APPROVED BY: XX

FIGURE 4-15
PHASE I SOIL REMEDIAL ACTION (RA)
AREA RA19
McCORMICK & BAXTER
CREOSOTING CO.
PORTLAND, OREGON

SCALE: NOTED
DATE ISSUED: 04-28-99
CAD FILE NO.: GH-SRA19.DWG
DRAWING NO.: 15 of 15

SEA PLOT XX-XX-XX XXX

749.0H04.00.29/0H4SRA16.DWG/M.COENEN-ENG'R/M.COENEN-AUTOCAD/05-04-99/SEATTLE,WA



Geology and environment, inc.
International Specialists in the Environment
Seattle, Washington

DESIGNED BY: M. COENEN
CHECKED BY: XX
DRAWN BY: M. COENEN

FIGURE 4-16
FINAL AS-BUILT SITE PLAN
McCORMICK & BAXTER CREOSOTING CO.
PORTLAND, OREGON

SCALE: NOTED | DATE ISSUED: 05-04-99 | CADD FILE NO.: 0H4SRA16.DWG | DRAWING NO.: 1 of 1

SEA PLOTTED: 05-28-99 BEM

5. Remedial Action Quantities and Costs

5.1 Remedial Action Effectiveness

Final quantities, with original estimated quantities in parentheses, are summarized below:

- Soil and debris excavation and off-site disposal as hazardous waste—33,771 tons (27,000 tons);
- Building demolition, creosote dock/log loader structure demolition, utility pole/pilings removal, disposal as nonhazardous waste—348 tons (860 tons);
- Railroad track and scrap metal salvage—580 tons (637 tons);
- Concrete structure demolition and on-site consolidation as backfill—2,937 cubic yards (1,320 cubic yards);
- Removal of below-ground process piping—4,747 feet (2,400 feet);
- Salvage of railroad ties—195 tons (94 tons); and
- Placement of backfill from off-site source—33,128 tons (16,800 tons).

A detailed summary of quantities incurred during the project is presented in Tables 5-1 and 5-2. The remedial action excavated and disposed of 32,604 tons of F032, F034, and F035 RCRA soil and debris directly into the ESI's RCRA Subtitle D landfill cell. Also, 1,167 tons of F032, F034, F035, D004, and D007 RCRA soil and debris were excavated from the site and treated by ESI at its RCRA Subtitle C facility to stabilize the inorganic compounds. The treated soil and debris was subsequently placed into ESI's RCRA Subtitle D landfill cell. A hazardous waste manifest summary is in Appendix G.

This action effectively eliminated the presence of soil contaminated above the action levels and within 4 feet of the ground surface. In the major source areas where excavation proceeded to depths of 8 to 10 feet, the potential for future contact has been further reduced. E & E is aware of only one area, beneath the shop building concrete pad, where soil above the action levels is known to exist within 4 feet of the ground surface (that soil is, however, currently covered by the concrete pad). Based on visual observation, it appears that the building was constructed on soil contaminated from the retort processes. The exact quantity of soil beneath the building is not known; however, considering the quantity of material removed next to the building, a conservative estimate (using the entire concrete pad as the foot print, with a depth of 3 feet) yields 266 cubic yards (350 tons). At this point, it appears that the soil will need to be addressed as part of preparing the site for capping.

5.2 Confirmation Statement

Based on the field work summarized in this report, ROD requirements for remediating contaminated site soil exceeding the action levels have been achieved (with the above-noted exception of the shop building area). The remaining remedial activities associated with the soil media involve placement of the protective cap to address areas of the site that contain contaminants in excess of the site cleanup goals.

Table 5-1 SUMMARY OF REMEDIATION QUANTITIES AND COSTS CONTRACT PRICES McCORMICK & BAXTER SITE PORTLAND, OREGON

Item	Description	Estimated Quantity	Units	Unit Price	Bid Amount
Project Preparation and Administration					
1	Mob/Demob	Job	Lump Sum	$278,000	$278,000
2	COP/CSSP/TDP/Submittals	Job	Lump Sum	$20,000	$20,000
Demolition, Decon, On-site Consolidation					
3	Office Building, Lab, Scale House Demolition	Job	Lump Sum	$20,000	$20,000
4	Office Building Asbestos Abatement	Job	Lump Sum	$16,000	$16,000
5	Concrete Demolition, On-site Consolidation into Retort Pits	Job	Lump Sum	$44,000	$44,000
6	Creosote Dock and Log Loader Demolition	Job	Lump Sum	$56,000	$56,000
7	Pilings and Utility Pole Demolition	Job	Lump Sum	$11,000	$11,000
8	Below Ground Pipe Removal (<4 feet bgs)	1800	Linear Ft.	$7.00	$12,600
9	Below Ground Pipe Removal (>4 feet bgs)	600	Linear Ft.	$18.50	$11,100
10	Dismantle/Decon Poly Tanks	Job	Lump Sum	$5,500	$5,500
Site Entrance Road					
11	Soil Excavation, On-site Consolidation, Road Construction	Job	Lump Sum	$25,000	$25,000
RCRA Hazardous Waste					
12	Soil and Debris Classified F032, F034, F035	22,000	Tons	$93	$2,046,000
13	Soil and Debris Classified F032, F034, F035, D004, D007	5,000	Tons	$144	$720,000
Non-Hazardous Solid Waste					
14	Office Building Asbestos Material	2	Tons	$220	$440
15	Creosote Dock and Log Loader Debris	600	Tons	$63	$37,800
16	All Other Debris	260	Tons	$73	$18,980
Scrap Metal Removal, Transportation, and Salvage					
17	Office Building, Scale House, Production Well Vaults	17	Tons	$50	$850
18	Railroad Track Removal, Transportation, and Salvage	620	Tons	($5)	($3,100)
Backfill and Seeding					
19	Backfill Material, Placement, and Grading	16,800	Tons	$14	$235,200
20	Backfill - Landslide Material	Job	Lump Sum	$12,000	$12,000
21	Seeding	Job	Lump Sum	$20,000	$20,000
Production Wells					
22	Vault Demolition and Reconstruction	Job	Lump Sum	$15,000	$15,000
Weather Delay Days					
23	Half-day Shutdown	2	Half Days	$3,000	$6,000
24	Full-day Shutdown	5	Full Days	$5,000	$25,000
Change Orders					
	Superintendent change				
1	Additional Asbestos Abatement				$0
2	Survey Activities				$0
3	Rail Improvements				$0
4	RA17 Concrete Sizing				$0
5	Marine Demolition				$0
	Additional Pilings	19	Each	$115	$0
6	Road Geotextile				$0
7	F-Listed Soil Volume Increase				$500,000
8	Hydroseed Mix Change				$0
9	RA3 Soil	800	tons	$157	$0
10	Tunnel/Butt Tank Demo				$0
11	Item 16B - Salvaged Railroad Ties	70	tons	$35	$0
12	F-Listed Soil Credit				$0
12	Serial Letter 9 - Force Account Punch List				$0
12	Stockpile Ashpalt into Retort 1-2				$0
13	F-Listed Soil Volume Increase				$200,000
14	Well Repairs				
	Additional backfill credit				
	Unused Tarps/Liners				
TOTAL					$4,333,370

recycled paper ecology and environment

Table 5-2 SUMMARY OF REMEDIATION QUANTITIES AND COSTS AT PROJECT COMPLETION
McCORMICK & BAXTER SITE
PORTLAND, OREGON

Item	Description	Estimated Quantity	Units	Unit Price	Final Quantity	Final Costs
Project Preparation and Administration						
1	Mob/Demob	Job	Lump Sum	$278,000	100%	$278,000
2	COP/CSSP/TDP/Submittals	Job	Lump Sum	$20,000	100%	$20,000
Demolition, Decon, On-site Consolidation						
3	Office Building, Lab, Scale House Demolition	Job	Lump Sum	$20,000	100%	$20,000
4	Office Building Asbestos Abatement	Job	Lump Sum	$16,000	100%	$16,000
5	Concrete Demolition, On-site Consolidation into Retort Pits	Job	Lump Sum	$44,000	100%	$44,000
6	Creosote Dock and Log Loader Demolition	Job	Lump Sum	$56,000	100%	$56,000
7	Pilings and Utility Pole Demolition	Job	Lump Sum	$11,000	100%	$11,000
8	Below Ground Pipe Removal (<4 feet bgs)	1800	Linear Ft.	$7.00	2972	$20,804
9	Below Ground Pipe Removal (>4 feet bgs)	600	Linear Ft.	$18.50	1775	$32,838
10	Dismantle/Decon Poly Tanks	Job	Lump Sum	$5,500	100%	$5,500
Site Entrance Road						
11	Soil Excavation, On-site Consolidation, Road Construction	Job	Lump Sum	$25,000	100%	$25,000
RCRA Hazardous Waste						
12	Soil and Debris Classified F032, F034, F035	22,000	Tons	$93	32,604	$3,032,172
13	ACZA Wood Classified F032, F034, F035, D004, D007	5,000	Tons	$144	113	$16,272
Non-Hazardous Solid Waste						
14	Office Building Asbestos Material	2	Tons	$220	3.7	$814
15	Creosote Dock and Log Loader Debris	600	Tons	$63	132.59	$8,353
16	All Other Debris	260	Tons	$73	211.68	$15,453
Scrap Metal Removal, Transportation, and Salvage						
17	Office Building, Scale House, Production Well Vaults	17	Tons	$50	47	$2,350
18	Railroad Track Removal, Transportation, and Salvage	620	Tons	($5)	533.15	($2,666)
Backfill and Seeding						
19	Backfill Material, Placement, and Grading	16,800	Tons	$14	33,128	$463,792
20	Backfill - Landslide Material	Job	Lump Sum	$12,000	100%	$12,000
21	Seeding	Job	Lump Sum	$20,000	100%	$20,000
Production Wells						
22	Vault Demolition and Reconstruction	Job	Lump Sum	$15,000	100%	$15,000
Weather Delay Days						
23	Half-day Shutdown	2	Half Days	$3,000	0	$0
24	Full-day Shutdown	5	Full Days	$5,000	0	$0
Change Orders						
	Superintendent change					($500)
1	Additional Asbestos Abatement					$7,422
2	Survey Activities					($5,300)
3	Rail Improvements					$9,302
4	RA17 Concrete Sizing					$2,828
5	Marine Demolition					$22,166
	Additional Pilings	19	Each	$115	19	$2,185
6	Road Geotextile					$1,515
7	F-Listed Soil Volume Increase					$0
8	Hydroseed Mix Change					$0
9	RA3 Soil (Classified F032, F034, F035, D004, D007)	800	tons	$157	1,054	$165,478
10	Tunnel/Butt Tank Demo					$2,861
11	Item 16B - Salvaged Railroad Ties	70	tons	$35	195.64	$6,847
12	F-Listed Soil Credit					($20,000)
12	Serial Letter 9 - Force Account Punch List					$11,399
12	Stockpile Ashpalt into Retort 1-2					($2,000)
13	F-Listed Soil Volume Increase					$0
14	Well Repairs					$5,975
	Additional backfill credit					($6,000)
	Unused Tarps/Liners					$3,000
TOTAL						$4,319,860

6. References

Ecology and Environment, Inc. (E & E), 1999. Technical Memorandum to Bill Dana, Oregon Department of Environmental Quality, re: Underground Storage Tank Decommissioning, McCormick & Baxter Creosoting Company, June 30, 1999.

_____, 1998a, *Final Construction Quality Assurance Plan for Soil Remedial Activities*, prepared for Oregon Department of Environmental Quality, E & E, Seattle, Washington.

_____, 1998b, *Revised Final Remedial Design Data Summary Report*, submitted to Oregon Department of Environmental Quality, E & E, Seattle, Washington.

_____, 1998c, *Contract Documents for Soil Excavation, Demolition, and Disposal*, submitted to Oregon Department of Environmental Quality, E & E, Portland, Oregon.

_____, 1998d, *Final Basis of Design Report*, submitted to Oregon Department of Environmental Quality, E & E, Seattle, Washington.

PTI Environmental Services (PTI), 1992, *McCormick & Baxter Creosoting Company Remedial Investigation Report*, prepared for Oregon Department of Environmental Quality, DEQ Task Order 78-89-16-010, PTI Contact C842-16-06, PTI Environmental Services, Lake Oswego, Oregon. September 1992.

U.S. Environmental Protection Agency and the State of Oregon Department of Environmental Quality (EPA/DEQ), 1998, *Amended Record of Decision*, prepared for McCormick & Baxter Company, Portland, Oregon.

———, 1996, *Record of Decision*, prepared for McCormick & Baxter Company, Portland, Oregon.

U. S. Environmental Protection Agency (EPA), 1999, Region 9 Preliminary Remediation Goals, http://www.epa.gov/region09/waste/sfund/prg.

———, 1989, *Interim procedures for estimating risks associated with exposures to mixtures of chlorinated dibenzo-p-dioxins and -dibenzofurans (CDDs and CDFs) and 1989 update.* U.S. Environmental Protection Agency, Risk Assessment Forum, Washington, DC; EPA/625/3-89/016.

Wilder Construction Company (Wilder), 1999, Letter from Joe Spink, Wilder project manager, to Steve Campbell, Oregon, Department of Environmental Quality, Portland, Oregon, re: McCormick & Baxter Creosoting Company—Figure 2-1: Initial Excavation Areas—Serial Letter 003. March 10, 1999.

A

Hazardous Waste Disposal Classification Correspondence

ENVIROSOURCE TECHNOLOGIES

Phone: 215. 956. 5500
Fax: 215. 956. 5429
Website: www.ensa.net

1155 Business Center Drive
Horsham, PA 19044-3454

CERTIFIED MAIL Z 462 619 592
RETURN RECEIPT REQUESTED

March 1, 1999

Mr. Fred Shanania, Chief
Waste Treatment Branch
U.S. Environmental Protection Agency
Mail Code 5302W
401 M Street SW
Washington, DC 20460

Re: **Envirosafe Services of Idaho, Inc.**
IDD 073 114 654
Applicability of UTS's for underlying hazardous constituents to wastes subject to the F032, F034, and F035 National Capacity Variance that also exhibit the characteristic of D004 and D007

Dear Mr. Shanania:

As discussed with Mr. Nick Vizzone of your staff, Envirosafe Services of Idaho, Inc. (ESII) respectfully requests clarification/confirmation on a National Capacity Variance issue. Specifically, the applicability of the Universal Treatment Standards (UTS's) for organic Underlying Hazardous Constituents (UHC's) of a hazardous waste characteristic for the metals arsenic and chromium, and also hazardous for F032, F034, and F035 which is currently subject to a National Capacity Variance.

The waste stream in question is a soil stream from a Superfund Site in Oregon. ESII proposes to treat the waste to meet Land Disposal Restriction (LDR) standards for the characteristic metals prior to land disposal. The waste stream also contains underlying low levels of organic material associated with the metal waste codes and directly associated with the F032, F034, and F035 waste codes. Do the varianced organics that are UHC's of D004 and D007 need to meet UTS's prior to being land disposed given that they are directly related to F032, F034, and F035?

Based on conversations with Mr. Vizzone, it is ESII's understanding, that the varianced organic UHC's do not need to meet UTS's prior to land disposal. Only the metals must meet applicable treatment standards. ESII requests clarification/confirmation on this issue.

ESII appreciates the Agency's assistance with our request. As you know, the capacity variance expires on May 12, 1999 and an expedited review to receive an Agency response is greatly appreciated. If you have any questions, please do not hesitate to contact me at (215) 956-5583.

Sincerely,

Stephen J. DeLussa
Environmental Affairs Manager,
as agent for ESII

cc: Lee Weber ESII

STATE OF IDAHO
DIVISION OF
ENVIRONMENTAL QUALITY

1410 North Hilton • Boise, Idaho 83706-1255 • (208) 373-0502

Dirk Kempthorne, Governor
C. Stephen Allred, Administrator

March 25, 1999

Mr. Michael Spomer
Vice President / General Manager
Envirosafe Services of Idaho, Inc.
P. O. Box 400
Grandview, ID 83624

Dear Mr. Spomer:

Idaho's Division of Environmental Quality (IDEQ) is responding to a EnviroSource Technology letter, dated March 1, 1999, to EPA Headquarters. The letter requested an interpretation of the applicability of the Universal Treatment Standards (UTS) for regulated underlying hazardous constituents (UHCs) in soil contaminated with F032, F034 and F035 wastes. IDEQ implements a fully authorized hazardous waste program, and is providing our interpretation as the primary regulatory agency overseeing the appropriate treatment and disposal of the waste in question.

As you are aware, soil contaminated with F032, F034, and F035 wastes is under a specific national capacity variance, that was announced in part, to lessen potential disruptions to ongoing remediation activities (62 FR 25998). According to your March 01, 1999 letter, the Oregon soil waste stream in question also contains characteristic levels of arsenic and chromium. You have asked whether F032, F034, and F035 soils also containing characteristic metals must now have UHCs treated pursuant to Part II of LDR Phase IV (63 FR 28556)/(IDAPA 16.01.05.011) and disregard the capacity variance that would otherwise apply to these UHCs.

It is IDEQ's understanding that the UHCs that are present in the waste stream are due solely to the hazardous waste listings under the capacity variance. The characteristic metals are also hazardous constituents found in the F-code listings that are under this variance.

Because both the UHCs and characteristic metals present in the soil are regulated constituents of the waste codes F032, F034, and F035, it is IDEQ's position that the capacity variance that is in effect until May 12, 1999 applies to the waste stream in question. However, the characteristic metals require treatment to UTS levels and if the waste stream contains UHCs that are not regulated constituents of the waste codes that are under the variance, you would be required to treat those UHCs to UTS levels also.

EPA has provided the national capacity variance for precisely the type of on-going remediation activities underway at the Oregon Superfund site which is the topic of our discussion. If you have further questions, please contact Pam Smolczynski at (208) 373-0461.

Sincerely,

Brian R. Monson, Chief
Air & Hazardous Waste Div.

BRM\PS:ls \letters\1999\deqf032.wpd

cc: Lee Weber, ESII
Al Goodman, EPA Region 10
Nick Vizzone, EPA Headquarters
Bill Dana, Oregon
ESbcld

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR 1 1999

OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

Mr. Stephen J. DeLussa
Environmental Affairs Manager
Envirosource Technologies
1155 Business Center Drive
Horsham, PA 19044-3454

Dear Mr. DeLussa:

Thank you for your letter of March 1, 1999, regarding the applicability of the Universal Treatment Standards (UTS) to regulated hazardous constituents in a soil contaminated with F032, F034 and F035 wastes at a Superfund site in Oregon. The organic constituents at issue are also underlying hazardous constituents (UHCs) listed in the UTS Table found at 40 CFR §268.48. These organic constituents qualify as UHCs because the F-code contaminated soil is also characteristically hazardous for arsenic and chromium. You have asked if hazardous soil containing these wastes and these organic UHCs must meet UTS prior to disposal, considering that the soil contaminated with these F-code wastes is under a National Capacity Variance, and that the only UHCs found in the contaminated soil are also regulated constituents of the waste codes in question.

Typically, we refer site-specific implementation questions to the authorized state in which the facility is located because the authorized state is charged with the responsibility for administering the RCRA regulations on a site-specific basis. However, we have contacted personnel in both the State of Oregon and U.S. EPA Region 10, and they also request our views on this issue. Please remember that an authorized state is always free to be more stringent than the federal program and that our interpretation is of an advisory nature in this situation.

From your letter, we understand that you intend to treat the wastes for the two characteristic metals and decharacterize the contaminated soil, but that you are concerned about whether the organic UHCs must also be treated to their respective UTS levels. In this case, as indicated in your letter, the only UHCs in the contaminated soil are also regulated organic constituents of the waste codes F032, F034 and F035, for which a national capacity variance is in effect.

This issue was generally addressed in the Third Third final rule preamble in the broad context of wastes with multiple waste codes that are subject to more than one treatment standard.

We stated that, during the period of a national capacity variance for one of the waste codes, the treatment standard for any other waste code needs to be met (55 FR at 22660, col. 1). However, our enunciation of this general principle did not address the situation in which one or more pivotal constituents not only cause the waste to be listed or identified but also trigger the need for a national capacity variance due to the lack of adequate treatment capacity.

It appears that treatment of the organic UHCs in soil contaminated with these F-codes falls into the situation that is not addressed by the general principle set out in the Third Third rule. Rather, for these Superfund soils, treatment of the organic UHCs would likely involve the same type of technology (combustion) that would be required for the F032, F034 and F035 waste codes contained in the contaminated soil. Considering that we specifically granted the national capacity variance because of insufficient combustion treatment capacity for F-code contaminated soil and debris, it would not be logical to require treatment of organic UHCs in the contaminated soil.

Therefore, in this particular case, the organic UHCs do not need to meet UTS prior to land disposal, at least from our federal perspective. However, if the contaminated soil contains UHCs that are not the regulated constituents that created the need for a capacity variance for the listed waste code, you would be required to treat those UHCs down to UTS levels under the federal program.

If you have any further questions, please contact Nick Vizzone of my staff at (703) 308-8460.

Sincerely,

Matt Hale

Elizabeth A. Cotsworth, Acting Director
Office of Solid Waste

cc: Al Goodman, EPA Region 10
Bill Dana, State of Oregon
Pam Smolzinski, State of Idaho

B

Pre-Construction Meeting Minutes

McCORMICK AND BAXTER SUPERFUND SITE
SOIL EXCAVATION, DEMOLITION, AND DISPOSAL PROJECT

PRE-CONSTRUCTION MEETING SUMMARY

Meeting Date: Thursday, February 18, 1999, 10:00 A.M.

Meeting Location: McCormick and Baxter Site

List of Attendees:

Joe Spink – Wilder Construction Co.
Mike Cabe – Wilder Construction Co.
Bob Stewart – Wilder Construction Co.
Mark Riem – Wilder Construction Co.
Pat Turina – Wilder Construction Co.
Nicole Murray – Wilder Construction Co.
Steve Campbell – Oregon Department of Environmental Quality
David Anderson – Oregon Department of Environmental Quality
Al Goodman – U.S. Environmental Protection Agency
John Montgomery – Ecology and Environment, Inc.
Kevin Smith – Ecology and Environment, Inc.
Jennifer Callison – Ecology and Environment, Inc.
Marion Smith – Fred Devine Diving and Salvage Co.
Darren Watts – Lincoln Cristi
Arman Bluehe – Emerald Hydro Turf
Bruce Eberle – Geo-Tech Exploration

Agenda Item 1 – Introductions

DEQ Staff:
Bill Dana, Project Officer. Role – Primary point of contact for all technical and financial aspects of the project.
Steve Campbell, Contract Specialist, Role – Contract administration, interpretation, and modifications.

EPA Staff:
Al Goodman, Project Manager. Role – EPA's site representative, will assist DEQ with technical and financial issues.

Engineer Staff:
John Montgomery, Project Manager. Role – E & E's overall project manager, resource allocation, project administration.
Kevin Smith, Project Engineer, Role – E & E's resident engineer for the field activities. Primary on-site point of contact. Position will be shared with Roger Culleton (not in attendance). Roger and Kevin will overlap time on-site for one week to ensure consistent instructions and contract interpretation will be performed.

Contractor Staff:
Joe Spink, Project Manager. Role – Wilder's overall project manager. Contract administration, subcontract manager, contract modifications. Based in WA, will be present on-site for weekly meetings.
Pat Turina, Project Coordinator/Health and Safety Officer. Role – Portland based on-site coordinator and site manager. Primary point of contact for site activities. Resource allocation, project administration support.
Nicole Murray, Site Engineer. Role – Wilder's engineer for construction, excavation, transportation, and disposal activities. Cost and schedule tracking.
Bob Stewart, Site Superintendent. Role – Superintendent in charge of all soil excavation, site hauling, stockpiling, loading, and backfilling work crews.
Mike Cabe, Foreman. Role – Foreman in charge of structure removal, demolition, and all other misc. site requirements.

Project Communication:

Notification of Change Conditions: Shall be address to Bill Dana and Steve Campbell of DEQ, with copies provided to the Resident Engineer. The scope of change conditions can be discussed and narrowed (as necessary) on-site between Wilder and E & E prior to submittal to DEQ.

Invoices: Resident Engineer will review Wilder's invoices in the field prior to submittal to DEQ to assist with documentation quantities (for unit priced items) and estimates of percent complete (for lump sum items). Following receipt of the Engineer's comments, Wilder shall submit their invoice to S. Campbell – DEQ.

Weekly Meeting Summaries: Provided to all via e-mail by the Engineer.

Agenda Item 2 – Submittals

Prior to the meeting, Pat Turina distributed four (4) copies of Wilder's Health and Safety Plan, Construction Operation Plan, Transportation and Disposal Plan, and the Project Schedule. These submittals have been made in accordance with the time requirements specified for the project.

Joe Spink discussed the major topics presented in the Project Schedule as follows:

1. Fieldwork start date is contingent upon review of submittals. The current start day is Thursday, February 25, 1999, to provide the time request for submittal review. However, if submittal review can be accelerated, fieldwork (primarily RR track removal/stockpile construction) can begin earlier. K. Smith – E & E will accelerate review of submittals, primarily the Health and Safety Plan, to allow site prep activities to be initiated, possibly Tuesday or Wednesday. Comments on the H & S Plan will be provided on Monday 2/22/99. Comments on the other plans will be submitted on an "accepted, pending future modification" basis.

2. Off-site rail switch installation is contingent upon UPRR mobilizing a work crew. Wilder is communicating with UPRR in Omaha, Neb. because local UPRR contact says no crews are available. Condon Bros. (Wilder's subcontractor for RR removal) has already purchased and delivered a switch to UPRR, and Wilder has paid a deposit to UPRR for the installation. If switch is not installed by March 1, 1999, then project schedule problems will arise. Wilder submitted the work order to UPRR on February 8, 1999.

3. Wilder's using 5-day workweeks, 8 hrs./day. However, this may change pending progress of site activities, weather, availability of gondolas, and UPRR pick-up/delivery of gondolas. If Saturday work is needed, request for authorization needs to be in by COB Thursdays. E & E needs to inform soil analysis laboratory by this time. Sunday work will require DEQ's authorization. Public notice may need to be given. Sunday work may need to start at later time (9:00 AM).

4. Wilder estimated loading an average of 13 gondolas per day if the gondolas are available to attain the schedule. ESI has guaranteed a maximum of 60 gondolas/week. Wilder estimates about 295 gondolas for the project and ESI has committed to about 200.

5. ESI will guarantee placement of soil in their facility before May 12, 1999 if the last gondola is released from the site by April 24, 1999.

6. S. Campbell - DEQ noted that a media day will be held, the date of which has yet to be determined. Site work may be impacted on this day.

7. Soil removal was to be initiated by removal of "F" and "D" listed soil followed by "F" listed soil, however, this may be modified pending RCRA LDR discussion (see below).

8. Hydroseeding may be performed outside of time window noted in specifications. K. Smith will provide relief from the date requirements specified. An optional idea was to seed certain areas of the site if no further work is being conducted in those areas.

Agenda Item 3 – General Construction Overview

Detailed information is presented in the COP/TSD/HSP submittals. Pat Turina provided discussion of the general topics below:

1. Mobilization: Field office work has been initiated. Loader, equipment trailers, and soil screen have been delivered to site. Portable bathroom facilities will arrive Monday 2/22/99. Further equipment will arrive during the week beginning 2/22/99.

2. UPRR Rail Switch: See discussion above. Nothing further was added.

3. Site Preparation: Main tasks include removal of non-utilized railroad track and ties by Condon Bros., refurbishment of rail to be used for gondolas, construction of the soil stockpile between RA4 and RA5. This location is acceptable to the Engineer. Vehicle decon. area will stay in current location, a sump pump will be used to pump water back onto site.

4. Equipment Summary: Detailed list provided in COP. One tracked excavator will be used for soil removal. One RA area will be worked at a time (assuming project is on schedule). Haul truck will move soil to stockpile area. Two loaders will work the stockpile area, one for screening soil, the other for loading gondolas. A general-purpose loader will be used to move gondolas on-site. Wilder will have a full time mechanic on-site to maintain and repair equipment. A day fuel tank will also be present with a scheduled fuel delivery.

5. Staffing Levels: In addition to Wilder's supervisory staff, they anticipate 14 laborers excluding subcontractor personnel. When subcontractor personnel are included (asbestos abatement, railroad track removal, etc.) site staffing may be as high as 40 people.

6. Barge Off-load Area: Wilder intends to use the Log Loader area after the Log Loader structure has been removed.

7. Site Entrance Road: Work on this road can occur at any time since it is not a critical path item. Before work can begin on this road E & E/DEQ must give UPRR 72 hours notice in writing as per DEQ's access agreement with UPRR.

8. Stormwater Management: Will be conducted as specified. If weather is favorable, the Engineer may grant relief from placement of covers. Engineer will also use experience gained on-site to evaluate the performance and need for the covers.

9. Loading/Transportation: Loading will be performed with a scale-equipped loader that will be calibrated with a concrete block of known weight. Weights documented on-site will be checked against weights at the disposal facility. Each rail gondola will be inspected by the Engineer for visible signs of external contamination. Removal of rail cars will occur at night after site operations have ended. UPRR will unlock site gate, remove loaded gondolas, deliver empty gondolas, and then re-lock the site gate. E & E will instruct the site security guard to drive to the Van Houten St. gate to ensure the site gate is locked following UPRR's activities. These activities will likely occur in the middle of the night, therefore, no Wilder or E & E staff will be present.

Agenda Item 4 – Engineer Field Activity

1. Oversight Staffing: One (1) Resident Engineer, two (2) oversight engineers – can be increased to 3 if needed, one (1) field chemist during soil removal. E & E has a full time O & M site manager, however, her time available to soil removal activities is limited (less than 4 hours/week). Total staff presence will range from 5 to 6 people.

2. Soil Sampling/Analysis: E & E will use North Creek Analytical in Portland for 24-hours analysis of soil samples. NCA will pick up samples twice a day (10:00 am and 3:00 PM) from the site. Samples will be screened by NCA first and results will be faxed to the site. Samples with screening results less than the site action levels will have confirmation analysis performed on a 24-hour turn-around basis. Once the laboratory gains experience with the site soil, the results from the screening analysis may meet the requirements for the confirmation analysis. If this performance is attained, the number confirmation samples may be reduced. Analytical results will therefore be available within 24 to 48 hours after pick-up on site.

3. Surveying: E & E will survey each soil sample location, locations will be marked with hubs. If time allows, E & E may assist Wilder with delineation of the extent of excavations.

4. Air Sampling/Health and Safety Monitoring: E & E will perform baseline air sampling starting on 2/22/99. One air-sampling event will be performed during Wilder's excavation activities, most likely during the week of 3/8/99. Air samplers will be placed in areas not affected by the soil removal activities. E & E will monitor for dust with miniRAMs and dataRAMs. Organic vapors will be monitored with PIDs. E & E will inform Wilder of any detections resulting in upgrades of E & E personnel.

5. Vehicle and Debris Decontamination Acceptance: E & E will inspect all vehicles and debris for visible soil. Wilder will perform debris decontamination in the field prior to placement into the haul vehicle. No wipe tests will be performed to confirm decontamination.

6. Shipping Documents: Upon receipt of written authorization from DEQ, E & E will sign shipping documents on behalf of DEQ.

Agenda Item 5 – Current Issues

Disposal Facility/LDRs

Current status – ESI is attempting to obtain an interpretation of the LDRs from EPA headquarters. No further information is available at this time. E & E has collected 9 composite samples from RA12 to provide further data to delineate the quantity of soil the exceeds TCLP limits. Analytical results will be available on Wednesday, 2/24/99.

Wilder was planning on excavating RA12 and RA3 first since these areas contain both F and D listed soil. However, these areas will not be excavated until a rule interpretation is provided by EPA or the analytical results from representative soil samples demonstrate that soil does not exceed the TCLP limits (hence, the D listing would not be needed). In a separate telephone conversation, ESI stated to E & E that they can accept F and D listed soil up to March 19, 1999. After which there is no guarantee that the material will be place into the disposal cell by May 12, 1999. E & E and DEQ will continue to work with ESI and EPA to attain a prompt resolution of this matter, ideally by Friday, February 26, 1999.

Railroad Under Tanks

E & E has submitted a scope of work to Wilder to have the tanks emptied and moved as part of the current site operation and maintenance subcontract.

River Debris

Wilder's subcontractor, Fred Devine Diving and Salvage will evaluate the current conditions and provide recommendations during a subsequent weekly meeting.

Agenda Item 6 – Summary of Action Items

1. E & E – Provide calculations of backfill quantities to Wilder.
2. E & E – Review submittals.
3. Wilder – Continue discussions with UPRR regarding installation of rail switch.
4. All – Weekly meeting scheduled for Tuesday, February 23, 1999, 1:00 PM at the site trailers.

C

Weekly Construction Meeting Minutes

CONTRACTOR'S WEEKLY CONSTRUCTION MEETING

McCormick and Baxter Superfund Site
Soil Excavation, Demolition, and Disposal Project

Meeting No.: 1 Date: February 23, 1999 Time: 1:00 PM

Location: Project Offices

Attendees:

Steve Campbell (SC), Bill Dana (BD) - DEQ
John Montgomery (JM), Kevin Smith (KS) – E&E
Nicole Murray (NM), Joe Spink (JS), Bob Stewart (BS), Pat Turina (PT) - WCC
Steve Welling (SW) – Envirosource

Envirosource Steve Welling presented Envirosources (ESII's) role on this project.

1) 100-150 tarps/liners will arrive on-site Friday.
2) ESII has ordered 295 cars (97-110 ton) and scheduled 13 cars/day with UPRR.
3) Chuck Overman from ESII will be on-site tomorrow and during the first few weeks to facilitate rail car transportation.
4) UPRR will give ESII power of attorney to sign the manifests (manifests will not travel with the rail cars).
5) ESII will coordinate daily with UPRR to track the location of all loaded cars until they reach the Simco Siding (approx 29 miles via truck to Grand View Landfill). ESII will off-load the gondolas at the rail transfer facility in batches into trucks and pups (3 trucks/car). The official weight will be determined at the disposal facility (Grand View Landfill).
6) Free Liquids – paint filter test will be used prior to loading material into cars, if free liquids are encountered WCC will retrieve soils from a drier area of the stockpile.
7) Bulk Treatment – 165 ton ACZA Wood – WCC had planned to load wood debris with soil. SW will verify whether wood debris can be combined with soil.
8) D-List Waste – ESII has asked for a clarification from the EPA concerning the D-list waste. Part of ESII's approval for D-List Waste is a confirmatory analysis for the underlying constituents (organics). ESII will tests for reasonably expected contaminants. Brian Huey of ESII indicated to E&E/WCC that a preliminary drop-dead date of March 19, 1999, for D-list material would apply. WCC to verify.
9) April 24, 1999 is the last day WCC can release cars from the site to ensure disposal at ESII prior to May 12, 1999.

A) **Changes** to last weeks Pre-Construction Meeting Summary:

1) **Agenda Item 2 – Submittals 2.** JS change following sentence, "Wilder submitted the work order to UPRR on February 8, 1999." to read "Wilder cut a check to UPRR on February 4, 1999 and UPRR issued a work order on February 8, 1999."
2) **Agenda Item 2 – Submittals 3.** BD Serious schedule problems would have to exist before Sunday work could be authorized. JS agrees yet WCC would want this option open if necessary.
3) **Agenda Item 3 – General Construction Overview.** Clarification on the fuel tank, WCC will have an 800 gallon fuel truck which will be filled with fuel daily or as needed.

B) **Three (3) week schedule** was presented: (See Attached Schedule)

1) **Creosote Pipe.** SC does not believe the pipe was cleaned. KS will show WCC the low spot to verify if there is liquid.
2) **Existing Stockpiles.** WCC may reserve this material for use as an immediate source to develop a surge pile at the loading area. KS confirmed that this material is not designated to be screened.
3) **Stockpile Pad Soil.** The screening operation to remove cobbles and large rocks will take place at the stockpile soil pad. Since RA 17 is a deep excavation cell, it may also be used as ready source to supplement the load-out stockpile. KS indicated that certain initial one-foot lift areas do not contain large cobbles and will not have to be screened.
4) **Logs at Dock.** An assessment of the debris accumulated in at the creosote dock has to be made by the demolition subcontractor (Devine).

C) **Health & Safety**: WCC will have a site-specific health and safety meeting on the first day activities start on site. A full review of the health and safety plan will be performed. The Site Safety Coordinator is Cheri Moergeli; she will monitor and enforce the health and safety plan.

D) **RFI's:** WCC will use an RFI form for the transmittal of project information. It will not be used for change orders and other formal contract issues.

E) **Submittals:** WCC will submit a gradation and proctor for the backfill material. E&E/DEQ have clarifications on WCC's COP Plan, Schedule, T&D Plan, and CSSP Plan; however nothing which will delay the start of work. WCC submitted 4 copies of the Asbestos Abatement Workplan, which is an addendum to the COP Plan. KS/PT will discuss plan clarifications.

F) **Change Orders:**

N/A

G) **Old Business:**

N/A

H) **New Business:**

1.1 **Expand Parking Area:** WCC proposed moving fence line to expand the parking area. KS said the pavement is part of the support zone and can be used for parking. WCC needs to delineate with orange fence.
1.2 **Site Entrance Road:** This work is not part of the project critical path and WCC will reserve this task as a filler activity. WCC asked what should be done with the accumulated storm water. KS indicated that best efforts to pump water towards the McCormick & Baxter site should be made.
1.3 **Irrigation Pipe:** The existing irrigation pipe must be moved prior to initiation of site work. KS will have WCC move it under the current O&M contract. SC noted that DEQ stated during the pre-bid meeting that it would be out of the contractors way.
1.4 **Remediation Area Drawing:** The excavation cells identified on Drawing 2-1: Initial Excavation Areas (plotted February 11, 1999) are substantially less than what was

presented in the bid documents. WCC requested that a formal transmittal of this drawing be presented. JS/PT feel that this reduction in scope could constitute a change condition, since this represents a substantial reduction of contaminated soil designated for removal as compared to the bid documents. Production rates, equipment selection, railcar commitment and material ordering (i.e. demarcation liner, stockpile pad) were all determined based upon the plan quantity.

1.5 **Backfill Quantity:** WCC will order this in 5600 ton lots. KS/SC/BD if there is extra material can use it to fill low spots. KS will verify size of the hot spots on the new drawing.

1.6 **Concrete:** JS WCC feels there is more concrete than space at RA13 – Central Processing Area. E&E/DEQ the intent is to keep the concrete onsite in one location as much as possible.

1.7 **Survey:** JS E&E offered to do surveying, if so WCC is interested in giving DEQ a credit for this work. KS E&E will probably be able to do it, will look into it.

1.8 **Glue-lam Beams**: KS/SC offered the glue-lams to WCC (make them disappear).

1.9 **Scale:** WCC can use material on-site to fill the scale hole. Effort to remove components in vault not included in bid.

1.10 **Equipment**: DEQ/E&E authorized WCC to move the equipment onsite prior to work starting to allow for space within the office trailer/parking area.

1.11 **Excavation Grade:** KS E&E will give WCC a hub at each remediation area, giving the grade elevation to cut to. The tolerance will be ± 0.1' (± 1/10th – foot)

Next meeting March 2, 1999 at 1:00 in the WCC's project office.

Wilder Construction Company

MCCORMICK & BAXTER CREOSOTING CO

1999

Short Interval (3 Week) Schedule

R047

February: 22 23 24 25 26 | March: 1 2 3 4 5 8 9 10 11 12

Activity	Comments
UPRR - Install Switch	
Condon Bros - Revamp 1800 LF/ Tie-In to UPRR	
Protect Monitoring Wells	
Revamp Sump at Decon Pad	
Grade / Install Sump for Stockpile Pad	
Place Geocomposite / Rockbase for Stockpile Pad	
Pave Stockpile Pad	
Set-up Stockpile Pad - (Truck Ramp, Eco-Blocks, Screen)	Loading
Excavate & Screen Mat'l - (RA 1, 2, 6, 7, 17, 8, 9, 10)	March 19, 1999 - D-Waste Drop Dead Date April 24, 1999 - Last Rail Car Release; Start Loading Rail Cars 3/3/99
Demo 8" Creosote Pipe	
Demo Storm Water Pipe	Remnants to be Demo'd during Hot Spot Exc
Demo Concrete Structures w/ Breaker 30%	
Expose / Demo Pilings 70%	
Demo Poly Tanks	
Demo - Office Building, Lab, & Scale House	
Lincoln Cristi - Office Building Asbestos Abatement / PCB Ballast Removal	
Condon Bros - Track Removal	
Fred Devine - Demo Log Loader and Creosote Dock	

Planned Float Actual

Unscheduled Work

Utility Locates	
Disconnect Power at Lab	
	Onsite Working Days Start February 25, 1999

McCormick and Baxter Superfund Site
Soil Excavation, Demolition, and Disposal Project
Project Directory

Oregon Department of Environmental Quality
Site Response Section
811 SW Sixth Ave.
Portland, OR 97204

Name	Title	Office Phone/Fax	Cellular Phone	Home Phone
Steve Campbell	ODEQ Contract Specialist	503-229-5860 503-229-6977 Fax		
Bill Dana	ODEQ Project Manager	503-229-6530 503-229-5830 Fax		
Al Goodman	EPA Senior Project Manager	503-326-3685 503-326-3399 Fax		

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999 Third Avenue
Seattle, WA 98104

(206) 624-9537
(206) 621-9832 Fax
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Name	Title	Office Phone/Fax	Cellular Phone	Home Phone
John Montgomery	Project Manager	503-248-5600 503-248-5577 Fax		503-452-1770
Kevin Smith	Resident Engineer	206-624-9537 206-621-9832		206-706-1897
Roger Culleton	Resident Engineer	206-624-9537 206-621-9832		

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Name	Title	Office Phone/Fax	Cellular Phone	Home Phone
Karl Yost	Environmental Division Manager	425-551-3100 425-551-3118 Fax	425-508-3230	
Carol Chonzena	Contract Administrator	425-551-3100 425-551-3116 Fax		
Kelcie Sheriff	Human Resources	425-551-3100 425-551-3116 Fax		
Mark Riem	Branch Manager	503-255-1444 503-255-1995 Fax	503-793-8170	360-254-5081
Joe Spink	Project Manager	425-865-9522 425-865-9733 Fax	425-508-4017	425-828-0756
Pat Turina	Project Coordinator	503-285-8007 503-285-8782 Fax 503-237-3494 pager	503-849-5250 503-307-5915	503-288-3412
Nicole Murray	Project Engineer	503-285-8007 503-285-8782 Fax	425-508-3234	503-493-0855
Bob Stewart	Project Superintendent	503-285-8007 503-285-8782 Fax	425-508-2993	
Cheri Moergeli	Site Safety Coordinator	503-285-8007 503-285-8782 Fax	425-508-7857	
Mike Cabe	Project Foreman	503-285-8007 503-285-8782 Fax	425-508-3240	

CONTRACTOR'S WEEKLY CONSTRUCTION MEETING

McCormick and Baxter Superfund Site
Soil Excavation, Demolition, and Disposal Project

Meeting No.: 2 Date: March 2, 1999 Time: 1:00 PM

Location: Project Offices

Attendees:

Steve Campbell (SC), Bill Dana (BD), Paul Slyman (PS) - DEQ
John Montgomery (JM), Kevin Smith (KS) – E&E
Nicole Murray (NM), Mark Riem (MR), Bob Stewart (BS), Pat Turina (PT) - WCC

A) **Changes** to last weeks Meeting 1 Summary:

1) **To Be Discussed at Meeting 2.**

B) **Three (3) week schedule** was presented: (See Attached Schedule)

1) **Progress.** Stock pile pad built and paved, concrete demo is 30 % complete, piling demo 70% complete (5-6 ft deep some piling have 36" CMP filled with concrete which are 8-10 ft long). Condon has removed some track to facilitate haul routes (track decon has not begun). Lincoln Cristi began asbestos removal. Creosote line demo'd – drilled pipe at valve pits, some bubbling at the creosote tank/tank farm area (KS will go as haz waste). Concrete storm water pipe was demo'd into 1 ft minus pieces and mixed with backfill (KS got pictures). KS is happy with WCC's progress on the schedule.

C) **Health & Safety**: KS indicated WCC's decon procedure has been acceptable, however as a house keeping issue WCC must keep the decon pad area visually clean (ingress soil tracks). KS said there has not been visual dust. PT confirmed Cheri has not received any hits on the PID. KS indicated that the perimeter air monitoring is okay. PT indicated that WCC will have an individual dedicated to decon during periods of frequent truck traffic.

D) **RFI's:** WCC's subcontractor sampled the mastic in the office building upper floor. Sample results indicate the mastic contains asbestos. WCC will issue an RFI and forward the information to DEQ (subcontractor's raw cost is approximately $7,000). BD would like to see a price for cutting the pilings off at the mud-line from Devine Salvage.

E) **Submittals:**

N/A

F) **Change Orders:**

N/A

G) **Old Business:**

1.2 **Site Entrance Road:** This work is not part of the project critical path and WCC will reserve this task as a filler activity. WCC asked what should be done with the accumulated storm water. KS indicated that best efforts to pump water towards the McCormick & Baxter site should be made.

3/2 – KS checking into a rolling window, now need to give 72 hr notification to UPRR.

1.4 **Remediation Area Drawing:** The excavation cells identified on Drawing 2-1: Initial Excavation Areas (plotted February 11, 1999) are substantially less than what was presented in the bid documents. WCC requested that a formal transmittal of this drawing be presented. JS/PT feel that this reduction in scope could constitute a change condition, since this represents a substantial reduction of contaminated soil designated for removal as compared to the bid documents. Production rates, equipment selection, railcar commitment and material ordering (i.e. demarcation liner, stockpile pad) were all determined based upon the plan quantity.

3/2 – KS the initial excavation area will be approximately 62% of plan bid quantity. E&E/DEQ will keep working with WCC on quantity reduction.

closed 1.5 **Backfill Quantity:** WCC will order this in 5600 ton lots. KS/SC/BD if there is extra material can use it to fill low spots. KS will verify size of the hot spots on the new drawing.

3/2 – WCC received message from E&E/DEQ authorizing import of the planned bid quantity for backfill.

closed 1.6 **Concrete:** JS WCC feels there is more concrete than space at RA13 – Central Processing Area. E&E/DEQ the intent is to keep the concrete onsite in one location as much as possible.

3/2 – KS E&E surveyed every slab using a backhoe to see depth (6" – 1') and multiplied by the SF on the drawings. The SF should be reasonably accurate; the only variable is the depth. KS envisioned that not all the concrete would fit in the retort pits. WCC will provide a price for crushing concrete.

closed 1.7 **Survey:** JS E&E offered to do surveying, if so WCC is interested in giving DEQ a credit for this work. KS E&E will probably be able to do it, will look into it.

3/2 – WCC to provide $5,300 credit for all of the survey work.

H) New Business:

2.1 **Radial Stacker:** PT WCC will use a radial stacker for the import material from the barge. MR this will allow for keeping the material away from the toe of the slope.

closed ~~2.2~~ **Lab / Shop Road Rock:** KS WCC can utilize the rock on the roads which goes to the lab and shop. JM utilize the lab material first.

X 2.3 **Railroad Ties:** PT Condon Bros proposed taking the intact railroad ties to their Chehallis yard which is designated for industrial use only as a no cost change to DEQ. SC concerned that this is a Superfund Site and does not want the ties to end up in somebody's yard. KS/BD didn't see a problem as long as the ties were clean (reuse rather than landfill). WCC will need a decision by the end of the week. KS/SC agreed this would be appropriate with a letter from Condon. E&E will inspect prior to release from the site.

NEED MORE INFO

2.4 **Wood at the Rail Tracks:** KS WCC needs to weed through for the bigger wood (1-2 feet). KS will direct WCC.

2.5 **Concrete Piling:** PT there is piling which has a significant amount of concrete. WCC will inventory the piling.

2.6 **Storm Water Covers:** KS will use discretion on the requirement of storm water covers.

DELODE WASTE

2.7 ~~Sample D~~**ata:** KS the soil in RA-12 does not exhibit toxic characteristics which conflicts with the original data (original data was bias grab samples). RA-12 will be part of the Variance Soil F032, F034, & F035 waste stream (E&E to issue a letter and the data). RA-3 still is a problem and carries the D-Code (Arsenic). BD will pursue a letter from EPA about the D-Code. KS will look into the cost and turn around time for the 8270 test. WCC will discuss the March 19 date with ESII for the D-Code soil waste stream.

CLOSED 2.8 **Site Gate:** KS the site gate was left unlocked last Friday. The security guard will lock the gate at 5:00 PM all parties to lock gate when come in and out after 5:00 PM.

CLOSED 2.9 **Work Hours:** WCC intends to work 7:00 – 3:30 (or until rail cars are ready for release), Condon working 4-10 hour days.

CLOSED 2.10 **Public Interaction:** SC questioned if there has been any public interaction. None, just joggers along rail track.

Next meeting March 9, 1999 at 1:00 in the WCC's project office.

Wilder Construction Company

MCCORMICK & BAXTER CREOSOTING CO

1999

Short Interval (3 Week) Schedule

R047

Activity	February 22	23	24	25	26	March 1	2	3	4	5	8	9	10	11	12	Comments
UPRR - Install Switch																
Condon Bros - Revamp 1800 LF/ Tie-In to UPRR																
Protect Monitoring Wells																
Revamp Sump at Decon Pad																
Grade / Install Sump for Stockpile Pad																
Place Geocomposite / Rockbase for Stockpile Pad																
Pave Stockpile Pad																
Set-up Stockpile Pad - (Truck Ramp, Eco-Blocks, Screen)																
Excavate & Screen Mat'l - (RA 1, 2, 6, 7, 17, 8, 9, 10)																March 19, 1999 - D-Waste Drop Dead Date April 24, 1999 - Last Rail Car Release; Start Loading Rail Cars 3/4/99
Demo 8" Creosote Pipe																
Demo Storm Water Pipe																Remnants to be Demo'd during Hot Spot Exc
Demo Concrete Structures w/ Breaker																
Expose / Demo Pilings																
Demo Poly Tanks																
Demo - Office Building, Lab, & Scale House																
Lincoln Cristi - Office Building Asbestos Abatement / PCB Ballast Removal																
Condon Bros - Track Removal																
Fred Devine - Demo Log Loader and Creosote Dock																

Planned Float Actual

Unscheduled Work

Utility Locates																
Disconnect Power at Lab																
																Onsite Working Days Start February 25, 1999

3/2/99

CONTRACTOR'S WEEKLY CONSTRUCTION MEETING

McCormick and Baxter Superfund Site
Soil Excavation, Demolition, and Disposal Project

Meeting No.: 3 Date: March 9, 1999 Time: 1:00 PM

Location: Project Offices

Attendees:
Steve Campbell (SC), Bill Dana (BD) - DEQ
Roger Culleton (RC), John Montgomery (JM), Kevin Smith (KS) – E&E
Nicole Murray (NM), Mark Riem (MR), Joe Spink (JS), Bob Stewart (BS), Pat Turina (PT) - WCC

A) **No Changes** to the last two weeks Meeting 1 & 2 Summary.

B) **Three (3) week schedule** was presented: (See Attached Schedule)

1) **Progress.** Rail Removal 40% Complete, Asbestos Abatement Complete 3/8/99, Load Out of 13 cars a day starting 3/5, 3/6, 3/8... to continue (if WCC can get cars Saturday's, WCC will load cars). KS does not want Devine to pull out the piling because it will release sheen, need to minimize sediment disturbance. If there is sheen E&E will stop work and evaluate the situation. PT Devine will provide pricing to cut the piling at the mudline.

C) **Health & Safety**: KS 2 ~~μg~~ mg/m^3 action level, 0.3 highest spike Saturday at the stockpile area (10 ppm right at soil and in bucket). No injuries.

D) **RFI's:** RFI#1 - CO#1, RFI#2 – CO#2, RFI#3&4 - WCC to submit more detailed price. KS Condon can determine which ties are salvageable, however E&E needs a count of the salvageable ties. RFI#5 – SC DEQ does not want to proceed with this work. KS bury concrete in RA-13B and RA-13A.

E) **Submittals:** Submittal #001A - PT submitted the revised workplan today. No further revisions will be required.

F) **Change Orders:** SC has CO#1&2 ready for WCC signature.

G) **Old Business:**

1.2 **Site Entrance Road:** This work is not part of the project critical path and WCC will reserve this task as a filler activity. WCC asked what should be done with the accumulated storm water. KS indicated that best efforts to pump water towards the McCormick & Baxter site should be made.

3/2 – KS checking into a rolling window, now need to give 72 hr notification to UPRR.

3/9 – KS still needs to check on notification. JS road work will happen after the demo work is complete. KS should add filter fabric below rock. WCC to provide price for fabric installation.

1.4 **Remediation Area Drawing:** The excavation cells identified on Drawing 2-1: Initial Excavation Areas (plotted February 11, 1999) are substantially less than what was presented in the bid documents. WCC requested that a formal transmittal of this drawing be presented. JS/PT feel that this reduction in scope could constitute a change condition, since this represents a substantial reduction of contaminated soil designated for removal as compared to the bid documents. Production rates, equipment selection, railcar commitment and material ordering (i.e. demarcation liner, stockpile pad) were all determined based upon the plan quantity.

3/2 – KS the initial excavation area will be approximately 62% of plan bid quantity. E&E/DEQ will keep working with WCC on quantity reduction.

3/9 – JS will forward a letter addressing WCC's concerns with plan quantity versus initial excavation (WCC built an 800TN - Class B Stockpile pad based on plan quantity.

2.1 **Radial Stacker:** PT WCC will use a radial stacker for the import material from the barge. MR this will allow for keeping the material away from the toe of the slope.

3/9 – WCC will have a mechanic out on 3/15/99 to setup the stacker.

2.3 **Railroad Ties:** PT Condon Bros proposed taking the intact railroad ties to their Chehallis yard which is designated for industrial use only as a no cost change to DEQ. SC concerned that this is a Superfund Site and does not want the ties to end up in somebody's yard. KS/BD didn't see a problem as long as the ties were clean (reuse rather than landfill). WCC will need a decision by the end of the week. KS/SC agreed this would be appropriate with a letter from Condon. E&E will inspect prior to release from the site.

3/9 – WCC will provide pricing to decon ties; dependent upon number quantity and condition.

2.5 **Concrete Piling:** PT there is piling which has a significant amount of concrete. WCC will inventory the piling.

3/9 – PT 30 piling at 4 ton. KS put back in concrete hole; decon not required.

2.6 **Storm Water Covers:** KS will use discretion on the requirement of storm water covers.

3/9 – KS intermittent rain, no need for covers storm water is draining well.

2.7 **D-Code Waste:** KS the soil in RA-12 does not exhibit toxic characteristics which conflicts with the original data (original data was bias grab samples). RA-12 will be part of the Variance Soil F032, F034, & F035 waste stream (E&E to issue a letter and the data). RA-3 still is a problem and carries the D-Code (Arsenic). BD will pursue a letter from EPA about the D-Code. KS will look into the cost and turn around time for the 8270 test. WCC will discuss the March 19 date with ESII for the D-Code soil waste stream.

3/9 – BD is talking with Lee at ESII, expects to receive a letter "Capacity Variance Supercedes Amendment".

H) New Business:

3.1 **Scrap Steel:** PT Thursday the scrap steel is scheduled to go off-site (storm water pipe, evap. tank).

3.2 **Drums:** PT WCC started moving the drums today.

3.3 **Remedial Areas:** KS okay to backfill RA2, RA6, and RA8.

I) Partnering: E&E/WCC working well in the field.

Next meeting March 16, 1999 at 1:00 in the WCC's project office.

Wilder Construction Company

MCCORMICK & BAXTER CREOSOTING CO

1999

Short Interval (3 Week) Schedule

R047

March

Activity	1	2	3	4	5	6	8	9	10	11	12	13	15	16	17	18	19	Comments
UPRR - Install Switch																		
Condon Bros - Revamp 1800 LF/ Tie-In to UPRR																		
UPRR / ODOT Additional Work for Rail Rehab.																		
Pave Stockpile Pad																		
Set-up Stockpile Pad - (Truck Ramp, Eco-Blocks, Screen)																		
Excavate & Screen Mat'l -																		March 19, 1999 - D-Waste Drop Dead Date April 24, 1999 - Last Rail Car Release; Start Loading Rail Cars 3/4/99
Demo 8" Creosote Pipe																		
Demo Storm Water Pipe																		
Demo Concrete Structures w/ Breaker																		
Expose / Demo Pilings																		
Demo Poly Tanks																		
Demo - Office Building, Lab, & Scale House																		
Lincoln Cristi - Office Building Asbestos Abatement																		
Lincoln Cristi - Office Building Mastic Removal																		
Condon Bros - Track Removal																		
Fred Devine - Demo Log Loader and Creosote Dock																		

Planned Float Actual

Unscheduled Work

Disconnect Power at Lab																		
Relocate and Process Drums																		
PCB Ballast Removal																		
																		Onsite Working Days Start February 25, 1999

3/9/99

CONTRACTOR'S WEEKLY CONSTRUCTION MEETING

McCormick and Baxter Superfund Site
Soil Excavation, Demolition, and Disposal Project

Meeting No.: 4 Date: March 16, 1999 Time: 1:00 PM

Location: Project Offices

Attendees:

Steve Campbell (SC), Bill Dana (BD) - DEQ
Roger Culleton (RC), John Montgomery (JM), Kevin Smith (KS) – E&E
Nicole Murray (NM), Joe Spink (JS), Bob Stewart (BS), Pat Turina (PT) – WCC
JH "Mick" Leitz (Mick) – Devine

A) **Changes** to last weeks Meeting 4 Summary:

1) **Agenda Item C - Health & Safety**: KS change 2 $\mu g/m^3$ action level to read "2 mg/m^3".

2) **Agenda Item D – RFI's:** NM change RFI#5 to read "Serial Letter 002 and 002a"

B) **Three (3) week schedule** was presented: (See attached schedule)

1) **Progress.** Condon is 65% complete with rail removal; WCC demolition activities should be complete today; soil excavation to be complete by middle to end of next week (unless remediation areas grow).

C) **Health & Safety**: KS continues to be no hits unless the instrument is placed near soil surface. No injuries or accidents to report. Devine performed log loader demolition work safely.

D) **RFI Log was presented.** RFI#3a – Condon Bros worked late into night, which required supervision by WCC. Need to keep signs up until project is complete, then ODOT needs to be called to approve removal of the signs; the gate will have to be repositioned. RFI#5 – WCC will do more research on landfill disposal options for non-hazardous material.

E) **Submittal Log was presented.** KS all submittals provided to date have been approved; E&E will sign and return to WCC.

F) **Change Order Log was presented.** JS revised the force account rates to reflect 40% on standby. SC looks good will send an e-mail to verify. RA-17 Concrete Sizing - WCC would like to do this work next week (See Serial Letter 005 for pricing). Decision needed by Friday so sizing operation can commence. Rubble to be worked in with soil load-out next week.

G) **Old Business:**

1.2 **Site Entrance Road:** This work is not part of the project critical path and WCC will reserve this task as a filler activity. WCC asked what should be done with the

accumulated storm water. KS indicated that best efforts to pump water towards the McCormick & Baxter site should be made.

3/2 – KS checking into a rolling window, now need to give 72 hr notification to UPRR.

3/9 – KS still needs to check on notification. JS road work will happen after the demo work is complete. KS should add filter fabric below rock. WCC to provide price for fabric installation.

3/16 – KS UPPR wants a firm date with 72-hour notice. BS railcars are the priority; road repair to be one of WCC's last activities.

1.4 **Remediation Area Drawing:** The excavation cells identified on Drawing 2-1: Initial Excavation Areas (plotted February 11, 1999) are substantially less than what was presented in the bid documents. WCC requested that a formal transmittal of this drawing be presented. JS/PT feel that this reduction in scope could constitute a change condition, since this represents a substantial reduction of contaminated soil designated for removal as compared to the bid documents. Production rates, equipment selection, railcar commitment and material ordering (i.e. demarcation liner, stockpile pad) were all determined based upon the plan quantity.

3/2 – KS the initial excavation area will be approximately 62% of plan bid quantity. E&E/DEQ will keep working with WCC on quantity reduction.

3/9 – JS will forward a letter addressing WCC's concerns with plan quantity versus initial excavation (WCC built an 800TN - Class B Stockpile pad based on plan quantity.

3/16 – JS F-Waste doesn't look to be a problem if hit 75% of plan quantity, D-Waste if only 100 TN will be an impact at the disposal site.

2.3 **Railroad Ties:** PT Condon Bros proposed taking the intact railroad ties to their Chehallis yard which is designated for industrial use. SC concerned that this is a Superfund Site and does not want the ties to end up in somebody's yard. KS/BD didn't see a problem as long as the ties were clean (reuse rather than landfill). WCC will need a decision by the end of the week. KS/SC agreed this would be appropriate with a letter from Condon. E&E will inspect prior to release from the site.

3/9 – WCC will provide pricing to decon ties; dependent upon number quantity and condition.

3/16 – PT will get a letter from Condon. RC E&E has dedicated oversight to this work. KS Condon has been able to salvage quite a lot of the ties.

2.5 **Concrete Piling:** PT there is piling which has a significant amount of concrete. WCC will inventory the piling.

3/9 – PT 30 piling at 4 ton each. KS put back in concrete hole; decon not required.

3/16 – BS most of the concrete piles have been placed in RA13-B. WCC will water jet backfill to fill voids.

2.7 **D-Code Waste:** KS the soil in RA-12 does not exhibit toxic characteristics which conflicts with the original data (original data was bias grab samples). RA-12 will be part of the Variance Soil F032, F034, & F035 waste stream (E&E to issue a letter and the data). RA-3 still is a problem and carries the D-Code (Arsenic). BD will pursue a letter from EPA about the D-Code. KS will look into the cost and turn around time for the 8270 test. WCC will discuss the March 19 date with ESII for the D-Code soil waste stream.

3/9 – BD is talking with Lee at ESII, expects to receive a letter "Capacity Variance Supercedes Amendment".

3/16 – BD continues to expect a letter. JS if WCC is finished with the excavation did not foresee sitting around for a month (waiting for the D-Code Letter), KS did not anticipate this either.

3.1 **Scrap Steel:** PT Thursday the scrap steel is scheduled to go off-site (storm water pipe, evap. tank).

3/16 – BS approximately 2 more loads; will be completed by end of the week.

3.2 **Drums:** PT WCC started moving the drums today.

3/16 – BS 3 more drums to load out with the soil. PT The number of drums (carbon, asbestos, drill cuttings) exceeds the quantity identified in the plans.

3.3 **Remedial Areas:** KS okay to backfill RA2, RA6, and RA8.

3/16 – KS okay to backfill RA9, RA11, RA13-B (large) and RA13-B (small).

H) New Business:

4.1 **Marine Demolition:** Mick the debris and rubbish needs to be moved prior to the creosote dock demo. The maritime standard procedure is to release the wood material back onto the river. Devine gave WCC a price to release wood material within 3.5 days and try to pull out the garbage (tires, drums, styrofoam, etc). Currently the debris lay-down barge is on rent. The piling will be cut with pneumatic/hydraulic chainsaws at the mudline. SC what % would we add to the debris currently in the river. Mick estimates approximately 1%. E&E to contact ACOE to verify/inquire about receiving approval for releasing the debris.

4.2 **RA-12 Excavation Depth:** JS the plan excavation depth is 4 feet maximum at RA-12, however E&E/ODEQ directed WCC to excavate deeper. Need confirmation that there is no concern with the original samples at 4 feet and deeper carrying a D-list code. WCC is working at the direction of E&E/ODEQ. KS no conflict since RA-12 was shown to carry only F-List Waste with the recent vertical composite sampling performed by E&E.

4.3 **ESII Visit:** BD Idaho DEQ inspected the ESII facility last week which was determined to be in compliance; no reason for ODEQ to make a site visit. JS not planning to go there unless ODEQ is going.

I) Partnering: E&E/WCC working well together in the field.

Next meeting March 23, 1999 at 1:00 in the WCC's project office.

CONTRACTOR'S WEEKLY CONSTRUCTION MEETING

McCormick and Baxter Superfund Site
Soil Excavation, Demolition, and Disposal Project

Meeting No.: 5 Date: March 23, 1999 Time: 1:00 PM

Location: Project Offices

Attendees:

Steve Campbell (SC), Bill Dana (BD) – DEQ
Alan Goodman (AG) - EPA
Roger Culleton (RC), Kevin Smith (KS) – E&E
Nicole Murray (NM), Mark Riem (MR), Bob Stewart (BS), Pat Turina (PT) – WCC

A) **No Changes** to last weeks Meeting 4 Summary:

B) **Three (3) week schedule** was presented: (See attached schedule)

1) **Progress.** Condon is 75% complete with rail removal; Railcar load-out interrupted due to 3 cars derailing Monday evening. UPRR to re-rail cars and Condon to repair track.

C) **Health & Safety**: BS WCC went into Level C at RA-17 & RA-18 (not required – no elevated readings, but very strong odor). No injuries or accidents to report. RA-15 & RA-16 were very dusty and required water spray.

D) **RFI Log was presented.**

E) **Submittal Log was presented.** KS all submittals provided to date have been approved; E&E will sign and return to WCC. Submittal 005 – Permanent Fencing submitted to E&E.

F) **Change Order Log was presented.** SC has CO#3,4,&5 ready for WCC signature. SC received Pay Estimate #1 and will process it for payment.

G) **Old Business:**

1.4 **Remediation Area Drawing:** The excavation cells identified on Drawing 2-1: Initial Excavation Areas (plotted February 11, 1999) are substantially less than what was presented in the bid documents. WCC requested that a formal transmittal of this drawing be presented. JS/PT feel that this reduction in scope could constitute a change condition, since this represents a substantial reduction of contaminated soil designated for removal as compared to the bid documents. Production rates, equipment selection, railcar commitment and material ordering (i.e. demarcation liner, stockpile pad) were all determined based upon the plan quantity.

3/2 – KS the initial excavation area will be approximately 62% of plan bid quantity. E&E/DEQ will keep working with WCC on quantity reduction.

3/9 – JS will forward a letter addressing WCC's concerns with plan quantity versus initial excavation (WCC built an 800TN - Class B Stockpile pad based on plan quantity.

3/16 – JS F-Waste doesn't look to be a problem if hit 75% of plan quantity, D-Waste if only 100 TN will be an impact at the disposal site.

3/23 – PT current projection is 20,000 ton. RC based on samples there are areas which could go greater than 4 feet deep. ODEQ/E&E will look at this after the meeting. KS original excavation volume estimate was 15,500 cy; estimate to date of material removed is 10,300 cy.

2.3 **Railroad Ties:** PT Condon Bros proposed taking the intact railroad ties to their Chehalis yard which is designated for industrial use. SC concerned that this is a Superfund Site and does not want the ties to end up in somebody's yard. KS/BD didn't see a problem as long as the ties were clean (reuse rather than landfill). WCC will need a decision by the end of the week. KS/SC agreed this would be appropriate with a letter from Condon. E&E will inspect prior to release from the site.

3/9 – WCC will provide pricing to decon ties; dependent upon number quantity and condition.

3/16 – PT will get a letter from Condon. RC E&E has dedicated oversight to this work. KS Condon has been able to salvage quite a lot of the ties.

3/23 – PT proposed value engineering, split savings with ODEQ. KS/SC would like a break down for Transportation and Disposal as discussed previously.

2.7 **D-Code Waste:** KS the soil in RA-12 does not exhibit toxic characteristics which conflicts with the original data (original data was bias grab samples). RA-12 will be part of the Variance Soil F032, F034, & F035 waste stream (E&E to issue a letter and the data). RA-3 still is a problem and carries the D-Code (Arsenic). BD will pursue a letter from EPA about the D-Code. KS will look into the cost and turn around time for the 8270 test. WCC will discuss the March 19 date with ESII for the D-Code soil waste stream.

3/9 – BD is talking with Lee at ESII, expects to receive a letter "Capacity Variance Supercedes Amendment".

3/16 – BD continues to expect a letter. JS if WCC is finished with the excavation did not foresee sitting around for a month (waiting for the D-Code Letter), KS did not anticipate this either.

3/23 – BD/AG have received a draft letter from EPA. AG the Idaho DEQ looks to be more favorable to get a letter than the EPA. PT WCC needs a decision on Friday, at the latest next Wednesday if excavation areas are to be increased.

3.2 **Drums:** PT WCC started moving the drums today.

3/16 – BS 3 more drums to load out with the soil. PT The number of drums (carbon, asbestos, drill cuttings) exceeds the quantity identified in the plans.

3.3 **Remedial Areas:** KS okay to backfill RA2, RA6, and RA8.

3/16 – KS okay to backfill RA9, RA11, RA13-B (large) and RA13-B (small).

4.1 **Marine Demolition:** Mick the debris and rubbish needs to be moved prior to the creosote dock demo. The maritime standard procedure is to release the wood material back onto the river. Devine gave WCC a price to release wood material within 3.5 days and try to pull out the garbage (tires, drums, styrofoam, etc). Currently the debris lay-down barge is on rent. The piling will be cut with pneumatic/hydraulic chainsaws at the mudline. SC what % would we add to the debris currently in the river. Mick estimates approximately 1%. E&E to contact ACOE to verify/inquire about receiving approval for releasing the debris.

400 Tons Logg lo[illegible] piles DOCK

3/23 – PT debris removal close to completion by today. RC was comfortable with the release rate; no apparent hazard caused by debris release operations; it appeared as if more material was coming back in. KS pilings near bank by log loader do not have to be cut at the mud-line.

H) New Business:

5.1 **Monitoring Wells:** RC/KS there will need to be bentonite added to the exposed wells in RA-12. RC appears to be approximately 3 monitoring wells which were disturbed during construction activities.

I) Partnering: E&E/WCC working well together in the field.

Next meeting March 30, 1999 at 1:00 in the WCC's project office.

CONTRACTOR'S WEEKLY CONSTRUCTION MEETING

McCormick and Baxter Superfund Site
Soil Excavation, Demolition, and Disposal Project

Meeting No.: 6 Date: March 30, 1999 Time: 1:00 PM

Location: Project Offices

Attendees:

Steve Campbell (SC) – DEQ
John Montgomery (JM), Kevin Smith (KS) – E&E
Nicole Murray (NM), Mark Riem (MR), Joe Spink (JS), Bob Stewart (BS), Pat Turina (PT) – WCC

A) **No Changes** to last weeks Meeting 5 Summary:

B) **Three (3) week schedule** was presented: (See attached schedule)

1) **Progress.** F-Soil Cars through Sat 202; (11 Mon and 13 today) and 3 AZCA Wood; Excavation should be complete Fri; Condon began rail decon Mon and rail remains to be removed (section by dock, decon station, spur, baker tank). Devine demo'd creosote dock Fri and cut 21 piles on Mon.

C) **Health & Safety**: No injuries or accidents to report. No visible dust; no hits from PID instrument.

D) **RFI Log was presented.** RFI#7a was submitted today (pay rate for RR tie handling and salvage).

E) **Submittal Log was presented.** KS returned Submittals #1A, 4, & 5 approved, Submittal #2 incorporated as an addendum to the Workplan approved.

F) **Change Order Log was presented.** SC has CO#6&7 ready for WCC signature.

G) **Old Business:**

2.7 **D-Code Waste:** KS the soil in RA-12 does not exhibit toxic characteristics which conflicts with the original data (original data was bias grab samples). RA-12 will be part of the Variance Soil F032, F034, & F035 waste stream (E&E to issue a letter and the data). RA-3 still is a problem and carries the D-Code (Arsenic). BD will pursue a letter from EPA about the D-Code. KS will look into the cost and turn around time for the 8270 test. WCC will discuss the March 19 date with ESII for the D-Code soil waste stream.

3/9 – BD is talking with Lee at ESII, expects to receive a letter "Capacity Variance Supercedes Amendment".
3/16 – BD continues to expect a letter. JS if WCC is finished with the excavation did not foresee sitting around for a month (waiting for the D-Code Letter), KS did not anticipate this either.

3/23 – BD/AG have received a draft letter from EPA. AG the Idaho DEQ looks to be more favorable to get a letter than the EPA. PT WCC needs a decision on Friday, at the latest next Wednesday if excavation areas are to be increased.
3/30 – BS plans to direct load the D-list soil to minimize handling at the stockpile. KS estimates D-list soil at 700-800 ton. SC will have a determination regarding D-list soil removal by tomorrow morning (decision-making has been elevated to senior level ODEQ and EPA).

3.3 **Remedial Areas:** KS okay to backfill RA2, RA6, and RA8.
3/16 – KS okay to backfill RA9, RA11, RA13-B (large) and RA13-B (small).
3/30 – KS okay to backfill RA1, RA4, RA7, RA10, RA13-A, RA15, and RA16.

5.1 **Monitoring Wells:** RC/KS there will need to be a bentonite seal added to some of the exposed wells in RA-12. RC appears to be approximately 3 monitoring wells which were disturbed during construction activities.
3/30 – BS work to be completed at end of job (in approx 3 weeks).

H) New Business:

6.1 **Marine Demolition.** PT Devine has cut 21 piles to date; SC they are authorized to cut additional piles (above the 46 base quantity) as they are encountered. cut 65 piles

6.2 **RA-3:** JS April 17, 1999 is the last day allowed for shipment/load-out of D-list soil to ensure disposal at ESII.

6.3 **Working Sunday's:** JS asked whether off loading barges on Sunday is allowable. SC/KS there was not any discussion about notification for Sunday work at the last community meeting. JS will notify/inquire BD about Sunday work and extra work hours to facilitate barge off load. yes - Barge off load only - no onesite working day will be Co

6.4 **Punchlist:** KS needs to go through it with BS. JS concerned about additional time for this work. SC recognizes this is additional work, WCC will wait to ask for additional workdays as deemed appropriate.

6.5 **Asphalt:** KS likes the idea of recycling asphalt material from the stockpile pad. SC will talk to BD about placement in retort pits. JS WCC is willing to offer credit to ODEQ if material can be placed on-site; additionally ODEQ would receive this material as backfill at no cost. WCC will also examine the feasibility of grinding the asphalt for use on the site access road.

I) Partnering: E&E/WCC working well together in the field.

Next meeting April 6, 1999 at 1:00 in the WCC's project office.

CONTRACTOR'S WEEKLY CONSTRUCTION MEETING

McCormick and Baxter Superfund Site
Soil Excavation, Demolition, and Disposal Project

Meeting No.: 7 Date: April 6, 1999 Time: 1:00 PM

Location: Project Offices

Attendees:

Steve Campbell (SC), Bill Dana (BD) – DEQ
John Montgomery (JM), Kevin Smith (KS) – E&E
Nicole Murray (NM), Joe Spink (JS), Bob Stewart (BS) – WCC

A) **No Changes** to last weeks Meeting 6 Summary:

B) **Three (3) week schedule** was presented: (See attached schedule)

1) **Progress.** 296 Cars Total through today (283 F-Soil, 10 D-Soil and 3 AZCA Wood); Condon continues to decon rail; Devine has loaded out some of the dock demo material for landfill disposal; 65 piles total (46 included/19 additional).

C) **Health & Safety**: No injuries or accidents to report. No visible dust; no hits from PID instrument. KS – RA-3 there was a UST found (E&E sampled it today).

D) **RFI Log was presented.** RFI#8 was submitted Monday (Marine demolition debris disposal - landfill change). WCC received email from SC approving Hillsboro for Marine Debris.

E) **Submittal Log was presented.**

F) **Change Order Log was presented.** SC has CO#4Revised,8,9,10&11 ready for WCC signature.

G) **Old Business:**

2.7 **D-Code Waste:** KS the soil in RA-12 does not exhibit toxic characteristics which conflicts with the original data (original data was bias grab samples). RA-12 will be part of the Variance Soil F032, F034, & F035 waste stream (E&E to issue a letter and the data). RA-3 still is a problem and carries the D-Code (Arsenic). BD will pursue a letter from EPA about the D-Code. KS will look into the cost and turn around time for the 8270 test. WCC will discuss the March 19 date with ESII for the D-Code soil waste stream.

3/9 – BD is talking with Lee at ESII, expects to receive a letter "Capacity Variance Supercedes Amendment".
3/16 – BD continues to expect a letter. JS if WCC is finished with the excavation did not foresee sitting around for a month (waiting for the D-Code Letter), KS did not anticipate this either.

3/23 – BD/AG have received a draft letter from EPA. AG the Idaho DEQ looks to be more favorable to get a letter than the EPA. PT WCC needs a decision on Friday, at the latest next Wednesday if excavation areas are to be increased.
3/30 – BS plans to direct load the D-list soil to minimize handling at the stockpile. KS estimates D-list soil at 700-800 ton. SC will have a determination regarding D-list soil removal by tomorrow morning (decision-making has been elevated to senior level ODEQ and EPA).
4/6 – ODEQ gave WCC direction to remove D-list soil late Tuesday afternoon; BD ODEQ received a letter from the EPA after WCC was authorized to proceed.

3.3 **Remedial Areas:** KS okay to backfill RA2, RA6, and RA8.
3/16 – KS okay to backfill RA9, RA11, RA13-B (large) and RA13-B (small).
3/30 – KS okay to backfill RA1, RA4, RA7, RA10, RA13-A, RA15, and RA16.

6.3 **Working Sunday's:** JS asked whether off loading barges on Sunday is allowable. SC/KS there was not any discussion about notification for Sunday work at the last community meeting. JS will notify/inquire BD about Sunday work and extra work hours to facilitate barge off load.
4/6 – WCC is limited to barge off-load only on Sunday's, SC ODEQ will not count barge offload as working days.

6.4 **Punchlist:** KS needs to go through it with BS. JS concerned about additional time for this work. SC recognizes this is additional work, WCC will wait to ask for additional workdays as deemed appropriate.

6.5 **Asphalt:** KS likes the idea of recycling asphalt material from the stockpile pad. SC will talk to BD about placement in retort pits. JS WCC is willing to offer credit to ODEQ if material can be placed on-site; additionally ODEQ would receive this material as backfill at no cost. WCC will also examine the feasibility of grinding the asphalt for use on the site access road.
4/6 – JS grinding is not feasible. WCC to provide a credit for placing material on-site.

H) New Business:

7.1 **Contract Paragraph X:** JS asked SC/KS to revisit Contract Paragraph X.

7.2 **Weyco:** SC ODEQ is researching whether a Metro Tax is applicable for the "Out of State" Waste WCC sent to Weyerhaeuser.

I) Partnering: E&E/WCC working well together in the field.

Next meeting April 13, 1999 at 1:00 in the WCC's project office.

CONTRACTOR'S WEEKLY CONSTRUCTION MEETING

McCormick and Baxter Superfund Site
Soil Excavation, Demolition, and Disposal Project

Meeting No.: 8 Date: April 13, 1999 Time: 1:00 PM

Location: Project Offices

Attendees:

Steve Campbell (SC), Bill Dana (BD) – DEQ
John Montgomery (JM), Kevin Smith (KS) – E&E
Nicole Murray (NM), Mark Riem (MR), Joe Spink (JS), Bob Stewart (BS) – WCC

A) **No Changes** to last weeks Meeting 7 Summary:

B) **Three (3) week schedule** was presented: (See attached schedule)

1) **Progress.** 334 Cars Total through today (320 F-Soil, 11 D-Soil and 3 AZCA Wood); Condon continues to decon rail; Devine has loaded 4 Role-Off Boxes to-date (5th should be complete today, anticipate 2 more boxes) of the dock demo material for landfill disposal.

C) **Health & Safety**: No injuries or accidents to report. No visible dust; no hits from PID instrument. KS – RA-3 UST (E&E has not received sample results).

D) **RFI Log was presented.**

E) **Submittal Log was presented.** KS approved Submittal #006 (Base Course Material).

F) **Change Order Log was presented.** SC last two (punchlist and asphalt disposal credit) have not been approved, WCC/ODEQ to discuss.

G) **Old Business:**

3.3 **Remedial Areas:** KS okay to backfill RA2, RA6, and RA8.
3/16 – KS okay to backfill RA9, RA11, RA13-B (large) and RA13-B (small).
3/30 – KS okay to backfill RA1, RA4, RA7, RA10, RA13-A, RA15, and RA16.
4/13 – KS areas still open RA5, RA17, RA18, & RA10/12 Trench.

6.4 **Punchlist:** KS needs to go through it with BS. JS concerned about additional time for this work. SC recognizes this is additional work, WCC will wait to ask for additional workdays as deemed appropriate.
4/13 – BS WCC has worked on the punchlist 4/6, 4/7, & 4/12. NM WCC owes force account sheets.

H) New Business:

8.1 **Backfill:** JS WCC is facing challenges with the unseasonably low river level. Currently WCC will use a crane with a clamshell to off-load the material.

8.2 **Hydroseeding:** KS E&E owes WCC an areas for seeding drawing.

I) Partnering: E&E/WCC working well together in the field.

Next meeting April 20, 1999 at 1:00 in the WCC's project office.

CONTRACTOR'S WEEKLY CONSTRUCTION MEETING

McCormick and Baxter Superfund Site
Soil Excavation, Demolition, and Disposal Project

Meeting No.: 9 Date: April 20, 1999 Time: 1:00 PM

Location: Project Offices

Attendees:

Steve Campbell (SC), Bill Dana (BD) – DEQ
John Montgomery (JM), Kevin Smith (KS) – E&E
Nicole Murray (NM), Mark Riem (MR), Joe Spink (JS), Bob Stewart (BS) – WCC

A) **No Changes** to last weeks Meeting 8 Summary:

B) **Three (3) week schedule** was presented: (See attached schedule)

1) **Progress.** 349 Cars Total through today (335 F-Soil, 11 D-Soil and 3 AZCA Wood); WCC will loadout non-salvaged railroad ties on Thursday; Condon continues to decon rail will complete this week; Devine has loaded 6 Role-Off Boxes to-date (7th should be complete today) of the dock demo material for landfill disposal.

C) **Health & Safety**: No injuries or accidents to report. No visible dust; no hits from PID instrument.

D) **RFI Log was presented.**

E) **Submittal Log was presented.**

F) **Change Order Log was presented.** SC has CO#12&13 ready for WCC signature.

G) **Old Business:**

3.3 **Remedial Areas:** KS okay to backfill RA2, RA6, and RA8.

3/16 – KS okay to backfill RA9, RA11, RA13-B (large) and RA13-B (small).
3/30 – KS okay to backfill RA1, RA4, RA7, RA10, RA13-A, RA15, and RA16.
4/13 – KS areas still open RA5, RA17, RA18, & RA10/12 Trench.
4/20 – KS all areas complete, railroad ties only haz-material remaining.

6.4 **Punchlist:** KS needs to go through it with BS. JS concerned about additional time for this work. SC recognizes this is additional work, WCC will wait to ask for additional workdays as deemed appropriate.

4/13 – BS WCC has worked on the punchlist 4/6, 4/7, & 4/12. NM WCC owes force account sheets.
4/20 – WCC submitted force account sheets to E&E.

8.1 **Backfill:** JS WCC is facing challenges with the unseasonably low river level. Currently WCC will use a crane with a clamshell to off-load the material.

4/20 – JS WCC plans to finish working this week and ask for a suspension of working days due to the river level. A formal request will be submitted at the end of the week. KS/JM do not see any downfalls with this. WCC needs to notify E&E of barge arrivals.

8.2 **Hydroseeding:** KS E&E owes WCC an areas for seeding drawing.

H) New Business:

9.1 **3 UST Tanks:** KS – RA-3 UST (actually 2 tanks) and 1 at lab. BD needs to verify requirements for removal.

I) Partnering: E&E/WCC working well together in the field.

Next meeting to be determined.

MCCORMICK & BAXTER CREOSOTING CO

1999

Short Interval (3 Week) Schedule

R047

April

Activity	12	13	14	15	16	17	19	20	21	22	23	24	26	27	28	29	30	Comments
Load, Excavate & Screen Mat'l																		April 17, 1999 - Last D-Waste Rail Car Release April 24, 1999 - Last Rail Car Release; Start Loading Rail Cars 3/4/99
Import & Stockpile Backfill Mat'l																		
Backfill Remediation Areas																		
Site Entrance Road																		
Reexcavate RA17 Ballast / RA5																		
Demo Asphalt Pad & Place Asphalt In Retort Area																		
Condon Bros - Track Removal, Decon Rail Road Iron. Load Out (Iron/Ties)																		
Fred Devine - Creosote Dock																		

Planned Float Actual

Unscheduled Work

Punchlist Work																		
Compaction Testing																		
																		Onsite Working Days Start February 25, 1999

5/1/99

D

Photo Documentation (separate binder)

Appendix D (Photo Documentation)

Please note that Appendix D is bound separately.

E

Data Validation Memoranda

DATA VALIDATION
MEMORANDUM

DATE: April 13, 1999

TO: Kevin Smith, Project Manager, E & E, Seattle

FROM: David A. Ikeda, Chemist, E & E, Seattle

SUBJ: Data Validation of North Creek Analytical Data
McCormick Baxter
Portland, Oregon

REF: Project Number: OH0498
Laboratory Job Number: P903059 and P903158

Sample Matrix: Twenty soil samples.

Sample Nos.:

RA101S01	RA107S01	RA13B06S04	RA13B11S04
RA102S01	RA110S01	RA13B07S04	RA13B13S04
RA103S01	RA13B01S04	RA13B08S04	RA13B14S04
RA104S01	RA13B02S04	RA13B09S04	RA13B15S04
RA106S01	RA13B03S04	RA13B10S04	RA13B16S04

The analytical data provided by Analytical Services, Inc. were reviewed for laboratory precision, accuracy, and completeness. All data were deemed acceptable as reported, with the following qualifications.

Twenty-six soil samples were initially collected and screened for the following analyses: arsenic, pentachlorophenol (PCP), and carcinogenic polyaromatic hydrocarbons (PAHs). Twenty samples were confirmed for arsenic, PCP, and PAHs. Only the confirmation analyses were reviewed. The data was in accordance with the current edition of Quality Assurance (QA)/Quality Control (QC) guidance outlined in the United States Environmental Protection Agency's (EPA's) Test Methods for Evaluating Solid Waste (EPA SW-846) and the most current editions of the EPA's Functional Guidelines for Reviewing Organic and Inorganic Analyses, as they apply to analyses conducted outside the EPA's Contract Laboratory Program (CLP).

I. ARSENIC DATA

1.0 HOLDING TIMES

Holding times are established and monitored to ensure analytical results accurately represent analyte concentrations in a sample at the time of collection. Exceeding the holding time for a sample generally results in a loss of the analyte due to a variety of mechanisms, such as deposition on the sample container walls or precipitation.

REVIEW RESULTS:

Holding time limits:

Metals - 6 months (mercury - 28 days)

All samples met holding criteria.

2.0 INITIAL AND CONTINUING CALIBRATION VERIFICATION

Initial and continuing calibration verification solutions contain known concentrations of target analytes and are repeatedly checked at the beginning of analyses (initial) and throughout a sample batch run (continuing). Instrument accuracy and stability are documented during calibrations. Accuracy is determined by the percent recovery (%R) of known standards during the initial calibration. Stability is measured by the %R of known standards during the continuing calibration. The inability of the laboratory to perform acceptably on the calibration criteria may indicate that problems exist in the laboratory's analytical system. Associated sample data generated under such conditions should be considered suspect.

REVIEW RESULTS:

The QC criteria for initial and continuing calibration for all elements were achieved.

3.0 BLANKS

Laboratory blank samples are analyzed and evaluated to determine the existence and magnitude of possible contamination. Generally, if analyte concentrations greater than the LDL for a given analyte are found in a laboratory blank, it is likely that the analyte is present as a contaminant in some phase of the analysis procedure and associated sample concentrations may be biased high.

REVIEW RESULTS:

The following analytes were detected in laboratory blanks above the LDL:

Blank*	Analyte	Conc. (µg/L)	LDL (µg/L)	Associate Samples
ICB	Arsenic	2.39	1.00	RA101S01 and RA102S01

Blank*	Analyte	Conc. (µg/L)	LDL (µg/L)	Associate Samples
CCB2	Arsenic	1.13	1.00	RA101S01 and RA102S01

Conc. = Concentration.

* ICB = Calibration Blank; CCB = Continuing Calibration Blank; PB = Preparation Blank.

a - Blank results were converted from original units (mg/kg) to µg/L by the reviewer for comparison to the LDL.

Sample results below five times the highest analyte level reported in the associated blanks were flagged "B" (blank contamination).

4.0 INDUCTIVELY COUPLED ARGON PLASMA (ICP) SPECTROMETRY INTERFERENCE CHECK SAMPLE

Interference check samples (ICS) are analyzed to verify interelement and background correction factors used by the laboratory during sample analysis. If laboratory results for the interference check sample do not match the actual known concentration, it is possible that certain elements in solution are affecting the results when analyzing for other elements. Such matrix effects could be due to chemical interactions or physical interferences. It is assumed that similar problems would exist for sample results, and therefore, they should be treated with caution.

REVIEW RESULTS:

All criteria for ICP interference check samples were achieved.

5.0 MATRIX SPIKE SAMPLE ANALYSIS

The spiked sample analysis also is designed to provide information about the effect of the sample matrix on the digestion and measurement methodology. Sample spike recovery values that do not meet laboratory QC criteria may indicate that sample analyte results are being attenuated in the analysis procedure. It is possible to estimate the bias of other sample results by noting the degree to which the spike concentration was elevated or lowered in the spike analysis. However, these bias results should serve as approximations; sample-specific problems may be the cause of the discrepancy, particularly in soil samples.

REVIEW RESULTS:

The matrix spike percent recovery (%R) values were within laboratory QC limits.

6.0 DUPLICATE SAMPLE ANALYSIS

Duplicate samples are analyzed to evaluate the precision of the sample results. The failure of the laboratory to reproduce similar results for a duplicate sample may indicate that the sample was non-homogeneous (particularly in soil samples), or method defects exist in laboratory techniques.

REVIEW RESULTS

The relative percent difference (RPD) values were within QC criteria.

7.0 LABORATORY CONTROL SAMPLE ANALYSIS

The laboratory control sample (LCS) is analyzed to serve as a monitor of the efficiency of the digestion procedure. The inability of the laboratory to successfully analyze an LCS is indicative of an analytical problem related to the digestion/sample preparation procedures and/or instrument operations.

REVIEW RESULTS:

All LCS analyses for soil were within control limits.

II. ORGANIC ANALYSES

1.0 HOLDING TIMES

Holding times are established and monitored to ensure analytical results accurately represent analyte concentrations in a sample at the time of collection. Exceeding the holding time for a sample generally results in a loss of the analyte due to a variety of mechanisms, such as deposition on the sample container wall, co-precipitation with particulates or volatilization through leaks in the container.

REVIEW RESULTS:

Holding time limits:

PCP and PAH:

soil - 14 days for extraction, 40 days for analysis

All samples were extracted and analyzed within the required holding times.

2.0 GAS CHROMATOGRAPH/MASS SPECTROMETER (GC/MS) TUNING

Prior to sample analysis, GC/MS tuning is carried out on the analytical instrumentation using decafluorotriphenylphosphine (DFTPP) for the PCP and PAH fraction. For this compound, certain ions in their mass spectra must be present in specific amounts to ensure the resolution, identifications, and sensitivity of the system. The failure of the laboratory to meet GC/MS tuning criteria indicates that deficiencies exist with the GC/MS system being used.

REVIEW RESULTS:

All tuning check compounds mass abundances and ratios were within required limits for PCP and PAH analysis

3.0 INITIAL CALIBRATION

Prior to sample analysis, the GC/MS system is calibrated initially at five concentrations for each PCP and PAH target compound to determine the linearity of response. For each compound, an Average Relative Response Factor (RRF) is determined, which is later used for compound quantitation in sample results. A Relative Standard Deviation (RSD) for the average RRF also is calculated and must be less than the established QC percentage value. Low RRF values and high RSD values are indicative of unsatisfactory instrument calibration; the system may not be capable of acceptable performance for compounds exhibiting such deficiencies.

REVIEW RESULTS:

All criteria for initial calibration were achieved for the PCP and PAH analysis

4.0 CONTINUING CALIBRATION

The GC/MS initial calibration must be verified each 12-hour period for a GC/MS system; continuing calibration results check satisfactory maintenance and adjustment on a day-to-day basis. A continuing calibration RRF value is calculated for each TCL compound, and this value is compared to the initial calibration average RRF value. Continuing calibration compound results with low RRF values and/or RRFs with high percent difference values indicate the instrument is no longer correctly calibrated for these compounds

REVIEW RESULTS:

All criteria for the continuing calibration for PCP and PAH analysis.

5.0 BLANKS

Laboratory method blank samples are evaluated to assess the existence and magnitude of possible contamination. Comparison of sample results to compound concentrations found in blanks makes it possible to determine if these compounds were actually present in the sample or were introduced as a contaminant during some phase of the analytical procedure.

REVIEW RESULTS:

Frequency criteria were met for laboratory blank analysis.

No contaminants were detected in any of the laboratory blanks.

6.0 SURROGATE SPIKE RECOVERY

Laboratory performance for individual samples is established by means of surrogate spiking activities. Samples are spiked with surrogate compounds prior to preparation and analysis. Unusually low or high surrogate recovery values may indicate some deficiency in the analytical system or that some matrix effect exists, resulting in similarly low or high sample results for other compounds as well.

REVIEW RESULTS:

All surrogate percent recovery values were within laboratory QC criteria for all analysis.

7.0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) ANALYSIS

The MS/MSD analysis is designed to evaluate possible effects of the inherent sample matrix on target analyte recovery. To assess the possible matrix effect, specific analytes are spiked into a selected sample and a duplicate of that sample. The spike recoveries and relative percent difference (RPD) between the sample and the duplicate are then determined. Poor spike recoveries and high RPD values may indicate that a significant matrix effect is present and is adversely affecting sample results for that particular matrix or sample medium.

REVIEW RESULTS:

All MS and MSD percent recovery values met laboratory QC guidelines.

8.0 INTERNAL STANDARDS PERFORMANCE

The VOC and SVOC TCL analytes identified in samples are quantified using internal standards that are spiked at specific concentrations into each sample. The retention times and chromatogram peak areas for the internal standards in each sample must fall within established QC limits to ensure that sample quantitation is correct.

REVIEW RESULTS:

All internal standards were within established QC.

9.0 COMPOUND IDENTIFICATION

9.1 PCP and PAH Analysis

The presence of all compounds found in samples is verified by comparing the mass spectra for the sample compounds to those of the calibration standards run through the GC/MS systems. Retention times for sample compounds are also checked and should match retention times established by the calibration standards. If a sample compound does not meet these criteria, its identification should be rejected.

REVIEW RESULTS:

All criteria for compound identification were achieved for both the PCP and PAH analyses.

DATA QUALIFIERS

ND - The material was analyzed for, but was not detected. The associated numerical value is a method quantitation limit adjusted for sample weight/sample volume, extraction volume, percent solids and sample dilution.

U - The material was analyzed for, but was not detected. The associated numerical value is a method quantitation limit adjusted for sample weight/sample volume, extraction volume, percent solids and sample dilution.

J - The analyte was analyzed for and was positively identified, but the associated numerical value may not be consistent with the amount actually present in the environmental sample. The data should be seriously considered for decision-making and are usable for many purposes.

UJ - The material was analyzed for, but was not detected. The associated numerical value is an estimated/adjusted quantitation limit. The associated numerical value may not accurately or precisely represent the concentration necessary to detect the analyte in this sample.

R - Quality Control indicates that data are unusable for all purposes. The analyte was analyzed for, but the presence or absence of the analyte has not been verified. Resampling and reanalysis are necessary for verification to confirm or deny the presence of an analyte.

B - Blank contamination. The material was detected at less than five times (10 times for common solvents) the concentration found in one or more associated laboratory blanks. The data should be used with caution.

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Case Narrative

CLIENT:	**Ecology & Environment (Seattle)**	**March 16, 1999**
PROJECT:	**McCormick and Baxter Soil Removal**	
PROJECT #:	**749.OH04-00.98**	**page 1 of 2**
NCA #:	**P903059**	

1.0 DESCRIPTION OF CASE

North Creek Analytical, Portland received ten soil samples on 3/3/99 from Ecology & Environment for analysis by the following Methods: Metals scan by ICP/MS (As). Selected samples were then confirmed by the following EPA Methods: 6020 Total Metals (As).

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 # (SDG#), preceded 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 Ecology & Environment. The samples were clearly labeled and matched the chain of custody. Sample temperature (4.5°C) was measured upon receipt using a Raytek PM 30 Infrared Temperature gun and recorded.

3.2 Analysis

The samples were analyzed following the procedures outlined in the applicable methods. Refer to the NCA report for specific prep methods used. The samples were refrigerated at approximately 4°C and were extracted and analyzed within the EPA recommended holding times without incident.

The Arsenic screens were run on 3/3/99. Sample RA101S01 (P903059) and the batch QC met criteria for confirmation on the 3/3/99 run. The remaining samples were re-run on 3/4/99 & 3/6/99 for confirmation results.

4.0 QC RESULTS

Surrogate and quality control parameters that were outside control limits are noted on the appropriate pages of the analytical report.

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Case Narrative

CLIENT:	**Ecology & Environment (Seattle)**	**March 16, 1999**
PROJECT:	**McCormick and Baxter Soil Removal**	
PROJECT #:	**749.OH04-00.98**	**page 2 of 2**
NCA #:	**P903059**	

5.0 SAMPLE RESULTS

Where applicable, qualifiers have been added to sample results 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: None Needed

" 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

Rochelle Carpenter, QA Manager
North Creek Analytical, Beaverton

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

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CHAIN OF CUSTODY REPORT

4.5°

Work Order # 903059

REPORT TO:
ATTENTION: Heather Brunelle
ADDRESS: 333 SW Fifth Ave, Ste 608
Portland, OR 97204
PHONE: Site 503/735-3879 FAX: Site 503/735-4651
PROJECT NAME: McCormick + Baxter Soil Removal
PROJECT NUMBER: 749.0404.00.98
SAMPLED BY: M. Witnaver, C. Noncarrow, H. Brunelle

INVOICE TO:
ATTENTION:
ADDRESS:
P.O. NUMBER: NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 (Standard) | 7 | 5 | 4 | 3 | 2 | 1 | Same Day
Fuels & Hydrocarbon Analyses: 5 (Standard) | 3-4 | 2 | 1 | Same Day
OTHER Specify: 24-hr
* Turnaround Requests less than standard may incur Rush Charges.

Analysis Request: Screening As

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Screening As	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1.	RA1Ø1SØ1	3/3/99 09:50		X	S	1	24-hr
2.	RA1Ø2SØ1	3/3/99 09:53		X	↓	↓	fax results
3.	RA1Ø3SØ1	3/3/99 09:55		X	↓	↓	to site fax
4.	RA1Ø4SØ1	3/3/99 11:14		X	↓	↓	735-4651
5.	RA1Ø5SØ1	3/3/99 11:17		X	↓	↓	
6.	RA1Ø6SØ1	3/3/99 10:44		X	↓	↓	
7.	RA1Ø7SØ1	3/3/99 10:44		X	↓	↓	
8.	RA1Ø8SØ1	3/3/99 10:48		X	↓	↓	
9.	RA1Ø9SØ1	3/3/99 10:46		X	↓	↓	
10.	RA11ØSØ1	3/3/99 11:20		X	↓	↓	

RELINQUISHED BY (Signature): [signature] DATE: 3/3/99
PRINT NAME: Heather Brunelle FIRM: E & E TIME: 15:16

RECEIVED BY (Signature): Debra Meskimen DATE: 3/3/98
PRINT NAME: Debra Meskimen FIRM: NCA TIME: 3:15

RELINQUISHED BY (Signature): Debra Meskimen DATE: 3/3/99
PRINT NAME: Debra Meskimen FIRM: NCA TIME: 3:55

RECEIVED BY (Signature): Mary McShane DATE: 3/3/9
PRINT NAME: Mary McShane FIRM: TIME: 1555

ADDITIONAL REMARKS:

PAGE OF

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/3/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/3/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/10/99 11:41

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
RA101S01	P903059-01	Soil	3/3/99
RA102S01	P903059-02	Soil	3/3/99
RA103S01	P903059-03	Soil	3/3/99
RA104S01	P903059-04	Soil	3/3/99
RA105S01	P903059-05	Soil	3/3/99
RA106S01	P903059-06	Soil	3/3/99
RA107S01	P903059-07	Soil	3/3/99
RA108S01	P903059-08	Soil	3/3/99
RA109S01	P903059-09	Soil	3/3/99
RA110S01	P903059-10	Soil	3/3/99

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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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/3/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/3/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/10/99 11:41

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*
RA101S01			**P903059-01**				**Soil**	
Arsenic	0390097	3/3/99	3/3/99	EPA 6020	2.50	**4.00** B	mg/kg dry	
RA102S01			**P903059-02**				**Soil**	
Arsenic	0390097	3/3/99	3/4/99	EPA 6020	2.50	**5.34** B	mg/kg dry	
RA103S01			**P903059-03**				**Soil**	
Arsenic	0390097	3/3/99	3/6/99	EPA 6020	2.50	**128**	mg/kg dry	
RA104S01			**P903059-04**				**Soil**	
Arsenic	0390097	3/3/99	3/4/99	EPA 6020	2.50	**3.00**	mg/kg dry	
RA106S01			**P903059-06**				**Soil**	
Arsenic	0390097	3/3/99	3/6/99	EPA 6020	2.50	**113**	mg/kg dry	
RA107S01			**P903059-07**				**Soil**	
Arsenic	0390097	3/3/99	3/4/99	EPA 6020	2.50	**8.36**	mg/kg dry	
RA110S01			**P903059-10**				**Soil**	
Arsenic	0390097	3/3/99	3/4/99	EPA 6020	2.50	**6.01**	mg/kg dry	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/3/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/3/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/10/99 11:41

Dry Weight Determination
North Creek Analytical - Portland

Sample Name	Lab ID	Matrix	Result	Units
RA101S01	P903059-01	Soil	88.9	%
RA102S01	P903059-02	Soil	91.8	%
RA103S01	P903059-03	Soil	90.1	%
RA104S01	P903059-04	Soil	90.1	%
RA105S01	P903059-05	Soil	89.2	%
RA106S01	P903059-06	Soil	92.8	%
RA107S01	P903059-07	Soil	86.1	%
RA108S01	P903059-08	Soil	86.9	%
RA109S01	P903059-09	Soil	90.4	%
RA110S01	P903059-10	Soil	87.4	%

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Case Narrative

CLIENT:	**Ecology & Environment (Seattle)**	**March 22, 1999**
PROJECT:	**McCormick and Baxter Soil Removal**	
PROJECT #:	**749.OH04-00.98**	**page 1 of 2**
NCA #:	**P903158**	

1.0 DESCRIPTION OF CASE

North Creek Analytical, Portland received four soil samples on 3/8/99 from Ecology & Environment for analysis by the following Methods: Metals scan by ICP/MS (As) and 8270C Modified (carcinogenic PAHs/PCP Screening method). Selected samples were then confirmed by the following EPA Methods: 6020 Total Metals (As) and 8270C (carcinogenic PAHs/PCP).

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 # (SDG#), preceded 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 Ecology & Environment. The samples were clearly labeled and matched the chain of custody. Sample temperature (12.4°C) was measured upon receipt using a Raytek PM 30 Infrared Temperature gun and recorded.

3.2 Analysis

The samples were analyzed following the procedures outlined in the applicable methods. Refer to the NCA report for specific prep methods used. The samples were refrigerated at approximately 4°C and were extracted and analyzed within the EPA recommended holding times without incident.

4.0 QC RESULTS

Surrogate and quality control parameters that were outside control limits are noted on the appropriate pages of the analytical report.

PAH/PCP by 8070C

The surrogate 2,4,6-Tribromophenol is flagged with an E on many of the QC samples. 2,4,6-Tribromophenol is spiked into the samples at 200 ppb. When recovery is greater than 100%, this compound exceeds our upper calibration limit of 200 ppb. All of the surrogate recoveries are within specifications.

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Case Narrative

CLIENT:	**Ecology & Environment (Seattle)**	**March 22, 1999**
PROJECT:	**McCormick and Baxter Soil Removal**	
PROJECT #:	**749.OH04-00.98**	**page 2 of 2**
NCA #:	**P903158**	

5.0 SAMPLE RESULTS

Where applicable, qualifiers have been added to sample results 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:

PAH/PCP by 8070C

The surrogate 2,4,6-Tribromophenol is flagged with an E on many of the samples. 2,4,6-Tribromophenol is spiked into the samples at 200 ppb. When recovery is greater than 100%, this compound exceeds our upper calibration limit of 200 ppb. All of the surrogate recoveries are within specifications.

" 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

Rochelle Carpenter, QA Manager
North Creek Analytical, Beaverton

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12.4°

CHAIN OF CUSTODY REPORT

Work Order # 903158

REPORT TO:

ATTENTION: Heather Brunelle
ADDRESS: 333 SW Fifth Ave Ste 608
Portland, OR 97204
PHONE: 503/735-3879 FAX: 503/735-4651
PROJECT NAME: McCormick + Baxter Soil Removal
PROJECT NUMBER: 749.0H04.00.98
SAMPLED BY: H. Brunelle & K. Miller

INVOICE TO:

ATTENTION:
ADDRESS:
P.O. NUMBER: NCA QUOTE #:

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: 10 (Standard) | 7 | 5 | 4 | 3 | 2 | 1 | Same Day

Fuels & Hydrocarbon Analyses: 5 (Standard) | 3-4 | 2 | 1 | Same Day

OTHER Specify: 24-hr fax

* Turnaround Requests less than standard may incur Rush Charges.

Analysis Request: Screening As | Screening PCP | Screening cPAHs

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Screening As	Screening PCP	Screening cPAHs	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1. RA136015Ø4	3/8/99 12:35		X	X	X	S	1	24-hr
2. RA136025Ø4	3/8/99 12:38		X	X	X	S	1	fax results
3. RA136035Ø4	3/8/99 12:42		X	X	X	S	1	to 735-4651
4. RA136045Ø4	3/8/99 12:45		X	X	X	S	1	
5. RA136055Ø4	3/8/99 12:45		X	X	X	S	1	
6. RA136065Ø4	3/8/99 12:50		X	X	X	S	1	
7. RA136075Ø4	3/8/99 12:55		X	X	X	S	1	
8. RA136085Ø4	3/8/99 13:00		X	X	X	S	1	
9. RA136095Ø4	3/8/99 13:05		X	X	X	S	1	
10. RA136105Ø4	3/8/99 13:10		X	X	X	S	1	

RELINQUISHED BY (Signature): [signature]	DATE: 3/8/99	RECEIVED BY (Signature): [signature]	DATE: 3/8/99
PRINT NAME: Heather Brunelle FIRM: EEE	TIME: 15:00	PRINT NAME: Debra Mestkimen FIRM: NCA	TIME: 15:00
RELINQUISHED BY (Signature): [signature]	DATE: 3/8/99	RECEIVED BY (Signature): [signature]	DATE: 3/8/99
PRINT NAME: Debra Mestkinen FIRM: NCA	TIME: 15:30	PRINT NAME: Mary M. Shane FIRM: NCA	TIME: 15:30

ADDITIONAL REMARKS:

PAGE OF

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7.8° degr

CHAIN OF CUSTODY REPORT

Work Order # 903158

REPORT TO:

ATTENTION: Heather Brunelle
ADDRESS: 333 SW Fifth Ave, Ste 608
Portland, OR 97204
site PHONE: 503/735-3879 site FAX: 503/735-4651
PROJECT NAME: McCormick + Baxter Soil Removal
PROJECT NUMBER: 749.OH04.04.98
SAMPLED BY: H. Brunelle & K. Miller

INVOICE TO:

ATTENTION:
ADDRESS:
P.O. NUMBER: NCA QUOTE #:

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: 10 (Standard) | 7 | 5 | 4 | 3 | 2 | 1 | Same Day

Fuels & Hydrocarbon Analyses: 5 (Standard) | 3-4 | 2 | 1 | Same Day

OTHER Specify: 24-hr fax

* *Turnaround Requests less than standard may incur Rush Charges.*

Analysis Request: Screening As; Screening ORP; Screening cPAHs

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Screening As	Screening ORP	Screening cPAHs	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1.	RA13b11S04	3/8/99 13:10		X	X	X	S	1	24-hr fax
2.	RA13b12S04	3/8/99 12:55		X	X	X	S	1	results
3.	RA13b13S04	3/8/99 12:59		X	X	X	S	1	to 735-4651
4.	RA13b14S04	3/8/99 12:52		X	X	X	S	1	
5.	RA13b15S04	3/8/99 12:54		X	X	X	S	1	
6.	RA13b16S04	3/8/99 13:01		X	X	X	S	1	
7.									
8.									
9.									
10.									

RELINQUISHED BY (Signature): Heather Brunelle	DATE: 3/8/99	RECEIVED BY (Signature): Debra Meskimen	DATE: 3/8/99
PRINT NAME: Heather Brunelle FIRM: E&E	TIME: 15:00	PRINT NAME: Debra Meskimen FIRM: NCA	TIME: 15:00
RELINQUISHED BY (Signature): Debra Meskimen	DATE: 3/8/99	RECEIVED BY (Signature): Mary McShane	DATE: 3/8/99
PRINT NAME: Debra Meskimen FIRM: NCA	TIME: 15:30	PRINT NAME: Mary McShane FIRM: NCA	TIME: 1530

ADDITIONAL REMARKS:

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/8/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/8/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/22/99 10:11

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
RA13601S04	P903158-01	Soil	3/8/99
RA13602S04	P903158-02	Soil	3/8/99
RA13603S04	P903158-03	Soil	3/8/99
RA13604S04	P903158-04	Soil	3/8/99
RA13605S04	P903158-05	Soil	3/8/99
RA13606S04	P903158-06	Soil	3/8/99
RA13607S04	P903158-07	Soil	3/8/99
RA13608S04	P903158-08	Soil	3/8/99
RA13609S04	P903158-09	Soil	3/8/99
RA13610S04	P903158-10	Soil	3/8/99
RA13611S04	P903158-11	Soil	3/8/99
RA13612S04	P903158-12	Soil	3/8/99
RA13613S04	P903158-13	Soil	3/8/99
RA13614S04	P903158-14	Soil	3/8/99
RA13615S04	P903158-15	Soil	3/8/99
RA13616S04	P903158-16	Soil	3/8/99

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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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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/8/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/8/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/22/99 10:11

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*
RA13601S04			**P903158-01**				**Soil**	
Arsenic	0390231	3/8/99	3/9/99	EPA 6020	2.50	**3.53**	mg/kg dry	
RA13602S04			**P903158-02**				**Soil**	
Arsenic	0390231	3/8/99	3/9/09	EPA 6020	2.50	**15.7**	mg/kg dry	
RA13603S04			**P903158-03**				**Soil**	
Arsenic	0390231	3/8/99	3/9/09	EPA 6020	2.50	**5.02**	mg/kg dry	
RA13606S04			**P903158-06**				**Soil**	
Arsenic	0390231	3/8/99	3/9/09	EPA 6020	2.50	**3.28**	mg/kg dry	
RA13607S04			**P903158-07**				**Soil**	
Arsenic	0390231	3/8/99	3/9/09	EPA 6020	2.50	**2.97**	mg/kg dry	
RA13608S04			**P903158-08**				**Soil**	
Arsenic	0390231	3/8/99	3/9/09	EPA 6020	2.50	**6.33**	mg/kg dry	
RA13609S04			**P903158-09**				**Soil**	
Arsenic	0390231	3/8/99	3/9/09	EPA 6020	2.50	**5.65**	mg/kg dry	
RA13610S04			**P903158-10**				**Soil**	
Arsenic	0390231	3/8/99	3/9/09	EPA 6020	2.50	**3.75**	mg/kg dry	
RA13611S04			**P903158-11**				**Soil**	
Arsenic	0390231	3/8/99	3/9/09	EPA 6020	2.50	ND	mg/kg dry	
RA13613S04			**P903158-13**				**Soil**	
Arsenic	0390231	3/8/99	3/9/09	EPA 6020	2.50	**2.71**	mg/kg dry	
RA13614S04			**P903158-14**				**Soil**	
Arsenic	0390231	3/8/99	3/9/09	EPA 6020	2.50	**14.9**	mg/kg dry	
RA13615S04			**P903158-15**				**Soil**	
Arsenic	0390231	3/8/99	3/9/09	EPA 6020	2.50	**13.7**	mg/kg dry	
RA13616S04			**P903158-16**				**Soil**	
Arsenic	0390231	3/8/99	3/9/09	EPA 6020	2.50	ND	mg/kg dry	

**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

4/13/99

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/8/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/8/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/22/99 10:11

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*
RA13601S04			**P903158-01**				**Soil**	
Benzo (a) anthracene	0390275	3/8/99	3/8/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**38.1**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*82.0*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*111*	"	*E*
RA13602S04			**P903158-02**				**Soil**	
Benzo (a) anthracene	0390275	3/8/99	3/8/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**34.0**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*85.2*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*116*	"	*E*
RA13603S04			**P903158-03**				**Soil**	
Benzo (a) anthracene	0390275	3/8/99	3/9/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*93.2*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*124*	"	*E*
RA13606S04			**P903158-06**				**Soil**	
Benzo (a) anthracene	0390275	3/8/99	3/9/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/8/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/8/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/22/99 10:11

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*
RA13606S04 (continued)			**P903158-06**				**Soil**	
Benzo (b) fluoranthene	0390275	3/8/99	3/9/99		5.00	ND	mg/kg dry	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*81.0*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*110*	"	*E*
RA13607S04			**P903158-07**				**Soil**	
Benzo (a) anthracene	0390275	3/8/99	3/9/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*78.2*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*106*	"	*E*
RA13608S04			**P903158-08**				**Soil**	
Benzo (a) anthracene	0390275	3/8/99	3/8/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**15.2**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*86.7*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*118*	"	*E*
RA13609S04			**P903158-09**				**Soil**	
Benzo (a) anthracene	0390275	3/8/99	3/9/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/8/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/8/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/22/99 10:11

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*
RA13609S04 (continued)			**P903158-09**				**Soil**	
Chrysene	0390275	3/8/99	3/9/99		5.00	ND	mg/kg dry	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*82.4*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*112*	"	*E*
RA13610S04			**P903158-10**				**Soil**	
Benzo (a) anthracene	0390275	3/8/99	3/9/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**208**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*80.2*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*107*	"	*E*
RA13611S04			**P903158-11**				**Soil**	
Benzo (a) anthracene	0390275	3/8/99	3/9/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*83.5*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*113*	"	*E*
RA13613S04			**P903158-13**				**Soil**	
Benzo (a) anthracene	0390275	3/8/99	3/9/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	

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541.383.9310 fax 541.382.7588

Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/8/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/8/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/22/99 10:11

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*
RA13613S04 (continued)			**P903158-13**				**Soil**	
Indeno (1,2,3-cd) pyrene	0390275	3/8/99	3/9/99		5.00	ND	mg/kg dry	
Pentachlorophenol	"	"	"		10.0	**74.0**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*82.7*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*112*	"	*E*
RA13614S04			**P903158-14**				**Soil**	
Benzo (a) anthracene	0390275	3/8/99	3/9/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**35.6**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*87.3*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*124*	"	*E*
RA13615S04			**P903158-15**				**Soil**	
Benzo (a) anthracene	0390275	3/8/99	3/9/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**40.2**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*83.9*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*115*	"	*E*
RA13616S04			**P903158-16**				**Soil**	
Benzo (a) anthracene	0390275	3/8/99	3/9/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**47.0**	"	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/8/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/8/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/22/99 10:11

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*
RA13616S04 (continued)			**P903158-16**				**Soil**	
Surrogate: p-Terphenyl-d14	*0390275*	*3/8/99*	*3/9/99*	*20.0-150*		*85.2*	*%*	
Surrogate: 2,4,6-Tribromophenol	*"*	*"*	*"*	*10.0-150*		*116*	*"*	*E*

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/8/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/8/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/22/99 10:11

Dry Weight Determination
North Creek Analytical - Portland

Sample Name	Lab ID	Matrix	Result	Units
RA13601S04	P903158-01	Soil	91.8	%
RA13602S04	P903158-02	Soil	89.2	%
RA13603S04	P903158-03	Soil	94.4	%
RA13604S04	P903158-04	Soil	91.2	%
RA13605S04	P903158-05	Soil	90.5	%
RA13606S04	P903158-06	Soil	92.4	%
RA13607S04	P903158-07	Soil	91.9	%
RA13608S04	P903158-08	Soil	91.4	%
RA13609S04	P903158-09	Soil	89.7	%
RA13610S04	P903158-10	Soil	91.8	%
RA13611S04	P903158-11	Soil	94.7	%
RA13612S04	P903158-12	Soil	91.4	%
RA13613S04	P903158-13	Soil	93.4	%
RA13614S04	P903158-14	Soil	93.0	%
RA13615S04	P903158-15	Soil	93.3	%
RA13616S04	P903158-16	Soil	94.0	%

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DATA VALIDATION
MEMORANDUM

DATE: May 19, 1999

TO: Kevin Smith, Project Manager, E & E, Seattle

FROM: Heather Brunelle, Chemist, E & E, Portland HB

SUBJ: Data Validation of North Creek Analytical Data
McCormick Baxter
Portland, Oregon

REF: Project Number: OH0498
Laboratory Job Number: P903420 and P903246

Sample Matrix: Fifteen soil samples.

Sample Nos.:

RA1913S01	RA1411S01	RA13a11S04
RA1914S01	RA1412S01	RA120S03
RA1915S01	RA1414S01	RA121S03
RA1917S01	RA1415S01	RA123S03
RA1919S01	RA13a10S04	RA124S03

The analytical data provided by North Creek Analytical, Inc. (NCA) were reviewed for laboratory precision, accuracy, and completeness. All data were deemed acceptable as reported, with the following qualifications.

Twenty one soil samples were initially collected and screened for arsenic analysis. Eleven soil samples were initially collected and screened for the following analyses: pentachlorophenol (PCP), and carcinogenic polyaromatic hydrocarbons (PAHs). Fifteen samples were confirmed for arsenic analysis. Eleven samples were confirmed for the following analyses: PCP, and PAHs. Only the confirmation analyses were reviewed. The data was in accordance with the current edition of Quality Assurance (QA)/Quality Control (QC) guidance outlined in the United States Environmental Protection Agency's (EPA's) Test Methods for Evaluating Solid Waste (EPA SW-846) and the most current editions of the EPA's Functional Guidelines for Reviewing Organic and Inorganic Analyses, as they apply to analyses conducted outside the EPA's Contract Laboratory Program (CLP).

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I. ARSENIC DATA

1.0 HOLDING TIMES

Holding times are established and monitored to ensure analytical results accurately represent analyte concentrations in a sample at the time of collection. Exceeding the holding time for a sample generally results in a loss of the analyte due to a variety of mechanisms, such as deposition on the sample container walls or precipitation.

REVIEW RESULTS:

Holding time limits:

Metals - 6 months (mercury - 28 days)

All samples met holding criteria.

2.0 INITIAL AND CONTINUING CALIBRATION VERIFICATION

Initial and continuing calibration verification solutions contain known concentrations of target analytes and are repeatedly checked at the beginning of analyses (initial) and throughout a sample batch run (continuing). Instrument accuracy and stability are documented during calibrations. Accuracy is determined by the percent recovery (%R) of known standards during the initial calibration. Stability is measured by the %R of known standards during the continuing calibration. The inability of the laboratory to perform acceptably on the calibration criteria may indicate that problems exist in the laboratory's analytical system. Associated sample data generated under such conditions should be considered suspect.

REVIEW RESULTS:

The QC criteria for initial and continuing calibration for all elements were achieved.

3.0 BLANKS

Laboratory blank samples are analyzed and evaluated to determine the existence and magnitude of possible contamination. Generally, if analyte concentrations greater than the LDL for a given analyte are found in a laboratory blank, it is likely that the analyte is present as a contaminant in some phase of the analysis procedure and associated sample concentrations may be biased high.

REVIEW RESULTS:

The following analyte was detected in laboratory blanks above the LDL:

Blank*	Analyte	Conc. (µg/L)	LDL (µg/L)	Associated Samples
CCB3	Arsenic	4.612	1.00	P903420-01, 0390559-blk1, 0390559-bs1

Conc. = Concentration.

* CCB = Continuing Calibration Blank.

a - Blank results were converted from original units (mg/kg) to µg/L by the reviewer for comparison to the LDL.

The method blank associated with CCB3, 0390559-blk1, did not result in a concentration above the LDL.

4.0 INDUCTIVELY COUPLED ARGON PLASMA (ICP) SPECTROMETRY INTERFERENCE CHECK SAMPLE

Interference check samples (ICS) are analyzed to verify inter-element and background correction factors used by the laboratory during sample analysis. If laboratory results for the interference check sample do not match the actual known concentration, it is possible that certain elements in solution are affecting the results when analyzing for other elements. Such matrix effects could be due to chemical interactions or physical interferences. It is assumed that similar problems would exist for sample results, and therefore, they should be treated with caution.

REVIEW RESULTS:

All criteria for ICP interference check samples were achieved.

5.0 MATRIX SPIKE SAMPLE ANALYSIS

The spiked sample analysis also is designed to provide information about the effect of the sample matrix on the digestion and measurement methodology. Sample spike recovery values that do not meet laboratory QC criteria may indicate that sample analyte results are being attenuated in the analysis procedure. It is possible to estimate the bias of other sample results by noting the degree to which the spike concentration was elevated or lowered in the spike analysis. However, these bias results should serve as approximations; sample-specific problems may be the cause of the discrepancy, particularly in soil samples.

REVIEW RESULTS:

The matrix spike percent recovery (%R) values were within laboratory QC limits.

6.0 DUPLICATE SAMPLE ANALYSIS

Duplicate samples are analyzed to evaluate the precision of the sample results. The failure of the laboratory to reproduce similar results for a duplicate sample may indicate that the sample was non-homogeneous (particularly in soil samples), or method defects exist in laboratory techniques.

REVIEW RESULTS

The relative percent difference (RPD) values were within QC criteria.

7.0 LABORATORY CONTROL SAMPLE ANALYSIS

The laboratory control sample (LCS) is analyzed to serve as a monitor of the efficiency of the digestion procedure. The inability of the laboratory to successfully analyze an LCS is indicative of an analytical problem related to the digestion/sample preparation procedures and/or instrument operations.

REVIEW RESULTS:

All LCS analyses for soil were within control limits.

II. ORGANIC ANALYSES

1.0 HOLDING TIMES

Holding times are established and monitored to ensure analytical results accurately represent analyte concentrations in a sample at the time of collection. Exceeding the holding time for a sample generally results in a loss of the analyte due to a variety of mechanisms, such as deposition on the sample container wall, co-precipitation with particulates or volatilization through leaks in the container.

REVIEW RESULTS:

Holding time limits:

PCP and PAH:

soil - 14 days for extraction, 40 days for analysis

All samples were extracted and analyzed within the required holding times.

2.0 GAS CHROMATOGRAPH/MASS SPECTROMETER (GC/MS) TUNING

Prior to sample analysis, GC/MS tuning is carried out on the analytical instrumentation using decafluorotriphenylphosphine (DFTPP) for the PCP and PAH fraction. For this compound, certain ions in their mass spectra must be present in specific amounts to ensure the resolution, identifica-

tions, and sensitivity of the system. The failure of the laboratory to meet GC/MS tuning criteria indicates that deficiencies exist with the GC/MS system being used.

REVIEW RESULTS:

All tuning check compounds mass abundances and ratios were within required limits for PCP and PAH analysis.

3.0 INITIAL CALIBRATION

Prior to sample analysis, the GC/MS system is calibrated initially at five concentrations for each PCP and PAH target compound to determine the linearity of response. For each compound, an Average Relative Response Factor (RRF) is determined, which is later used for compound quantitation in sample results. A Relative Standard Deviation (RSD) for the average RRF also is calculated and must be less than the established QC percentage value. Low RRF values and high RSD values are indicative of unsatisfactory instrument calibration; the system may not be capable of acceptable performance for compounds exhibiting such deficiencies.

For the initial (IC) and continuing calibrations (CC) calibrations, RRF criteria is as follows:

RRF	Analyte
0.050	PCP
0.40	Benzo(a)anthracene
0.35	Benzo(b)fluoranthene, benzo(k)fluoranthene, Benzo(a)pyrene, and chrysene
0.20	Dibenzo(a,h)anthracene
0.25	Indeno(1,2,3-c,d)pyrene

REVIEW RESULTS:

All criteria for initial calibration were achieved for the PCP and PAH analysis.

4.0 CONTINUING CALIBRATION

The GC/MS initial calibration must be verified each 12-hour period for a GC/MS system; continuing calibration results check satisfactory maintenance and adjustment on a day-to-day basis. A continuing calibration RRF value is calculated for each TCL compound, and this value is compared to the initial calibration average RRF value. Continuing calibration compound results with low RRF values and/or RRFs with high percent difference values indicate the instrument is no longer correctly calibrated for these compounds

REVIEW RESULTS:

All criteria for the continuing calibration for PCP and PAH analysis.

5.0 BLANKS

Laboratory method blank samples are evaluated to assess the existence and magnitude of possible contamination. Comparison of sample results to compound concentrations found in blanks makes it possible to determine if these compounds were actually present in the sample or were introduced as a contaminant during some phase of the analytical procedure.

REVIEW RESULTS:

Frequency criteria were met for laboratory blank analysis.

No contaminants were detected in any of the laboratory blanks.

6.0 SURROGATE SPIKE RECOVERY

Laboratory performance for individual samples is established by means of surrogate spiking activities. Samples are spiked with surrogate compounds prior to preparation and analysis. Unusually low or high surrogate recovery values may indicate some deficiency in the analytical system or that some matrix effect exists, resulting in similarly low or high sample results for other compounds as well.

REVIEW RESULTS:

As noted by NCA, the surrogate 2,4,6-Tribromophenol is flagged with an E on many of the samples. The spike amount, 200 ppb, exceeded the upper calibration limit of 200 ppb when recovery was greater than 100%. All surrogate percent recovery values were within laboratory QC criteria for all analysis.

7.0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) ANALYSIS

The MS/MSD analysis is designed to evaluate possible effects of the inherent sample matrix on target analyte recovery. To assess the possible matrix effect, specific analytes are spiked into a selected sample and a duplicate of that sample. The spike recoveries and relative percent difference (RPD) between the sample and the duplicate are then determined. Poor spike recoveries and high RPD values may indicate that a significant matrix effect is present and is adversely affecting sample results for that particular matrix or sample medium.

REVIEW RESULTS:

All MS and MSD percent recovery values met laboratory QC guidelines.

8.0 INTERNAL STANDARDS PERFORMANCE

The VOC and SVOC TCL analytes identified in samples are quantified using internal standards that are spiked at specific concentrations into each sample. The retention times and chromatogram peak areas for the internal standards in each sample must fall within established QC limits to ensure that sample quantitation is correct.

REVIEW RESULTS:

All internal standards were within established QC.

9.0 COMPOUND IDENTIFICATION

9.1 PCP and PAH Analysis

The presence of all compounds found in samples is verified by comparing the mass spectra for the sample compounds to those of the calibration standards run through the GC/MS systems. Retention times for sample compounds are also checked and should match retention times established by the calibration standards. If a sample compound does not meet these criteria, its identification should be rejected.

REVIEW RESULTS:

All criteria for compound identification were achieved for both the PCP and PAH analyses.

DATA QUALIFIERS

ND - The material was analyzed for, but was not detected. The associated numerical value is a method quantitation limit adjusted for sample weight/sample volume, extraction volume, percent solids and sample dilution.

U - The material was analyzed for, but was not detected. The associated numerical value is a method quantitation limit adjusted for sample weight/sample volume, extraction volume, percent solids and sample dilution.

J - The analyte was analyzed for and was positively identified, but the associated numerical value may not be consistent with the amount actually present in the environmental sample. The data should be seriously considered for decision-making and are usable for many purposes.

UJ - The material was analyzed for, but was not detected. The associated numerical value is an estimated/adjusted quantitation limit. The associated numerical value may not accurately or precisely represent the concentration necessary to detect the analyte in this sample.

R - Quality Control indicates that data are unusable for all purposes. The analyte was analyzed for, but the presence or absence of the analyte has not been verified. Resampling and reanalysis are necessary for verification to confirm or deny the presence of an analyte.

B - Blank contamination. The material was detected at less than five times (10 times for common solvents) the concentration found in one or more associated laboratory blanks. The data should be used with caution.

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DATA PACKAGE

for

Ecology and Environment

Portland SDG #: P903246

Client Project Name: McCormick & Baxter Soil Removal
Client Project #: 749.OH04-00.98

The total number of pages contained in this package is:

149

Prepared by:

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Case Narrative

North Creek Analytical, Inc.
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Case Narrative

CLIENT:	**Ecology & Environment (Seattle)**	**March 24, 1999**
PROJECT:	**McCormick and Baxter Soil Removal**	
PROJECT #:	**749.OH04-00.98**	**page 1 of 2**
NCA #:	**P903246**	

1.0 DESCRIPTION OF CASE

North Creek Analytical, Portland received nine soil samples on 3/11/99 from Ecology & Environment for analysis by the following Methods: Metals scan by ICP/MS (As) and 8270C Modified (carcinogenic PAHs/PCP Screening method). Selected samples were then confirmed by the following EPA Methods: 6020 Total Metals (As) and 8270C (carcinogenic PAHs/PCP).

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 # (SDG#), preceded 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 Ecology & Environment. The samples were clearly labeled and matched the chain of custody. Sample temperature (8.6°C) was measured upon receipt using a Raytek PM 30 Infrared Temperature gun and recorded.

3.2 Analysis

The samples were analyzed following the procedures outlined in the applicable methods. Refer to the NCA report for specific prep methods used. The samples were refrigerated at approximately 4°C and were extracted and analyzed within the EPA recommended holding times without incident.

Confirmation QA/QC requirements for laboratory analyses were met for all 8270C and 6020 (screen and confirmation) results.

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Case Narrative

CLIENT:	**Ecology & Environment (Seattle)**	**March 24, 1999**
PROJECT:	**McCormick and Baxter Soil Removal**	
PROJECT #:	**749.OH04-00.98**	**page 2 of 2**
NCA #:	**P903246**	

4.0 QC RESULTS

Surrogate and quality control parameters that were outside control limits are noted on the appropriate pages of the analytical report.

PAH/PCP by 8070C

The surrogate 2,4,6-Tribromophenol is flagged with an E on many of the QC samples. 2,4,6-Tribromophenol is spiked into the samples at 200 ppb. When recovery is greater than 100%, this compound exceeds our upper calibration limit of 200 ppb. All of the surrogate recoveries are within specifications.

The recovery of Pentachlorophenol for the Blank Spike Sample is flagged outside of control limits. Since we have too few points to plot a control chart for this extraction procedure, the limits in the report should be considered advisory. Although this result is exceeds the DQOs for the project, this does not represent an out of control situation for the batch as per 8270C.

5.0 SAMPLE RESULTS

Where applicable, qualifiers have been added to sample results 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:

PAH/PCP by 8070C

The surrogate 2,4,6-Tribromophenol is flagged with an E on many of the samples. 2,4,6-Tribromophenol is spiked into the samples at 200 ppb. When recovery is greater than 100%, this compound exceeds our upper calibration limit of 200 ppb. All of the surrogate recoveries are within specifications.

" 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

Rochelle Carpenter, QA Manager
North Creek Analytical, Beaverton

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Chain of Custody Report

North Creek Analytical, Inc.
Environmental Laboratory Network

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NORTH CREEK ANALYTICAL
Environmental Laboratory Services

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CHAIN OF CUSTODY REPORT

Work Order # P903246

REPORT TO:
ATTENTION: Heather Brunelle
ADDRESS: 333 SW Fifth Ave
Portland OR 97204
PHONE: 735-3879 FAX: 735-4651
PROJECT NAME: McCormick & Baxter Soil Rem.
PROJECT NUMBER: 749.0H04.00.98
SAMPLED BY:

INVOICE TO:
ATTENTION:
ADDRESS:
P.O. NUMBER: NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 (Standard) | 7 | 5 | 4 | 3 | 2 | 1 | Same Day
Fuels & Hydrocarbon Analyses: 5 (Standard) | 3-4 | 2 | 1 | Same Day
OTHER Specify: 24hr fax
* Turnaround Requests less than standard may incur Rush Charges.

Analysis Request:

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Screening/As	Screening/PCP	Screening/cPAHs	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1.	RA13a08S04	10:25 3/11/99		X	X	X	S	1	Fax Results
2.	RA13a09S04	10:32 3/11/99		X	X	X	S	1	to
3.	RA13a10S04	10:37 3/11/99		X	X	X	S	1	735-4651
4.	RA13a11S041 HB	10:40 3/11/99		X	X	X	S	1	24hr
5.							~~S~~ HB		
6.	RA120S03	14:30 3/11/99		X			S	1	
7.	RA121S03	14:32 3/11/99		X			S	1	
8.	RA122S03	14:35 3/11/99		X			S	1	
9.	RA123S03	14:37 3/11/99		X			S	1	
10.	RA124S03	14:32 3/11/99		X			S	1	

RELINQUISHED BY (Signature): [signature] DATE: 3/11/99
PRINT NAME: Heather Brunelle FIRM: EEE TIME: 15:00

RECEIVED BY (Signature): Debra A Meskimen DATE: 3/11/99
PRINT NAME: Debra Meskimen FIRM: NCA TIME: 15:00

RELINQUISHED BY (Signature): Debra A Meskimen DATE: 15:35
PRINT NAME: Debra Meskimen FIRM: NCA TIME: 3/11/99

RECEIVED BY (Signature): Sara McClung DATE: 1535
PRINT NAME: Sara McClung FIRM: NCA TIME: 3-11-99

ADDITIONAL REMARKS:

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North Creek Analytical Report

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/11/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/24/99 09:19

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
RA13a08S04	P903246-01	Soil	3/11/99
RA13a09S04	P903246-02	Soil	3/11/99
RA13a10S04	P903246-03	Soil	3/11/99
RA13a11S04	P903246-04	Soil	3/11/99
RA120S03	P903246-05	Soil	3/11/99
RA121S03	P903246-06	Soil	3/11/99
RA122S03	P903246-07	Soil	3/11/99
RA123S03	P903246-08	Soil	3/11/99
RA124S03	P903246-09	Soil	3/11/99

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/11/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/24/99 09:19

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*
RA13a10S04			**P903246-03**				**Soil**	
Arsenic	0390316	3/11/99	3/11/99	EPA 6020	2.50	**4.17**	mg/kg dry	
RA13a11S04			**P903246-04**				**Soil**	
Arsenic	0390316	3/11/99	3/11/99	EPA 6020	2.50	**23.1**	mg/kg dry	
RA120S03			**P903246-05**				**Soil**	
Arsenic	0390316	3/11/99	3/11/99	EPA 6020	2.50	**18.3**	mg/kg dry	
RA121S03			**P903246-06**				**Soil**	
Arsenic	0390316	3/11/99	3/11/99	EPA 6020	2.50	**3.69**	mg/kg dry	
RA123S03			**P903246-08**				**Soil**	
Arsenic	0390316	3/11/99	3/11/99	EPA 6020	2.50	**6.60**	mg/kg dry	
RA124S03			**P903246-09**				**Soil**	
Arsenic	0390316	3/11/99	3/11/99	EPA 6020	2.50	**3.09**	mg/kg dry	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/11/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/24/99 09:19

Metals Scan by ICP/MS
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
RA13a08S04			**P903246-01**				**Soil**	**E**
Arsenic	0390316	3/11/99	3/11/99	EPA 6020	2.5	**610**	mg/kg dry	
RA13a09S04			**P903246-02**				**Soil**	**E**
Arsenic	0390316	3/11/99	3/11/99	EPA 6020	2.5	**640**	mg/kg dry	
RA13a10S04			**P903246-03**				**Soil**	
Arsenic	0390316	3/11/99	3/11/99	EPA 6020	2.5	**4.2**	mg/kg dry	
RA13a11S04			**P903246-04**				**Soil**	
Arsenic	0390316	3/11/99	3/11/99	EPA 6020	2.5	**23**	mg/kg dry	
RA120S03			**P903246-05**				**Soil**	
Arsenic	0390316	3/11/99	3/11/99	EPA 6020	2.5	**18**	mg/kg dry	
RA121S03			**P903246-06**				**Soil**	
Arsenic	0390316	3/11/99	3/11/99	EPA 6020	2.5	**3.7**	mg/kg dry	
RA122S03			**P903246-07**				**Soil**	
Arsenic	0390316	3/11/99	3/11/99	EPA 6020	2.5	**460**	mg/kg dry	
RA123S03			**P903246-08**				**Soil**	
Arsenic	0390316	3/11/99	3/11/99	EPA 6020	2.5	**6.6**	mg/kg dry	
RA124S03			**P903246-09**				**Soil**	
Arsenic	0390316	3/11/99	3/11/99	EPA 6020	2.5	**3.1**	mg/kg dry	

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**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/11/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/24/99 09:19

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*
RA13a10S04			**P903246-03**				**Soil**	
Benzo (a) anthracene	0390382	3/11/99	3/11/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**10.2**	"	1
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*93.6*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*129*	"	*E*
RA13a11S04			**P903246-04**				**Soil**	
Benzo (a) anthracene	0390382	3/11/99	3/11/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**15.4**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*88.7*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*122*	"	*E*

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/11/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/24/99 09:19

Semivolatile Organic Compound Screen per EPA Method 8270C Modified
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
RA13a08S04			**P903246-01**				**Soil**	
Benzo (a) anthracene	0390307	3/11/99	3/11/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*87.5*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*118*	"	*E*
RA13a09S04			**P903246-02**				**Soil**	
Benzo (a) anthracene	0390307	3/11/99	3/11/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	2
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	2
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**27.1**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*93.6*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*132*	"	*E*
RA13a10S04			**P903246-03**				**Soil**	
Benzo (a) anthracene	0390307	3/11/99	3/11/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**10.2**	"	1
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*93.6*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*129*	"	*E*
RA13a11S04			**P903246-04**				**Soil**	
Benzo (a) anthracene	0390307	3/11/99	3/11/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	

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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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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/11/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/24/99 09:19

Semivolatile Organic Compound Screen per EPA Method 8270C Modified
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
RA13a11S04 (continued)			**P903246-04**				**Soil**	
Benzo (b) fluoranthene	0390307	3/11/99	3/11/99		5.00	ND	mg/kg dry	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**15.4**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*88.7*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*122*	"	*E*

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/11/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/24/99 09:19

Dry Weight Determination
North Creek Analytical - Portland

Sample Name	Lab ID	Matrix	Result	Units
RA13a08S04	P903246-01	Soil	91.1	%
RA13a09S04	P903246-02	Soil	91.1	%
RA13a10S04	P903246-03	Soil	91.4	%
RA13a11S04	P903246-04	Soil	94.7	%
RA120S03	P903246-05	Soil	93.7	%
RA121S03	P903246-06	Soil	93.4	%
[illegible]122S03	P903246-07	Soil	90.7	%
RA123S03	P903246-08	Soil	92.5	%
RA124S03	P903246-09	Soil	93.8	%

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/11/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/24/99 09:19

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: 0390316	**Date Prepared: 3/11/99**				**Extraction Method: EPA 3050**					
Blank	**0390316-BLK1**									
Arsenic	3/11/99			**ND**	mg/kg dry	**2.50**				
LCS	**0390316-BS1**									
Arsenic	3/11/99	250		224	mg/kg dry	80.0-120	89.6			
Duplicate	**0390316-DUP1**		**P903235-01**							
Arsenic	3/11/99		84.8	85.6	mg/kg dry			40.0	**0.939**	
Matrix Spike Dup	**0390316-MSD1**		**P903235-01**							
Arsenic	3/11/99	269	84.8	308	mg/kg dry	75.0-125	**83.0**	40.0		

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/11/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/24/99 09:19

Metals Scan by ICP/MS/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: 0390316	**Date Prepared: 3/11/99**				**Extraction Method: EPA 3050**					
Blank	**0390316-BLK1**									
Arsenic	3/11/99			**ND**	mg/kg dry	**2.5**				
LCS	**0390316-BS1**									
Arsenic	3/11/99	250		220	mg/kg dry	80-120	88			

North Creek Analytical - Portland

**Refer to end of report for text of notes and definitions.*

5/19/99

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Deborah Griffiths, Project Manager

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541.383.9310 fax 541.382.7588

Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/11/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/24/99 09:19

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: 0390382	**Date Prepared: 3/11/99**				**Extraction Method: EPA 3550**					
Blank	**0390382-BLK1**									
Benzo (a) anthracene	3/11/99			**ND**	mg/kg dry	**5.00**				
Benzo (a) pyrene	"			**ND**	"	**5.00**				
Benzo (b) fluoranthene	"			**ND**	"	**5.00**				
Benzo (k) fluoranthene	"			**ND**	"	**5.00**				
Chrysene	"			**ND**	"	**5.00**				
Dibenzo (a,h) anthracene	"			**ND**	"	**5.00**				
Indeno (1,2,3-cd) pyrene	"			**ND**	"	**5.00**				
Pentachlorophenol	"			**ND**	"	**10.0**				
Surrogate: p-Terphenyl-d14	"	*100*		*86.4*	"	*20.0-150*	*86.4*			
Surrogate: 2,4,6-Tribromophenol	"	*200*		*239*	"	*10.0-150*	*120*			*E*
LCS	**0390382-BS1**									
Benzo (a) pyrene	3/11/99	100		89.5	mg/kg dry	35.0-142	89.5			
Chrysene	"	100		105	"	35.0-142	105			
Pentachlorophenol	"	100		114	"	17.0-109	114			3
Surrogate: p-Terphenyl-d14	"	*100*		*87.4*	"	*20.0-150*	*87.4*			
Surrogate: 2,4,6-Tribromophenol	"	*200*		*245*	"	*10.0-150*	*123*			*E*
Matrix Spike	**0390382-MS1**		**P903235-01**							
Benzo (a) pyrene	3/11/99	107	5.08	99.6	mg/kg dry	35.0-142	**88.3**			
Chrysene	"	107	6.00	115	"	35.0-142	**102**			
Pentachlorophenol	"	107	263	317	"	17.0-109	**50.5**			
Surrogate: p-Terphenyl-d14	"	*107*		*93.1*	"	*20.0-150*	*87.0*			
Surrogate: 2,4,6-Tribromophenol	"	*215*		*229*	"	*10.0-150*	*107*			
Matrix Spike Dup	**0390382-MSD1**		**P903235-01**							
Benzo (a) pyrene	3/11/99	107	5.08	96.1	mg/kg dry	35.0-142	**85.1**	36.0	**3.69**	
Chrysene	"	107	6.00	113	"	35.0-142	**100**	36.0	**1.98**	
Pentachlorophenol	"	107	263	314	"	17.0-109	**47.7**	47.0	**5.70**	
Surrogate: p-Terphenyl-d14	"	*107*		*91.9*	"	*20.0-150*	*85.9*			
Surrogate: 2,4,6-Tribromophenol	"	*215*		*236*	"	*10.0-150*	*110*			

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/11/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/24/99 09:19

Semivolatile Organic Compound Screen per EPA Method 8270C Modified/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: 0390307	**Date Prepared: 3/11/99**				**Extraction Method: EPA 3550**					
Blank	**0390307-BLK1**									
Benzo (a) anthracene	3/11/99			**ND**	mg/kg dry	**5.00**				
Benzo (a) pyrene	"			**ND**	"	**5.00**				
Benzo (b) fluoranthene	"			**ND**	"	**5.00**				
Benzo (k) fluoranthene	"			**ND**	"	**5.00**				
Chrysene	"			**ND**	"	**5.00**				
Dibenzo (a,h) anthracene	"			**ND**	"	**5.00**				
Indeno (1,2,3-cd) pyrene	"			**ND**	"	**5.00**				
Pentachlorophenol	"			**ND**	"	**10.0**				
Surrogate: p-Terphenyl-d14	"	*100*		*86.4*	"	*20.0-150*	*86.4*			
Surrogate: 2,4,6-Tribromophenol	"	*200*		*239*	"	*10.0-150*	*120*			*E*
LCS	**0390307-BS1**									
Benzo (a) pyrene	3/11/99	100		89.5	mg/kg dry	20.0-150	89.5			
Chrysene	"	100		105	"	20.0-150	105			
Pentachlorophenol	"	100		114	"	20.0-150	114			
Surrogate: p-Terphenyl-d14	"	*100*		*87.4*	"	*20.0-150*	*87.4*			
Surrogate: 2,4,6-Tribromophenol	"	*200*		*245*	"	*10.0-150*	*123*			*E*
Matrix Spike	**0390307-MS1**		**P903235-01**							
Benzo (a) pyrene	3/11/99	107	5.08	99.6	mg/kg dry	20.0-150	**88.3**			
Chrysene	"	107	6.00	115	"	20.0-150	**102**			
Pentachlorophenol	"	107	263	317	"	10.0-150	**50.5**			
Surrogate: p-Terphenyl-d14	"	*107*		*93.1*	"	*20.0-150*	*87.0*			
Surrogate: 2,4,6-Tribromophenol	"	*215*		*229*	"	*10.0-150*	*107*			
Matrix Spike Dup	**0390307-MSD1**		**P903235-01**							
Benzo (a) pyrene	3/11/99	107	5.08	96.1	mg/kg dry	20.0-150	**85.1**	50.0	**3.69**	
Chrysene	"	107	6.00	113	"	20.0-150	**100**	50.0	**1.98**	
Pentachlorophenol	"	107	263	315	"	10.0-150	**48.6**	50.0	**3.83**	
Surrogate: p-Terphenyl-d14	"	*107*		*91.9*	"	*20.0-150*	*85.9*			
Surrogate: 2,4,6-Tribromophenol	"	*215*		*237*	"	*10.0-150*	*110*			

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DATA PACKAGE

for

Ecology and Environment

Portland SDG #: P903420

Client Project Name: McCormick & Baxter Soil Removal
Client Project #: 749.OH04-00.98

The total number of pages contained in this package is:

205

Prepared by:

NORTH CREEK ANALYTICAL, Inc.
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Case Narrative

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Case Narrative

CLIENT:	**Ecology & Environment (Seattle)**	**April 7, 1999**
PROJECT:	**McCormick and Baxter Soil Removal**	
PROJECT #:	**749.OH04-00.98**	**page 1 of 2**
NCA #:	**P903420**	

1.0 DESCRIPTION OF CASE

North Creek Analytical, Portland received twelve soil samples on 3/19/99 from Ecology & Environment for analysis by the following Methods as per the chain of custody: Metals scan by ICP/MS (As) and 8270C Modified (carcinogenic PAHs/PCP Screening method). Selected samples were then confirmed by the following EPA Methods: 6020 Total Metals (As) and 8270C (carcinogenic PAHs/PCP).

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 # (SDG#), preceded 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 Ecology & Environment. The samples were clearly labeled and matched the chain of custody. Sample temperature (25.0°C) was measured upon receipt using a Raytek PM 30 Infrared Temperature gun and recorded.

3.2 Analysis

The samples were analyzed following the procedures outlined in the applicable methods. Refer to the NCA report for specific prep methods used. The samples were refrigerated at approximately 4°C and were extracted and analyzed within the EPA recommended holding times without incident.

4.0 QC RESULTS

Surrogate and quality control parameters that were outside control limits are noted on the appropriate pages of the analytical report.

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Case Narrative

CLIENT:	**Ecology & Environment (Seattle)**	**April 7, 1999**
PROJECT:	**McCormick and Baxter Soil Removal**	
PROJECT #:	**749.OH04-00.98**	**page 2 of 2**
NCA #:	**P903420**	

5.0 SAMPLE RESULTS

Where applicable, qualifiers have been added to sample results 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: None Needed

" 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

Rochelle Carpenter, QA Manager
North Creek Analytical, Beaverton

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Chain of Custody Report

North Creek Analytical, Inc.
Environmental Laboratory Network

Rev dwg.

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

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CHAIN OF CUSTODY REPORT

Work Order # 903420

REPORT TO:
ATTENTION: HEATHER BRUNELLE
ADDRESS: 333 SW 5th AVE. STE 608
PORTLAND, OR 97204
PHONE: 735-3879 FAX: 735-4651
PROJECT NAME: McCORMICK + BAXTER
PROJECT NUMBER: 749.0H04.00.98
SAMPLED BY: MIKE COENEN / JIM VAETH

INVOICE TO:
ATTENTION:
ADDRESS:
P.O. NUMBER: NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 (Standard) | 7 | 5 | 4 | 3 | 2 | 1 | Same Day
Fuels & Hydrocarbon Analyses: 5 (Standard) | 3-4 | 2 | 1 | Same Day
OTHER Specify: 24 HR. FAX
* Turnaround Requests less than standard may incur Rush Charges

Analysis Request:

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Screening As	Screening PCP	Screening PAH								MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1	RA1913S01	3/19/99 13:30		X	X	X								S	1	24 HR.
2	RA1914S01	13:32		X	X	X									1	FAX RESULTS
3	RA1915S02	13:34		X	X	X									1	TO 735-4651
4	RA1916S01	13:36		X	X	X									1	
5	RA1917S01	13:38		X	X	X									1	
6	RA1918S01	13:42		X	X	X									1	
7	RA1919S01	3/19/99 13:40		X	X	X								S	1	
8																
9																
10																

RELINQUISHED BY (Signature): Mike Coenen DATE: 3/19/99
PRINT NAME: MIKE COENEN FIRM: E+E TIME: 14:50

RECEIVED BY (Signature): Debra A Moskimen DATE: 3/19/99
PRINT NAME: Debra Moskimen FIRM: NCA TIME: 1450

RELINQUISHED BY (Signature): Debra A Moskimen DATE: 3/19/99
PRINT NAME: Debra Moskimen FIRM: NCA TIME: 1525

RECEIVED BY (Signature): Marylin Shane DATE: 3/19/99
PRINT NAME: Marylin Shane FIRM: NCA TIME: 1525

ADDITIONAL REMARKS:

PAGE OF

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CHAIN OF CUSTODY REPORT

Work Order # 903420

REPORT TO:
ATTENTION: HEATHER BRUNELLE
ADDRESS: 333 SW FIFTH AVE. STE 600
PORTLAND, OR 97204
PHONE: 735-3879 FAX: 735-4651
PROJECT NAME: McCORMICK AND BAXTER
PROJECT NUMBER: 749.0H04.00.98
SAMPLED BY: MIKE COENEN / JIM VAETH

INVOICE TO:
ATTENTION:
ADDRESS:
P.O. NUMBER: NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 (Standard) | 7 | 5 | 4 | 3 | 2 | 1 | Same Day
Fuels & Hydrocarbon Analyses: 5 (Standard) | 3-4 | 2 | 1 | Same Day
OTHER Specify: 24 HOUR FAX
* Turnaround Requests less than standard may incur Rush Charges

Analysis Request: Screening As, Screening PCP, Screening SAH

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Screening As	Screening PCP	Screening SAH	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1	RA1411 S01	3/18/99 12:50		X	X	X	S	1	24 HR
2	RA1412 S01	12:52		X	X	X	S	1	FAX RESULTS
3	RA1413 S01	12:54		X	X	X	S	1	TO 735-4651
4	RA1414 S01	12:56		X	X	X	S	1	
5	RA1415 S01	3/13/99 13:58		X	X	X	S	1	
6									
7									
8									
9									
10									

RELINQUISHED BY (Signature): [signature] DATE: 3/19/99
PRINT NAME: MIKE COENEN FIRM: E&E TIME: 14:50
RECEIVED BY (Signature): [signature] DATE: 3/19/99
PRINT NAME: Debra Meskimen FIRM: NCA TIME: 1450
RELINQUISHED BY (Signature): [signature] DATE: 3/19/99
PRINT NAME: Debra Meskimen FIRM: NCA TIME: 1525
RECEIVED BY (Signature): [signature] DATE: 3/19/99
PRINT NAME: Mary Mc Shane FIRM: NCA TIME: 1525

ADDITIONAL REMARKS:

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North Creek Analytical Report

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled: 3/19/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received: 3/19/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported: 4/5/99 16:32

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
RA1913S01	P903420-01	Soil	3/19/99
RA1914S01	P903420-02	Soil	3/19/99
RA1915S01	P903420-03	Soil	3/19/99
RA1916S01	P903420-04	Soil	3/19/99
RA1917S01	P903420-05	Soil	3/19/99
RA1918S01	P903420-06	Soil	3/19/99
RA1919S01	P903420-07	Soil	3/19/99
RA1411S01	P903420-08	Soil	3/19/99
RA1412S01	P903420-09	Soil	3/19/99
RA1413S01	P903420-10	Soil	3/19/99
RA1414S01	P903420-11	Soil	3/19/99
RA1415S01	P903420-12	Soil	3/19/99

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/19/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/19/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/5/99 16:32

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*
RA1913S01			**P903420-01**				**Soil**	
Arsenic	0390559	3/19/99	3/22/99	EPA 6020	2.50	**3.19**	mg/kg dry	
RA1914S01			**P903420-02**				**Soil**	
Arsenic	0390559	3/19/99	3/22/99	EPA 6020	2.50	**14.5**	mg/kg dry	
RA1915S01			**P903420-03**				**Soil**	
Arsenic	0390559	3/19/99	3/22/99	EPA 6020	2.50	ND	mg/kg dry	
RA1917S01			**P903420-05**				**Soil**	
Arsenic	0390559	3/19/99	3/22/99	EPA 6020	2.50	**193**	mg/kg dry	
RA1919S01			**P903420-07**				**Soil**	
Arsenic	0390559	3/19/99	3/22/99	EPA 6020	2.50	ND	mg/kg dry	
RA1411S01			**P903420-08**				**Soil**	
Arsenic	0390559	3/19/99	3/22/99	EPA 6020	2.50	**3.41**	mg/kg dry	
RA1412S01			**P903420-09**				**Soil**	
Arsenic	0390559	3/19/99	3/22/99	EPA 6020	2.50	**23.7**	mg/kg dry	
RA1414S01			**P903420-11**				**Soil**	
Arsenic	0390559	3/19/99	3/22/99	EPA 6020	2.50	ND	mg/kg dry	
RA1415S01			**P903420-12**				**Soil**	
Arsenic	0390559	3/19/99	3/22/99	EPA 6020	2.50	ND	mg/kg dry	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/19/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/19/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/5/99 16:32

Metals Scan by ICP/MS
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
RA1913S01			**P903420-01**				**Soil**	
Arsenic	0390559	3/19/99	3/22/99	EPA 6020	2.5	**3.2**	mg/kg dry	
RA1914S01			**P903420-02**				**Soil**	
Arsenic	0390559	3/19/99	3/22/99	EPA 6020	2.5	**15**	mg/kg dry	
RA1915S01			**P903420-03**				**Soil**	
Arsenic	0390559	3/19/99	3/22/99	EPA 6020	2.5	ND	mg/kg dry	
RA1916S01			**P903420-04**				**Soil**	
Arsenic	0390559	3/19/99	3/22/99	EPA 6020	2.5	**410**	mg/kg dry	
RA1917S01			**P903420-05**				**Soil**	
Arsenic	0390559	3/19/99	3/22/99	EPA 6020	2.5	**190**	mg/kg dry	
RA1918S01			**P903420-06**				**Soil**	
Arsenic	0390559	3/19/99	3/22/99	EPA 6020	2.5	ND	mg/kg dry	
RA1919S01			**P903420-07**				**Soil**	
Arsenic	0390559	3/19/99	3/22/99	EPA 6020	2.5	ND	mg/kg dry	
RA1411S01			**P903420-08**				**Soil**	
Arsenic	0390559	3/19/99	3/22/99	EPA 6020	2.5	**3.4**	mg/kg dry	
RA1412S01			**P903420-09**				**Soil**	
Arsenic	0390559	3/19/99	3/22/99	EPA 6020	2.5	**24**	mg/kg dry	
RA1413S01			**P903420-10**				**Soil**	
Arsenic	0390559	3/19/99	3/22/99	EPA 6020	2.5	**21**	mg/kg dry	
RA1414S01			**P903420-11**				**Soil**	
Arsenic	0390559	3/19/99	3/22/99	EPA 6020	2.5	ND	mg/kg dry	
RA1415S01			**P903420-12**				**Soil**	
Arsenic	0390559	3/19/99	3/22/99	EPA 6020	2.5	ND	mg/kg dry	

**Refer to end of report for text of notes and definitions.*

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/19/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/19/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/5/99 16:32

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*
RA1913S01			**P903420-01**				**Soil**	
Benzo (a) anthracene	0390800	3/19/99	3/20/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	**5.12**	"	
Benzo (b) fluoranthene	"	"	"		5.00	**8.28**	"	
Benzo (k) fluoranthene	"	"	"		5.00	**6.22**	"	
Chrysene	"	"	"		5.00	**6.00**	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*117*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*133*	"	
RA1914S01			**P903420-02**				**Soil**	
Benzo (a) anthracene	0390800	3/19/99	3/20/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*113*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*135*	"	
RA1915S01			**P903420-03**				**Soil**	
Benzo (a) anthracene	0390800	3/19/99	3/20/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*106*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*127*	"	
RA1917S01			**P903420-05**				**Soil**	
Benzo (a) anthracene	0390800	3/19/99	3/20/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/19/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/19/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/5/99 16:32

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*
RA1917S01 (continued)			**P903420-05**				**Soil**	
Benzo (b) fluoranthene	0390800	3/19/99	3/20/99		5.00	ND	mg/kg dry	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*128*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*138*	"	
RA1919S01			**P903420-07**				**Soil**	
Benzo (a) anthracene	0390800	3/19/99	3/20/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*124*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	*3/25/99*	*10.0-150*		*110*	"	
RA1411S01			**P903420-08**				**Soil**	
Benzo (a) anthracene	0390800	3/19/99	3/20/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	**6.06**	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	**8.06**	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**168**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*115*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*136*	"	
RA1412S01			**P903420-09**				**Soil**	
Benzo (a) anthracene	0390800	3/19/99	3/20/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	**14.4**	"	
Benzo (k) fluoranthene	"	"	"		5.00	**7.55**	"	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/19/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/19/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/5/99 16:32

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*
RA1412S01 (continued)			**P903420-09**				**Soil**	
Chrysene	0390800	3/19/99	3/20/99		5.00	**14.1**	mg/kg dry	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**127**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*124*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*147*	"	
RA1414S01			**P903420-11**				**Soil**	
Benzo (a) anthracene	0390800	3/19/99	3/20/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**47.7**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*120*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*139*	"	
RA1415S01			**P903420-12**				**Soil**	
Benzo (a) anthracene	0390800	3/19/99	3/20/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	**7.19**	"	
Benzo (b) fluoranthene	"	"	"		5.00	**9.28**	"	1
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	1
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	**9.33**	"	
Pentachlorophenol	"	"	"		10.0	**28.6**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*107*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*132*	"	

**Refer to end of report for text of notes and definitions.*

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Deborah Griffiths, Project Manager

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/19/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/19/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/5/99 16:32

Semivolatile Organic Compound Screen per EPA Method 8270C Modified
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
RA1913S01			**P903420-01**				**Soil**	
Benzo (a) anthracene	0390555	3/19/99	3/20/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	**5.12**	"	
Benzo (b) fluoranthene	"	"	"		5.00	**8.28**	"	
Benzo (k) fluoranthene	"	"	"		5.00	**6.22**	"	
Chrysene	"	"	"		5.00	**6.00**	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*117*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*133*	"	
RA1914S01			**P903420-02**				**Soil**	
Benzo (a) anthracene	0390555	3/19/99	3/20/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*113*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*135*	"	
RA1915S01			**P903420-03**				**Soil**	
Benzo (a) anthracene	0390555	3/19/99	3/20/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*106*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*127*	"	
RA1916S01			**P903420-04**				**Soil**	
Benzo (a) anthracene	0390555	3/19/99	3/20/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	

**Refer to end of report for text of notes and definitions.*

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/19/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/19/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/5/99 16:32

Semivolatile Organic Compound Screen per EPA Method 8270C Modified
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
RA1916S01 (continued)			**P903420-04**				**Soil**	
Benzo (b) fluoranthene	0390555	3/19/99	3/20/99		5.00	ND	mg/kg dry	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	**6.43**	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**22.8**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*132*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*148*	"	
RA1917S01			**P903420-05**				**Soil**	
Benzo (a) anthracene	0390555	3/19/99	3/20/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*128*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*138*	"	
RA1918S01			**P903420-06**				**Soil**	
Benzo (a) anthracene	0390555	3/19/99	3/20/99		5.00	**8.36**	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	**24.6**	"	
Benzo (b) fluoranthene	"	"	"		5.00	**29.8**	"	
Benzo (k) fluoranthene	"	"	"		5.00	**19.5**	"	
Chrysene	"	"	"		5.00	**22.9**	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	**10.1**	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*114*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*137*	"	
RA1919S01			**P903420-07**				**Soil**	
Benzo (a) anthracene	0390555	3/19/99	3/20/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	

**Refer to end of report for text of notes and definitions.*

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Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/5/99 16:32

Semivolatile Organic Compound Screen per EPA Method 8270C Modified
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
RA1919S01 (continued)			**P903420-07**				**Soil**	
Chrysene	0390555	3/19/99	3/20/99		5.00	ND	mg/kg dry	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*124*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	*3/25/99*	*10.0-150*		*110*	"	
RA1411S01			**P903420-08**				**Soil**	
Benzo (a) anthracene	0390555	3/19/99	3/20/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	**6.06**	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	**8.06**	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**168**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*115*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*136*	"	
RA1412S01			**P903420-09**				**Soil**	
Benzo (a) anthracene	0390555	3/19/99	3/20/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	**14.4**	"	
Benzo (k) fluoranthene	"	"	"		5.00	**7.55**	"	
Chrysene	"	"	"		5.00	**14.1**	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**127**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*124*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*147*	"	
RA1413S01			**P903420-10**				**Soil**	**2**
Benzo (a) anthracene	0390555	3/19/99	3/20/99		10.0	**11.6**	mg/kg dry	
Benzo (a) pyrene	"	"	"		10.0	**18.8**	"	
Benzo (b) fluoranthene	"	"	"		10.0	**40.9**	"	
Benzo (k) fluoranthene	"	"	"		10.0	**17.4**	"	
Chrysene	"	"	"		10.0	**28.3**	"	
Dibenzo (a,h) anthracene	"	"	"		10.0	ND	"	

**Refer to end of report for text of notes and definitions.*

HJB 5/19/99

Deborah Griffiths, Project Manager

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/19/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/19/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/5/99 16:32

Semivolatile Organic Compound Screen per EPA Method 8270C Modified
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
RA1413S01 (continued)			**P903420-10**				**Soil**	**2**
Indeno (1,2,3-cd) pyrene	0390555	3/19/99	3/20/99		10.0	ND	mg/kg dry	
Pentachlorophenol	"	"	"		20.0	**187**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*129*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*135*	"	
RA1414S01			**P903420-11**				**Soil**	
Benzo (a) anthracene	0390555	3/19/99	3/20/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**47.7**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*120*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*139*	"	
RA1415S01			**P903420-12**				**Soil**	
Benzo (a) anthracene	0390555	3/19/99	3/20/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	**7.19**	"	
Benzo (b) fluoranthene	"	"	"		5.00	**9.28**	"	1
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	1
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	**9.33**	"	
Pentachlorophenol	"	"	"		10.0	**28.6**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*107*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*132*	"	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/19/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/19/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/5/99 16:32

Dry Weight Determination
North Creek Analytical - Portland

Sample Name	Lab ID	Matrix	Result	Units
RA1913S01	P903420-01	Soil	88.2	%
RA1914S01	P903420-02	Soil	90.9	%
RA1915S01	P903420-03	Soil	92.3	%
RA1916S01	P903420-04	Soil	68.9	%
RA1917S01	P903420-05	Soil	87.3	%
RA1918S01	P903420-06	Soil	91.5	%
RA1919S01	P903420-07	Soil	92.8	%
RA1411S01	P903420-08	Soil	94.0	%
RA1412S01	P903420-09	Soil	97.8	%
RA1413S01	P903420-10	Soil	91.7	%
RA1414S01	P903420-11	Soil	92.4	%
RA1415S01	P903420-12	Soil	92.8	%

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/19/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/19/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/5/99 16:32

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: 0390559	**Date Prepared: 3/19/99**				**Extraction Method: EPA 3050**					
Blank	**0390559-BLK1**									
Arsenic	3/22/99			**ND**	mg/kg dry	**2.50**				
LCS	**0390559-BS1**									
Arsenic	3/22/99	250		205	mg/kg dry	80.0-120	82.0			
Duplicate	**0390559-DUP1**		**P903420-01**							
Arsenic	3/22/99		3.19	2.96	mg/kg dry			40.0	**7.48**	
Matrix Spike	**0390559-MS1**		**P903420-01**							
Arsenic	3/22/99	284	3.19	245	mg/kg dry	75.0-125	**85.1**			
Matrix Spike Dup	**0390559-MSD1**		**P903420-01**							
Arsenic	3/22/99	284	3.19	242	mg/kg dry	75.0-125	**84.1**	40.0	**1.18**	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/19/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/19/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/5/99 16:32

Metals Scan by ICP/MS/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: 0390559	**Date Prepared: 3/19/99**				**Extraction Method: EPA 3050**					
Blank	**0390559-BLK1**									
Arsenic	3/22/99			**ND**	mg/kg dry	**2.5**				
LCS	**0390559-BS1**									
Arsenic	3/22/99	250		210	mg/kg dry	80-120	84			

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/19/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/19/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/5/99 16:32

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: 0390800	**Date Prepared: 3/19/99**				**Extraction Method: EPA 3550**					
Blank	**0390800-BLK1**									
Benzo (a) anthracene	3/20/99			**ND**	mg/kg dry	**5.00**				
Benzo (a) pyrene	"			**ND**	"	**5.00**				
Benzo (b) fluoranthene	"			**ND**	"	**5.00**				
Benzo (k) fluoranthene	"			**ND**	"	**5.00**				
Chrysene	"			**ND**	"	**5.00**				
Dibenzo (a,h) anthracene	"			**ND**	"	**5.00**				
Indeno (1,2,3-cd) pyrene	"			**ND**	"	**5.00**				
Pentachlorophenol	"			**ND**	"	**10.0**				
Surrogate: p-Terphenyl-d14	"	*50.0*		*67.9*	"	*20.0-150*	*136*			
Surrogate: 2,4,6-Tribromophenol	"	*100*		*150*	"	*10.0-150*	*150*			
LCS	**0390800-BS1**									
Benzo (a) pyrene	3/20/99	200		109	mg/kg dry	35.0-142	54.5			
Chrysene	"	200		108	"	35.0-142	54.0			
Pentachlorophenol	"	200		108	"	17.0-109	54.0			
Surrogate: p-Terphenyl-d14	"	*50.0*		*53.3*	"	*20.0-150*	*107*			
Surrogate: 2,4,6-Tribromophenol	"	*100*		*120*	"	*10.0-150*	*120*			
Matrix Spike	**0390800-MS1**		**P903420-01**							
Benzo (a) pyrene	3/20/99	227	5.12	125	mg/kg dry	35.0-142	**52.8**			
Chrysene	"	227	6.00	124	"	35.0-142	**52.0**			
Pentachlorophenol	"	227	ND	132	"	17.0-109	**58.1**			
Surrogate: p-Terphenyl-d14	"	*56.7*		*60.5*	"	*20.0-150*	*107*			
Surrogate: 2,4,6-Tribromophenol	"	*113*		*142*	"	*10.0-150*	*126*			
Matrix Spike Dup	**0390800-MSD1**		**P903420-01**							
Benzo (a) pyrene	3/20/99	227	5.12	143	mg/kg dry	35.0-142	**60.7**	36.0	**13.9**	
Chrysene	"	227	6.00	144	"	35.0-142	**60.8**	36.0	**15.6**	
Pentachlorophenol	"	227	ND	153	"	17.0-109	**67.4**	47.0	**14.8**	
Surrogate: p-Terphenyl-d14	"	*56.7*		*68.1*	"	*20.0-150*	*120*			
Surrogate: 2,4,6-Tribromophenol	"	*113*		*162*	"	*10.0-150*	*143*			

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/19/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/19/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/5/99 16:32

Semivolatile Organic Compound Screen per EPA Method 8270C Modified/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: 0390555	**Date Prepared: 3/19/99**				**Extraction Method: EPA 3550**					
Blank	**0390555-BLK1**									
Benzo (a) anthracene	3/20/99			**ND**	mg/kg dry	**5.00**				
Benzo (a) pyrene	"			**ND**	"	**5.00**				
Benzo (b) fluoranthene	"			**ND**	"	**5.00**				
Benzo (k) fluoranthene	"			**ND**	"	**5.00**				
Chrysene	"			**ND**	"	**5.00**				
Dibenzo (a,h) anthracene	"			**ND**	"	**5.00**				
Indeno (1,2,3-cd) pyrene	"			**ND**	"	**5.00**				
Pentachlorophenol	"			**ND**	"	**10.0**				
Surrogate: p-Terphenyl-d14	"	*50.0*		*67.9*	"	*20.0-150*	*136*			
Surrogate: 2,4,6-Tribromophenol	"	*100*		*150*	"	*10.0-150*	*150*			
LCS	**0390555-BS1**									
Benzo (a) pyrene	3/20/99	100		109	mg/kg dry	20.0-150	109			
Chrysene	"	100		108	"	20.0-150	108			
Pentachlorophenol	"	100		108	"	10.0-150	108			
Surrogate: p-Terphenyl-d14	"	*50.0*		*53.3*	"	*20.0-150*	*107*			
Surrogate: 2,4,6-Tribromophenol	"	*100*		*120*	"	*10.0-150*	*120*			
Matrix Spike	**0390555-MS1**		**P903420-01**							
Benzo (a) pyrene	3/20/99	113	5.12	125	mg/kg dry	20.0-150	**106**			
Chrysene	"	113	6.00	124	"	20.0-150	**104**			
Pentachlorophenol	"	113	ND	132	"	10.0-150	**117**			
Surrogate: p-Terphenyl-d14	"	*56.7*		*60.5*	"	*20.0-150*	*107*			
Surrogate: 2,4,6-Tribromophenol	"	*113*		*142*	"	*10.0-150*	*126*			
Matrix Spike Dup	**0390555-MSD1**		**P903420-01**							
Benzo (a) pyrene	3/20/99	113	5.12	143	mg/kg dry	20.0-150	**122**	50.0	**14.0**	
Chrysene	"	113	6.00	144	"	20.0-150	**122**	50.0	**15.9**	
Pentachlorophenol	"	113	ND	153	"	10.0-150	**135**	50.0	**14.3**	
Surrogate: p-Terphenyl-d14	"	*56.7*		*68.1*	"	*20.0-150*	*120*			
Surrogate: 2,4,6-Tribromophenol	"	*113*		*162*	"	*10.0-150*	*143*			

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/19/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/19/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/5/99 16:32

Notes and Definitions

#	Note
J	Estimated value.
1	Due to matrix unable to resolve Benzofluoranthene isomers. Value reported only in Benzo(b) category represents Total Benzo(b+k)fluoranthene.
2	Reporting limits raised due to dilution necessary for analysis.
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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DATA VALIDATION
MEMORANDUM

DATE: May 19, 1999

TO: Kevin Smith, Project Manager, E & E, Seattle

FROM: Heather Brunelle, Chemist, E & E, Portland HTB

SUBJ: Data Validation of North Creek Analytical Data
McCormick Baxter
Portland, Oregon

REF: Project Number: OH0498
Laboratory Job Number: P903485 and P904096

Sample Matrix: Twenty one soil samples.

Sample Nos.:

RA1026S02	RA1922S04	RA1417S02
RA13b27S04	RA1923S02	RA1418S02
RA13b26S04	RA1924S02	RA412S02
RA13b28S04	RA1925S02	RA413S02
RA1920S04	RA1416S02	
RA1815S04	RA1817S04	RA13a45S01
RA1816S04	RA1817S02	
RA1816S02	RALL01S02	

The analytical data provided by North Creek Analytical, Inc. were reviewed for laboratory precision, accuracy, and completeness. All data were deemed acceptable as reported, with the following qualifications.

Twenty two soil samples were initially collected and screened for the following analyses: arsenic, pentachlorophenol (PCP), and carcinogenic polyaromatic hydrocarbons (PAHs). Two soil samples (RA412S02 and RA413S02) were initially collected and screened for arsenic analysis only. Nineteen samples were confirmed for the following analyses: arsenic, PCP, and PAHs. Two samples were confirmed for arsenic analysis only. Only the confirmation analyses were reviewed. The data was in accordance with the current edition of Quality Assurance (QA)/Quality Control (QC) guidance outlined in the United States Environmental Protection Agency's (EPA's) Test Methods for

recycled paper

Evaluating Solid Waste (EPA SW-846) and the most current editions of the EPA's Functional Guidelines for Reviewing Organic and Inorganic Analyses, as they apply to analyses conducted outside the EPA's Contract Laboratory Program (CLP).

I. ARSENIC DATA

1.0 HOLDING TIMES

Holding times are established and monitored to ensure analytical results accurately represent analyte concentrations in a sample at the time of collection. Exceeding the holding time for a sample generally results in a loss of the analyte due to a variety of mechanisms, such as deposition on the sample container walls or precipitation.

REVIEW RESULTS:

Holding time limits:

Metals - 6 months (mercury - 28 days)

All samples met holding criteria.

2.0 INITIAL AND CONTINUING CALIBRATION VERIFICATION

Initial and continuing calibration verification solutions contain known concentrations of target analytes and are repeatedly checked at the beginning of analyses (initial) and throughout a sample batch run (continuing). Instrument accuracy and stability are documented during calibrations. Accuracy is determined by the percent recovery (%R) of known standards during the initial calibration. Stability is measured by the %R of known standards during the continuing calibration. The inability of the laboratory to perform acceptably on the calibration criteria may indicate that problems exist in the laboratory's analytical system. Associated sample data generated under such conditions should be considered suspect.

REVIEW RESULTS:

The QC criteria for initial and continuing calibration for all elements were achieved.

3.0 BLANKS

Laboratory blank samples are analyzed and evaluated to determine the existence and magnitude of possible contamination. Generally, if analyte concentrations greater than the LDL for a given analyte are found in a laboratory blank, it is likely that the analyte is present as a contaminant in some phase of the analysis procedure and associated sample concentrations may be biased high.

REVIEW RESULTS:

The following analyte was detected in laboratory blanks above the LDL:

Blank*	Analyte	Conc. (µg/L)	LDL (µg/L)	Associated Samples
CCB4	Arsenic	1.877	1.00	P903485-01, -02, -03, -04, -05, -06, -07, -08, -09, -10, -11, -12, -13, -14

Conc. = Concentration.

* CCB = Continuing Calibration Blank.

a - Blank results were converted from original units (mg/kg) to µg/L by the reviewer for comparison to the LDL.

Sample results below five times the highest analyte level reported in the associated blanks were flagged "B" (blank contamination).

4.0 INDUCTIVELY COUPLED ARGON PLASMA (ICP) SPECTROMETRY INTERFERENCE CHECK SAMPLE

Interference check samples (ICS) are analyzed to verify inter-element and background correction factors used by the laboratory during sample analysis. If laboratory results for the interference check sample do not match the actual known concentration, it is possible that certain elements in solution are affecting the results when analyzing for other elements. Such matrix effects could be due to chemical interactions or physical interferences. It is assumed that similar problems would exist for sample results, and therefore, they should be treated with caution.

REVIEW RESULTS:

All criteria for ICP interference check samples were achieved for Laboratory Job Number P903485. For Laboratory Job Number P904096, all criteria for ICP interference check samples were not achieved on 4/6/99. For Laboratory Job Number P904096, the ICS solution was 154.6% of the true value. Criteria for ICP interference check sample was not achieved. All positive sample results associated with this ICP interference check sample were flagged "J" .

5.0 MATRIX SPIKE SAMPLE ANALYSIS

The spiked sample analysis also is designed to provide information about the effect of the sample matrix on the digestion and measurement methodology. Sample spike recovery values that do not meet laboratory QC criteria may indicate that sample analyte results are being attenuated in the analysis procedure. It is possible to estimate the bias of other sample results by noting the degree

to which the spike concentration was elevated or lowered in the spike analysis. However, these bias results should serve as approximations; sample-specific problems may be the cause of the discrepancy, particularly in soil samples.

REVIEW RESULTS:

The matrix spike percent recovery (%R) values were within laboratory QC limits.

6.0 DUPLICATE SAMPLE ANALYSIS

Duplicate samples are analyzed to evaluate the precision of the sample results. The failure of the laboratory to reproduce similar results for a duplicate sample may indicate that the sample was non-homogeneous (particularly in soil samples), or method defects exist in laboratory techniques.

REVIEW RESULTS

A relative percent difference (RPD) of 79.8% was calculated for the P903485 duplicate sample analyis. The sample and duplicate values, 12.4 mg./kg-dry and 5.33 mg./kg-dry respectively, are both below the Contract Required Detection Limit (CRDL) of 30 mg/kg-dry. Therefore, the RPD value was within QC criteria, ± the CRDL. The relative percent difference (RPD) values were within QC criteria.

7.0 LABORATORY CONTROL SAMPLE ANALYSIS

The laboratory control sample (LCS) is analyzed to serve as a monitor of the efficiency of the digestion procedure. The inability of the laboratory to successfully analyze an LCS is indicative of an analytical problem related to the digestion/sample preparation procedures and/or instrument operations.

REVIEW RESULTS:

All LCS analyses for soil were within control limits.

II. ORGANIC ANALYSES

1.0 HOLDING TIMES

Holding times are established and monitored to ensure analytical results accurately represent analyte concentrations in a sample at the time of collection. Exceeding the holding time for a sample generally results in a loss of the analyte due to a variety of mechanisms, such as deposition on the sample container wall, co-precipitation with particulates or volatilization through leaks in the container.

REVIEW RESULTS:

Holding time limits:
PCP and PAH:
soil - 14 days for extraction, 40 days for analysis

All samples were extracted and analyzed within the required holding times.

2.0 GAS CHROMATOGRAPH/MASS SPECTROMETER (GC/MS) TUNING

Prior to sample analysis, GC/MS tuning is carried out on the analytical instrumentation using decafluorotriphenylphosphine (DFTPP) for the PCP and PAH fraction. For this compound, certain ions in their mass spectra must be present in specific amounts to ensure the resolution, identifications, and sensitivity of the system. The failure of the laboratory to meet GC/MS tuning criteria indicates that deficiencies exist with the GC/MS system being used.

REVIEW RESULTS:

All tuning check compounds mass abundances and ratios were within required limits for PCP and PAH analysis.

3.0 INITIAL CALIBRATION

Prior to sample analysis, the GC/MS system is calibrated initially at five concentrations for each PCP and PAH target compound to determine the linearity of response. For each compound, an Average Relative Response Factor (RRF) is determined, which is later used for compound quantitation in sample results. A Relative Standard Deviation (RSD) for the average RRF also is calculated and must be less than the established QC percentage value. Low RRF values and high RSD values are indicative of unsatisfactory instrument calibration; the system may not be capable of acceptable performance for compounds exhibiting such deficiencies.

For the initial (IC) and continuing calibrations (CC) calibrations, RRF criteria is as follows:

RRF	Analyte
0.050	PCP
0.40	Benzo(a)anthracene
0.35	Benzo(b)fluoranthene, benzo(k)fluoranthene, Benzo(a)pyrene, and chrysene
0.20	Dibenzo(a,h)anthracene
0.25	Indeno(1,2,3-c,d)pyrene

REVIEW RESULTS:

All criteria for initial calibration were achieved for the PCP and PAH analysis.

4.0 CONTINUING CALIBRATION

The GC/MS initial calibration must be verified each 12-hour period for a GC/MS system; continuing calibration results check satisfactory maintenance and adjustment on a day-to-day basis. A continuing calibration RRF value is calculated for each TCL compound, and this value is compared to the initial calibration average RRF value. Continuing calibration compound results with low RRF values and/or RRFs with high percent difference values indicate the instrument is no longer correctly calibrated for these compounds

REVIEW RESULTS:

All criteria for the continuing calibration for PCP and PAH analysis.

5.0 BLANKS

Laboratory method blank samples are evaluated to assess the existence and magnitude of possible contamination. Comparison of sample results to compound concentrations found in blanks makes it possible to determine if these compounds were actually present in the sample or were introduced as a contaminant during some phase of the analytical procedure.

REVIEW RESULTS:

Frequency criteria were met for laboratory blank analysis.

No contaminants were detected in any of the laboratory blanks.

6.0 SURROGATE SPIKE RECOVERY

Laboratory performance for individual samples is established by means of surrogate spiking activities. Samples are spiked with surrogate compounds prior to preparation and analysis. Unusually low or high surrogate recovery values may indicate some deficiency in the analytical system or that some matrix effect exists, resulting in similarly low or high sample results for other compounds as well.

REVIEW RESULTS:

All surrogate percent recovery values were within laboratory QC criteria for all analysis.

7.0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) ANALYSIS

The MS/MSD analysis is designed to evaluate possible effects of the inherent sample matrix on target analyte recovery. To assess the possible matrix effect, specific analytes are spiked into a selected sample and a duplicate of that sample. The spike recoveries and relative percent difference (RPD) between the sample and the duplicate are then determined. Poor spike recoveries and high

RPD values may indicate that a significant matrix effect is present and is adversely affecting sample results for that particular matrix or sample medium.

REVIEW RESULTS:

All MS and MSD percent recovery values met laboratory QC guidelines.

8.0 INTERNAL STANDARDS PERFORMANCE

The VOC and SVOC TCL analytes identified in samples are quantified using internal standards that are spiked at specific concentrations into each sample. The retention times and chromatogram peak areas for the internal standards in each sample must fall within established QC limits to ensure that sample quantitation is correct.

REVIEW RESULTS:

All internal standards were within established QC.

9.0 COMPOUND IDENTIFICATION

9.1 PCP and PAH Analysis

The presence of all compounds found in samples is verified by comparing the mass spectra for the sample compounds to those of the calibration standards run through the GC/MS systems. Retention times for sample compounds are also checked and should match retention times established by the calibration standards. If a sample compound does not meet these criteria, its identification should be rejected.

REVIEW RESULTS:

All criteria for compound identification were achieved for both the PCP and PAH analyses.

DATA QUALIFIERS

ND - The material was analyzed for, but was not detected. The associated numerical value is a method quantitation limit adjusted for sample weight/sample volume, extraction volume, percent solids and sample dilution.

U - The material was analyzed for, but was not detected. The associated numerical value is a method quantitation limit adjusted for sample weight/sample volume, extraction volume, percent solids and sample dilution.

J - The analyte was analyzed for and was positively identified, but the associated numerical value may not be consistent with the amount actually present in the environmental sample.

The data should be seriously considered for decision-making and are usable for many purposes.

UJ - The material was analyzed for, but was not detected. The associated numerical value is an estimated/adjusted quantitation limit. The associated numerical value may not accurately or precisely represent the concentration necessary to detect the analyte in this sample.

R - Quality Control indicates that data are unusable for all purposes. The analyte was analyzed for, but the presence or absence of the analyte has not been verified. Resampling and reanalysis are necessary for verification to confirm or deny the presence of an analyte.

B - Blank contamination. The material was detected at less than five times (10 times for common solvents) the concentration found in one or more associated laboratory blanks. The data should be used with caution.

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DATA PACKAGE

for

Ecology and Environment

Portland SDG #: P903485

Client Project Name: McCormick & Baxter Soil Removal
Client Project #: 749.OH04-00.98

The total number of pages contained in this package is:

203

Prepared by:

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Case Narrative

North Creek Analytical, Inc.
Environmental Laboratory Network

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Case Narrative

CLIENT:	**Ecology & Environment (Seattle)**	**April 13, 1999**
PROJECT:	**McCormick and Baxter Soil Removal**	
PROJECT #:	**749.OH04-00.98**	**page 1 of 2**
NCA #:	**P903485**	

1.0 DESCRIPTION OF CASE

North Creek Analytical, Portland received seventeen soil samples on 3/23/99 from Ecology & Environment for analysis by the following Methods as per the chain of custody: Metals scan by ICP/MS (As) and 8270C Modified (carcinogenic PAHs/PCP Screening method). Selected samples were then confirmed by the following EPA Methods: 6020 Total Metals (As) and 8270C (carcinogenic PAHs/PCP).

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 # (SDG#), preceded 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 Ecology & Environment. The samples were clearly labeled and matched the chain of custody. Sample temperature (13.2°C) was measured upon receipt using a Raytek PM 30 Infrared Temperature gun and recorded.

3.2 Analysis

The samples were analyzed following the procedures outlined in the applicable methods. Refer to the NCA report for specific prep methods used. The samples were refrigerated at approximately 4°C and were extracted and analyzed within the EPA recommended holding times without incident.

4.0 QC RESULTS

Surrogate and quality control parameters that were outside control limits are noted on the appropriate pages of the analytical report.

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541.383.9310 fax 541.382.7583

Case Narrative

CLIENT:	**Ecology & Environment (Seattle)**	**April 13, 1999**
PROJECT:	**McCormick and Baxter Soil Removal**	
PROJECT #:	**749.OH04-00.98**	**page 2 of 2**
NCA #:	**P903485**	

5.0 SAMPLE RESULTS

Where applicable, qualifiers have been added to sample results 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: None Needed

" 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

Rochelle Carpenter, QA Manager
North Creek Analytical, Beaverton

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Chain of Custody Report

North Creek Analytical, Inc.
Environmental Laboratory Network

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13.2°

CHAIN OF CUSTODY REPORT

Work Order # 90348S

REPORT TO:
ATTENTION: Heather Brunelle
ADDRESS: 333 SW Fifth Ave Ste 608
Portland, OR 97204
PHONE: site 503/735-3879 FAX: site 503/735-4651
PROJECT NAME: McCormick + Baxter Soil Removal
PROJECT NUMBER: 000749.0H04.00.98
SAMPLED BY: H. Brunelle & R. Culleton

INVOICE TO:
ATTENTION:
ADDRESS:
P.O. NUMBER: NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 (Standard) | 7 | 5 | 4 | 3 | 2 | 1 | Same Day
Fuels & Hydrocarbon Analyses: 5 (Standard) | 3-4 | 2 | 1 | Same Day
OTHER Specify: 24 hour fax
* Turnaround Requests less than standard may incur Rush Charges

Analysis Request:

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Screening As	Screening PCP	Screening cPAHs	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1.	RA1026S02	3/23/99 1103		X	X	X	S	1	24 hour
2.	RA1027S02	3/23/99 1105		X	X	X	S	1	fax Results
3.	RA1028S02	3/23/99 1115		X	X	X	S	1	to 735-4651
4.	RA13b24S04	3/23/99 1048		X	X	X	S	1	
5.	RA13b23S04	3/23/99 1039		X	X	X	S	1	
6.	RA13b25S04	3/23/99 1053		X	X	X	S	1	
7.	RA1920S04	3/23/99 1325		X	X	X	S	1	
8.	RA1921S03	3/23/99 1327		X	X	X	S	1	
9.	RA1922S03	3/23/99 1328		X	X	X	S	1	
10.	RA1923S02	3/23/99 1329		X	X	X	S	1	

RELINQUISHED BY (Signature): [signature] DATE: 3/23/99
PRINT NAME: Heather Brunelle FIRM: E&E TIME: 1454

RECEIVED BY (Signature): Brian DuPont DATE: 3/23
PRINT NAME: Brian DuPont FIRM: NCA TIME: 14:54

RELINQUISHED BY (Signature): Brian DuPont DATE: 3/23/99
PRINT NAME: Brian DuPont FIRM: NCA TIME: 15:25

RECEIVED BY (Signature): Mary McShane DATE: 3/23/99
PRINT NAME: Mary McShane FIRM: NCA TIME: 15:25

ADDITIONAL REMARKS:

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CHAIN OF CUSTODY REPORT

Work Order # 903485

REPORT TO:
ATTENTION: Heather Brunelle
ADDRESS: 333 SW Fifth Ave Ste 608
Portland, OR 97204
PHONE: 735-3879 FAX: 735-4651
PROJECT NAME: Vic Cormel + Baxter Soil Removal
PROJECT NUMBER: 749.0404.00.98
SAMPLED BY: H. Brunelle and M. Cormen

INVOICE TO:
ATTENTION:
ADDRESS:
P.O. NUMBER: NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 (Standard) | 7 | 5 | 4 | 3 | 2 | 1 | Same Day
Fuels & Hydrocarbon Analyses: 5 (Standard) | 3-4 | 2 | 1 | Same Day
OTHER Specify: 24 hr fax
* Turnaround Requests less than standard may incur Rush Charges.

Analysis Request:

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Screening/AB	Screening/PIP	Screening/CPAHs								MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1.	RA1924S02	3/23/99 1332		X	X	X								S	1	24 hour
2.	RA1925S02	3/23/99 1330		X	X	X								S	1	fax Results
3.	RA1416S02	3/23/99 1337		X	X	X								S	1	to 736-4651
4.	RA1417S02	3/23/99 1343		X	X	X								S	1	
5.	RA1418S02	3/23/99 1339		X	X	X								S	1	
6.	RA412S02	3/23/99 1357		X										S	1	
7.	RA413S02	3/23/99 1353		X										S	1	
8.																
9.																
10.																

RELINQUISHED BY (Signature): [signature] DATE: 3/23/99
PRINT NAME: Heather Brunelle FIRM: E&E TIME: 1454

RECEIVED BY (Signature): Brian DuPont DATE: 14:54
PRINT NAME: Brian DuPont FIRM: NCA TIME: 3/23/99

RELINQUISHED BY (Signature): Brian DuPont DATE: 3/23/99
PRINT NAME: Brian DuPont FIRM: TIME: 15:25

RECEIVED BY (Signature): Mary McShane DATE: 3/23/99
PRINT NAME: Mary McShane FIRM: NCA TIME: 1525

ADDITIONAL REMARKS:

PAGE OF

ecology and environment, inc.
1500 First Interstate Center
999 Third Avenue
Seattle, Washington 98104
(206) 624-9537

International Specialists in the Environment
FAX (206) 621-9832

FAX TRANSMISSION FORM

Date: 3/24/99	**Time:** 1410
Job Charge: 749.0404.00.25	**Total pages:** 2 (including transmission form)
To: Debbie Griffis	
Company: ~~Ecology and Environment~~ NCA	
Fax phone: 906-9210	
From: Heather Brunelle	

Comments:

Debbie –
Here is the Chain of Custody with the requested changes!
Thank you very much!
Heather

9

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CHAIN OF CUSTODY REPORT

Work Order #

REPORT TO:
ATTENTION: Heather Brunelle
ADDRESS: 333 SW Fifth Ave Ste 608
Portland OR 97204
Site PHONE: 503/735-3879 Site FAX: 503/735-4651
PROJECT NAME: McCormick + Baxter Soil Removal
PROJECT NUMBER: 00F49.0H04.00.98
SAMPLED BY: H. Brunelle & R. Culleton

INVOICE TO:
ATTENTION:
ADDRESS:
P.O. NUMBER: NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 (Standard) | 7 | 5 | 4 | 3 | 2 | 1 | Same Day
Fuels & Hydrocarbon Analyses: 5 (Standard) | 3-4 | 2 | 1 | Same Day
OTHER Specify: 24 hour fax
* Turnaround Requests less than standard may incur Rush Charges

Analysis Request: Screening/AS | Screening/PPP | Screening/PAHs

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Screening/AS	Screening/PPP	Screening/PAHs	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1. RA1026S02	3/23/99 1103		X	X	X	S	1	24 hour
2. RA1027S02	3/23/99 1105		X	X	X	S	1	Fax Results
3. RA1028S02	3/23/99 1115		X	X	X	S	1	to 735-4651
4. RA13b24S04 HB 3/24/99	3/23/99 1048		X	X	X	S	1	
5. RA13b23S04 HB 3/24/99	3/23/99 1039		X	X	X	S	1	
6. RA13b28S04 HB 3/24/99	3/23/99 1053		X	X	X	S	1	
7. RA1920S04	3/23/99 1325		X	X	X	S	1	
8. RA1921S03	3/23/99 1327		X	X	X	S	1	
9. RA1922S03	3/23/99 1328		X	X	X	S	1	
10. RA1923S02	3/23/99 1329		X	X	X	S	1	

RELINQUISHED BY (Signature): [signature] DATE: 3/23/99
PRINT NAME: Heather Brunelle FIRM: E&E TIME: 1454
RECEIVED BY (Signature): Brian DuPont DATE: 3/23
PRINT NAME: Brian DuPont FIRM: NCA TIME: 14:54
RELINQUISHED BY (Signature): DATE:
PRINT NAME: FIRM: TIME:
RECEIVED BY (Signature): DATE:
PRINT NAME: FIRM: TIME:

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/23/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/23/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/9/99 09:29

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
RA1026S02	P903485-01	Soil	3/23/99
RA1027S02	P903485-02	Soil	3/23/99
RA1028S02	P903485-03	Soil	3/23/99
RA13b27S04	P903485-04	Soil	3/23/99
RA13b26S04	P903485-05	Soil	3/23/99
RA13b28S04	P903485-06	Soil	3/23/99
RA1920S04	P903485-07	Soil	3/23/99
RA1921S03	P903485-08	Soil	3/23/99
RA1922S03	P903485-09	Soil	3/23/99
RA1923S02	P903485-10	Soil	3/23/99
RA1924S02	P903485-11	Soil	3/23/99
RA1925S02	P903485-12	Soil	3/23/99
RA1416S02	P903485-13	Soil	3/23/99
RA1417S02	P903485-14	Soil	3/23/99
RA1418S02	P903485-15	Soil	3/23/99
RA412S02	P903485-16	Soil	3/23/99
RA413S02	P903485-17	Soil	3/23/99

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541.383.9310 fax 541.382.7588

Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/23/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/23/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/9/99 09:29

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*
RA1026S02			**P903485-01**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.50	**12.4**	mg/kg dry	
RA13b27S04			**P903485-04**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.50	**394**	mg/kg dry	
RA13b26S04			**P903485-05**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.50	**23.8**	mg/kg dry	
RA13b28S04			**P903485-06**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.50	**21.9**	mg/kg dry	
RA1920S04			**P903485-07**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.50	ND	mg/kg dry	
RA1922S03			**P903485-09**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.50	ND	mg/kg dry	
RA1923S02			**P903485-10**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.50	**351**	mg/kg dry	
RA1924S02			**P903485-11**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.50	**339**	mg/kg dry	
RA1925S02			**P903485-12**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.50	**114**	mg/kg dry	
RA1416S02			**P903485-13**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.50	**6.49**	mg/kg dry	
RA1417S02			**P903485-14**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.50	ND	mg/kg dry	
RA1418S02			**P903485-15**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.50	ND	mg/kg dry	
RA412S02			**P903485-16**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.50	**184**	mg/kg dry	

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**Refer to end of report for text of notes and definitions.*

HTB 5/10/99

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/23/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/23/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/9/99 09:29

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*
RA413S02			**P903485-17**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.50	**206**	mg/kg dry	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/23/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/23/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/9/99 09:29

Metals Scan by ICP/MS
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
RA1026S02			**P903485-01**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.5	**12**	mg/kg dry	
RA1027S02			**P903485-02**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.5	**750**	mg/kg dry	E
RA1028S02			**P903485-03**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.5	**360**	mg/kg dry	
RA13b27S04			**P903485-04**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.5	**390**	mg/kg dry	
RA13b26S04			**P903485-05**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.5	**24**	mg/kg dry	
RA13b28S04			**P903485-06**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.5	**22**	mg/kg dry	
RA1920S04			**P903485-07**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.5	ND	mg/kg dry	
RA1921S03			**P903485-08**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.5	ND	mg/kg dry	
RA1922S03			**P903485-09**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.5	ND	mg/kg dry	
RA1923S02			**P903485-10**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.5	**350**	mg/kg dry	
RA1924S02			**P903485-11**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.5	**340**	mg/kg dry	
RA1925S02			**P903485-12**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.5	**110**	mg/kg dry	
RA1416S02			**P903485-13**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.5	**6.5**	mg/kg dry	

**Refer to end of report for text of notes and definitions.*

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/23/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/23/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/9/99 09:29

Metals Scan by ICP/MS
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
RA1417S02			**P903485-14**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.5	**2.5**	mg/kg dry	
RA1418S02			**P903485-15**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.5	**2.5**	mg/kg dry	
RA412S02			**P903485-16**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.5	**180**	mg/kg dry	
RA413S02			**P903485-17**				**Soil**	
Arsenic	0390664	3/23/99	3/23/99	EPA 6020	2.5	**210**	mg/kg dry	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/23/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/23/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/9/99 09:29

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*
RA1026S02			**P903485-01**				**Soil**	
Benzo (a) anthracene	0390702	3/23/99	3/23/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*120*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*100*	"	
RA1027S02			**P903485-02**				**Soil**	
Benzo (a) anthracene	0390702	3/23/99	3/24/99		5.00	**16.1**	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	**12.0**	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**67.0**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*119*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*111*	"	
RA13b27S04			**P903485-04**				**Soil**	1
Benzo (a) anthracene	0390702	3/23/99	3/24/99		10.0	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		10.0	ND	"	
Benzo (b) fluoranthene	"	"	"		10.0	**17.6**	"	
Benzo (k) fluoranthene	"	"	"		10.0	ND	"	
Chrysene	"	"	"		10.0	ND	"	
Dibenzo (a,h) anthracene	"	"	"		10.0	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		10.0	ND	"	17
Pentachlorophenol	"	"	"		20.0	**62.3**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*111*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*87.5*	"	
RA13b26S04			**P903485-05**				**Soil**	1
Benzo (a) anthracene	0390702	3/23/99	3/24/99		10.0	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		10.0	ND	"	

**Refer to end of report for text of notes and definitions.*

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Deborah Griffiths, Project Manager

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/23/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/23/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/9/99 09:29

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*
RA13b26S04 (continued)			**P903485-05**				**Soil**	**1**
Benzo (b) fluoranthene	0390702	3/23/99	3/24/99		10.0	ND	mg/kg dry	2
Benzo (k) fluoranthene	"	"	"		10.0	ND	"	2
Chrysene	"	"	"		10.0	ND	"	
Dibenzo (a,h) anthracene	"	"	"		10.0	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		10.0	ND	"	
Pentachlorophenol	"	"	"		20.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*112*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*88.3*	"	
RA13b28S04			**P903485-06**				**Soil**	
Benzo (a) anthracene	0390702	3/23/99	3/24/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	2
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	2
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*112*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*89.8*	"	
RA1920S04			**P903485-07**				**Soil**	
Benzo (a) anthracene	0390702	3/23/99	3/24/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*116*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*92.7*	"	
RA1922S03			**P903485-09**				**Soil**	
Benzo (a) anthracene	0390702	3/23/99	3/24/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/23/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/23/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/9/99 09:29

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*
RA1922S03 (continued)			**P903485-09**				**Soil**	
Chrysene	0390702	3/23/99	3/24/99		5.00	ND	mg/kg dry	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*111*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*85.2*	"	
RA1923S02			**P903485-10**				**Soil**	
Benzo (a) anthracene	0390702	3/23/99	3/24/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*119*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*97.2*	"	
RA1924S02			**P903485-11**				**Soil**	1
Benzo (a) anthracene	0390702	3/23/99	3/24/99		10.0	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		10.0	ND	"	
Benzo (b) fluoranthene	"	"	"		10.0	ND	"	2
Benzo (k) fluoranthene	"	"	"		10.0	ND	"	2
Chrysene	"	"	"		10.0	ND	"	
Dibenzo (a,h) anthracene	"	"	"		10.0	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		10.0	ND	"	
Pentachlorophenol	"	"	"		20.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*117*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*88.8*	"	
RA1925S02			**P903485-12**				**Soil**	
Benzo (a) anthracene	0390702	3/23/99	3/25/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/23/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/23/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/9/99 09:29

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*
RA1925S02 (continued)			**P903485-12**				**Soil**	
Indeno (1,2,3-cd) pyrene	0390702	3/23/99	3/25/99		5.00	ND	mg/kg dry	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*101*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*116*	"	
RA1416S02			**P903485-13**				**Soil**	
Benzo (a) anthracene	0390702	3/23/99	3/24/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*115*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*97.2*	"	
RA1417S02			**P903485-14**				**Soil**	
Benzo (a) anthracene	0390702	3/23/99	3/24/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*107*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*104*	"	
RA1418S02			**P903485-15**				**Soil**	
Benzo (a) anthracene	0390702	3/23/99	3/24/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/23/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/23/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/9/99 09:29

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*
RA1418S02 (continued)			**P903485-15**				**Soil**	
Surrogate: p-Terphenyl-d14	*0390702*	*3/23/99*	*3/24/99*	*20.0-150*		*112*	*%*	
Surrogate: 2,4,6-Tribromophenol	*"*	*"*	*"*	*10.0-150*		*90.9*	*"*	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/23/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/23/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/9/99 09:29

Semivolatile Organic Compound Screen per EPA Method 8270C Modified
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
RA1026S02			**P903485-01**				**Soil**	
Benzo (a) anthracene	0390646	3/23/99	3/23/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*120*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*100*	"	
RA1027S02			**P903485-02**				**Soil**	
Benzo (a) anthracene	0390646	3/23/99	3/24/99		5.00	**16.1**	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	**12.0**	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**67.0**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*119*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*111*	"	
RA1028S02			**P903485-03**				**Soil**	**1**
Benzo (a) anthracene	0390646	3/23/99	3/24/99		10.0	**61.8**	mg/kg dry	
Benzo (a) pyrene	"	"	"		10.0	**15.0**	"	
Benzo (b) fluoranthene	"	"	"		10.0	**13.9**	"	
Benzo (k) fluoranthene	"	"	"		10.0	**15.9**	"	
Chrysene	"	"	"		10.0	**56.2**	"	
Dibenzo (a,h) anthracene	"	"	"		10.0	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		10.0	ND	"	
Pentachlorophenol	"	"	"		20.0	**275**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*121*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*95.4*	"	
RA13b27S04			**P903485-04**				**Soil**	**1**
Benzo (a) anthracene	0390646	3/23/99	3/24/99		10.0	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		10.0	ND	"	

**Refer to end of report for text of notes and definitions.*

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5/19/99

Deborah Griffiths, Project Manager

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/23/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/23/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/9/99 09:29

Semivolatile Organic Compound Screen per EPA Method 8270C Modified
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
RA13b27S04 (continued)			**P903485-04**				**Soil**	**1**
Benzo (b) fluoranthene	0390646	3/23/99	3/24/99		10.0	**17.6**	mg/kg dry	
Benzo (k) fluoranthene	"	"	"		10.0	ND	"	
Chrysene	"	"	"		10.0	ND	"	
Dibenzo (a,h) anthracene	"	"	"		10.0	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		10.0	ND	"	
Pentachlorophenol	"	"	"		20.0	**62.3**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*111*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*87.5*	"	
RA13b26S04			**P903485-05**				**Soil**	**1**
Benzo (a) anthracene	0390646	3/23/99	3/24/99		10.0	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		10.0	ND	"	
Benzo (b) fluoranthene	"	"	"		10.0	ND	"	2
Benzo (k) fluoranthene	"	"	"		10.0	ND	"	2
Chrysene	"	"	"		10.0	ND	"	
Dibenzo (a,h) anthracene	"	"	"		10.0	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		10.0	ND	"	
Pentachlorophenol	"	"	"		20.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*112*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*88.3*	"	
RA13b28S04			**P903485-06**				**Soil**	
Benzo (a) anthracene	0390646	3/23/99	3/24/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	2
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	2
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*112*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*89.8*	"	
RA1920S04			**P903485-07**				**Soil**	
Benzo (a) anthracene	0390646	3/23/99	3/24/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/23/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/23/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/9/99 09:29

Semivolatile Organic Compound Screen per EPA Method 8270C Modified
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
RA1920S04 (continued)			**P903485-07**				**Soil**	
Chrysene	0390646	3/23/99	3/24/99		5.00	ND	mg/kg dry	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*116*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*92.7*	"	
RA1921S03			**P903485-08**				**Soil**	**1**
Benzo (a) anthracene	0390646	3/23/99	3/24/99		25.0	**26.3**	mg/kg dry	
Benzo (a) pyrene	"	"	"		25.0	**26.0**	"	
Benzo (b) fluoranthene	"	"	"		25.0	**34.0**	"	
Benzo (k) fluoranthene	"	"	"		25.0	**28.7**	"	
Chrysene	"	"	"		25.0	**41.0**	"	
Dibenzo (a,h) anthracene	"	"	"		25.0	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		25.0	ND	"	
Pentachlorophenol	"	"	"		50.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*106*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*56.6*	"	
RA1922S03			**P903485-09**				**Soil**	
Benzo (a) anthracene	0390646	3/23/99	3/24/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*111*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*85.2*	"	
RA1923S02			**P903485-10**				**Soil**	
Benzo (a) anthracene	0390646	3/23/99	3/24/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	

**Refer to end of report for text of notes and definitions.*

HJB 4/9/99

Deborah Griffiths, Project Manager

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal		Sampled:	3/23/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98		Received:	3/23/99
Portland, OR 97204	Project Manager:	Heather Brunell		Reported:	4/9/99 09:29

Semivolatile Organic Compound Screen per EPA Method 8270C Modified
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
RA1923S02 (continued)			**P903485-10**				**Soil**	
Indeno (1,2,3-cd) pyrene	0390646	3/23/99	3/24/99		5.00	ND	mg/kg dry	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*119*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*97.2*	"	
RA1924S02			**P903485-11**				**Soil**	1
Benzo (a) anthracene	0390646	3/23/99	3/24/99		10.0	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		10.0	ND	"	
Benzo (b) fluoranthene	"	"	"		10.0	ND	"	2
Benzo (k) fluoranthene	"	"	"		10.0	ND	"	2
Chrysene	"	"	"		10.0	ND	"	
Dibenzo (a,h) anthracene	"	"	"		10.0	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		10.0	ND	"	
Pentachlorophenol	"	"	"		20.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*117*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*88.8*	"	
RA1925S02			**P903485-12**				**Soil**	
Benzo (a) anthracene	0390646	3/23/99	3/24/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*110*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*94.5*	"	
RA1416S02			**P903485-13**				**Soil**	
Benzo (a) anthracene	0390646	3/23/99	3/24/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	

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Deborah Griffiths, Project Manager

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/23/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/23/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/9/99 09:29

Semivolatile Organic Compound Screen per EPA Method 8270C Modified
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
RA1416S02 (continued)			**P903485-13**				**Soil**	
Surrogate: p-Terphenyl-d14	*0390646*	*3/23/99*	*3/24/99*	*20.0-150*		*114*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*97.2*	"	
RA1417S02			**P903485-14**				**Soil**	
Benzo (a) anthracene	0390646	3/23/99	3/24/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*107*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*104*	"	
RA1418S02			**P903485-15**				**Soil**	
Benzo (a) anthracene	0390646	3/23/99	3/24/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*112*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*90.9*	"	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/23/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/23/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/9/99 09:29

Dry Weight Determination
North Creek Analytical - Portland

Sample Name	Lab ID	Matrix	Result	Units
RA1026S02	P903485-01	Soil	93.5	%
RA1027S02	P903485-02	Soil	87.4	%
RA1028S02	P903485-03	Soil	92.2	%
RA13b27S04	P903485-04	Soil	88.9	%
RA13b26S04	P903485-05	Soil	90.2	%
RA13b28S04	P903485-06	Soil	93.4	%
RA1920S04	P903485-07	Soil	91.8	%
RA1921S03	P903485-08	Soil	90.7	%
RA1922S03	P903485-09	Soil	91.2	%
RA1923S02	P903485-10	Soil	94.0	%
RA1924S02	P903485-11	Soil	90.1	%
RA1925S02	P903485-12	Soil	92.0	%
RA1416S02	P903485-13	Soil	92.0	%
RA1417S02	P903485-14	Soil	91.5	%
RA1418S02	P903485-15	Soil	91.9	%
RA412S02	P903485-16	Soil	91.2	%
RA413S02	P903485-17	Soil	89.5	%

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/23/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/23/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/9/99 09:29

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: 0390664	**Date Prepared: 3/23/99**				**Extraction Method: EPA 3050**					
Blank	**0390664-BLK1**									
Arsenic	3/23/99			**ND**	mg/kg dry	**2.50**				
LCS	**0390664-BS1**									
Arsenic	3/23/99	250		209	mg/kg dry	80.0-120	83.6			
Duplicate	**0390664-DUP1**		**P903485-01**							
Arsenic	3/23/99		12.4	5.33	mg/kg dry			40.0	**79.8**	3
Matrix Spike	**0390664-MS1**		**P903485-01**							
Arsenic	3/23/99	267	12.4	234	mg/kg dry	75.0-125	**83.0**			
Matrix Spike Dup	**0390664-MSD1**		**P903485-01**							
Arsenic	3/23/99	267	12.4	244	mg/kg dry	75.0-125	**86.7**	40.0	**4.36**	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/23/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/23/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/9/99 09:29

Metals Scan by ICP/MS/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: 0390664	**Date Prepared: 3/23/99**				**Extraction Method: EPA 3050**					
Blank	**0390664-BLK1**									
Arsenic	3/23/99			**ND**	mg/kg dry	**2.5**				
LCS	**0390664-BS1**									
Arsenic	3/23/99	250		210	mg/kg dry	80-120	84			

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/23/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/23/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/9/99 09:29

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: 0390702	**Date Prepared: 3/23/99**				**Extraction Method: EPA 3550**					
Blank	**0390702-BLK1**									
Benzo (a) anthracene	3/24/99			**ND**	mg/kg dry	**5.00**				
Benzo (a) pyrene	"			**ND**	"	**5.00**				
Benzo (b) fluoranthene	"			**ND**	"	**5.00**				
Benzo (k) fluoranthene	"			**ND**	"	**5.00**				
Chrysene	"			**ND**	"	**5.00**				
Dibenzo (a,h) anthracene	"			**ND**	"	**5.00**				
Indeno (1,2,3-cd) pyrene	"			**ND**	"	**5.00**				
Pentachlorophenol	"			**ND**	"	**10.0**				
Surrogate: p-Terphenyl-d14	"	*50.0*		*69.9*	"	*20.0-150*	*140*			
Surrogate: 2,4,6-Tribromophenol	"	*100*		*122*	"	*10.0-150*	*122*			
LCS	**0390702-BS1**									
Benzo (a) pyrene	3/24/99	100		101	mg/kg dry	35.0-142	101			
Chrysene	"	100		107	"	35.0-142	107			
Pentachlorophenol	"	100		91.1	"	17.0-109	91.1			
Surrogate: p-Terphenyl-d14	"	*50.0*		*61.5*	"	*20.0-150*	*123*			
Surrogate: 2,4,6-Tribromophenol	"	*100*		*112*	"	*10.0-150*	*112*			
Matrix Spike	**0390702-MS1**		**P903485-01**							
Benzo (a) pyrene	3/25/99	107	ND	115	mg/kg dry	35.0-142	**107**			
Chrysene	"	107	ND	122	"	35.0-142	**114**			
Pentachlorophenol	"	107	ND	106	"	17.0-109	**99.1**			
Surrogate: p-Terphenyl-d14	"	*53.5*		*57.7*	"	*20.0-150*	*108*			
Surrogate: 2,4,6-Tribromophenol	"	*107*		*117*	"	*10.0-150*	*109*			
Matrix Spike Dup	**0390702-MSD1**		**P903485-01**							
Benzo (a) pyrene	3/25/99	107	ND	112	mg/kg dry	35.0-142	**105**	36.0	**1.89**	
Chrysene	"	107	ND	120	"	35.0-142	**112**	36.0	**1.77**	
Pentachlorophenol	"	107	ND	101	"	17.0-109	**94.4**	47.0	**4.86**	
Surrogate: p-Terphenyl-d14	"	*53.5*		*55.4*	"	*20.0-150*	*104*			
Surrogate: 2,4,6-Tribromophenol	"	*107*		*105*	"	*10.0-150*	*98.1*			

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/23/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/23/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/9/99 09:29

Semivolatile Organic Compound Screen per EPA Method 8270C Modified/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: 0390646	**Date Prepared: 3/23/99**				**Extraction Method: EPA 3550**					
Blank	**0390646-BLK1**									
Benzo (a) anthracene	3/24/99			**ND**	mg/kg dry	**5.00**				
Benzo (a) pyrene	"			**ND**	"	**5.00**				
Benzo (b) fluoranthene	"			**ND**	"	**5.00**				
Benzo (k) fluoranthene	"			**ND**	"	**5.00**				
Chrysene	"			**ND**	"	**5.00**				
Dibenzo (a,h) anthracene	"			**ND**	"	**5.00**				
Indeno (1,2,3-cd) pyrene	"			**ND**	"	**5.00**				
Pentachlorophenol	"			**ND**	"	**10.0**				
Surrogate: p-Terphenyl-d14	"	*50.0*		*69.9*	"	*20.0-150*	*140*			
Surrogate: 2,4,6-Tribromophenol	"	*100*		*122*	"	*10.0-150*	*122*			
LCS	**0390646-BS1**									
Benzo (a) pyrene	3/24/99	100		101	mg/kg dry	20.0-150	101			
Chrysene	"	100		107	"	20.0-150	107			
Pentachlorophenol	"	100		91.1	"	10.0-150	91.1			
Surrogate: p-Terphenyl-d14	"	*50.0*		*61.5*	"	*20.0-150*	*123*			
Surrogate: 2,4,6-Tribromophenol	"	*100*		*112*	"	*10.0-150*	*112*			
Matrix Spike	**0390646-MS1**		**P903485-01**							
Benzo (a) pyrene	3/25/99	107	ND	115	mg/kg dry	20.0-150	**107**			
Chrysene	"	107	ND	122	"	20.0-150	**114**			
Pentachlorophenol	"	107	ND	106	"	10.0-150	**99.1**			
Surrogate: p-Terphenyl-d14	"	*53.5*		*57.6*	"	*20.0-150*	*108*			
Surrogate: 2,4,6-Tribromophenol	"	*107*		*117*	"	*10.0-150*	*109*			
Matrix Spike Dup	**0390646-MSD1**		**P903485-01**							
Benzo (a) pyrene	3/25/99	107	ND	112	mg/kg dry	20.0-150	**105**	50.0	**1.89**	
Chrysene	"	107	ND	120	"	20.0-150	**112**	50.0	**1.77**	
Pentachlorophenol	"	107	ND	101	"	10.0-150	**94.4**	50.0	**4.86**	
Surrogate: p-Terphenyl-d14	"	*53.5*		*55.4*	"	*20.0-150*	*104*			
Surrogate: 2,4,6-Tribromophenol	"	*107*		*105*	"	*10.0-150*	*98.1*			

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/23/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/23/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/9/99 09:29

Notes and Definitions

#	Note
E	Estimated value. The reported value exceeds the calibration range of the analysis.
J	Estimated value.
1	Reporting limits raised due to dilution necessary for analysis.
2	Due to matrix unable to resolve Benzofluoranthene isomers. Value reported only in Benzo(b) category represents Total Benzo(b+k)fluoranthene.
3	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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DATA PACKAGE

for

Ecology and Environment

Portland SDG #: P904096

Client Project Name: McCormick & Baxter Soil Removal
Client Project #: 749.OH04-00.98

The total number of pages contained in this package is:

255

Prepared by:

NORTH CREEK ANALYTICAL, Inc.
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Case Narrative

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Case Narrative

CLIENT:	**Ecology & Environment (Seattle)**	**April 26, 1999**
PROJECT:	**McCormick and Baxter Soil Removal**	
PROJECT #:	**749.OH04-00.98**	**page 1 of 2**
NCA #:	**P904096**	

1.0 DESCRIPTION OF CASE

North Creek Analytical, Portland received five soil samples on 4/5/99 from Ecology & Environment for analysis by the following Methods as per the chain of custody: Metals scan by ICP/MS (As) and 8270C Modified (carcinogenic PAHs/PCP Screening method). Selected samples were then confirmed by the following EPA Methods: 6020 Total Metals (As) and 8270C (carcinogenic PAHs/PCP).

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 # (SDG#), preceded 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 Ecology & Environment. The samples were clearly labeled and matched the chain of custody. Sample temperature (11.2°C) was measured upon receipt using a Raytek PM 30 Infrared Temperature gun and recorded.

3.2 Analysis

The samples were analyzed following the procedures outlined in the applicable methods. Refer to the NCA report for specific prep methods used. The samples were refrigerated at approximately 4°C and were extracted and analyzed within the EPA recommended holding times without incident.

4.0 QC RESULTS

Surrogate and quality control parameters that were outside control limits are noted on the appropriate pages of the analytical report.

PAH/PCP by 8270C

The recovery of Pentachlorophenol for the Matrix Spike is flagged outside of control limits. Control charting for this extraction procedure indicates that the recovery of Pentachlorophenol in this sample is well within limits. Although this result is exceeds the DQOs for the project, this does not represent an out of control situation for the batch as per 8270C.

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Case Narrative

CLIENT:	**Ecology & Environment (Seattle)**	**April 26, 1999**
PROJECT:	**McCormick and Baxter Soil Removal**	
PROJECT #:	**749.OH04-00.98**	**page 2 of 2**
NCA #:	**P904096**	

5.0 SAMPLE RESULTS

Where applicable, qualifiers have been added to sample results 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:

PAH/PCP by 8270C

Curve BNA04019 had three compounds that required a quadratic curve fit. The Coefficient of the determination (COD) is 0.99 or greater for these compounds, as per the method. However, the Quadratic curve fit introduces a slight high bias for Indeno (1,2,3-cd) pyrene and Dibenzo (a,h) anthracene between 2 and 5 ppb. This is noted on the raw data, but does not represent a method deviation.

" 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

Rochelle Carpenter, QA Manager
North Creek Analytical, Beaverton

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Chain of Custody Report

North Creek Analytical, Inc.
Environmental Laboratory Network

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Environmental Laboratory Services

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CHAIN OF CUSTODY REPORT

Work Order # 904096

REPORT TO:
ATTENTION: Heather Brunelle
ADDRESS: 333 SW Fifth Ave Ste 608
Portland, OR 97204
PHONE: 735-3879 FAX: 735-4651
PROJECT NAME: McCormick + Baxter RA
PROJECT NUMBER: 749.0H04.00.98
SAMPLED BY: H. Brunelle

INVOICE TO:
ATTENTION:
ADDRESS:
P.O. NUMBER: NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 (Standard) | 7 | 5 | 4 | 3 | 2 | 1 | Same Day
Fuels & Hydrocarbon Analyses: 5 (Standard) | 3-4 | 2 | 1 | Same Day
OTHER Specify: 24 hour fax
* Turnaround Requests less than standard may incur Rush Charges.

Analysis Request: Screening As; Screening PCP; Screening cPAHs

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Screening As	Screening PCP	Screening cPAHs	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1	RA1815S04	4/5/99 13:27		X	X	X	S	1	24 hour
2	RA1816S04	4/5/99 13:23		X	X	X	S	1	fax results
3	RA1816S02	4/5/99 13:24		X	X	X	S	1	to 735-4651
4	RA1817S04	4/5/99 13:20		X	X	X	S	1	
5	RA1817S02	4/5/99 13:21		X	X	X	S	1	
6	RALL01S02	4/5/99 1432		X	X	X	S	1	
7	RA13a45S01	4/5/99 1440		X	X	X	S	1	
8									
9									
10									

RELINQUISHED BY (Signature): [signature]	DATE: 4/5/99	RECEIVED BY (Signature): [signature]	DATE: 4/5/99
PRINT NAME: Heather Brunelle FIRM: E&E	TIME: 1500	PRINT NAME: Debra Mestkimen FIRM: NCA	TIME: 1500
RELINQUISHED BY (Signature): [signature]	DATE: 4/5/99	RECEIVED BY (Signature): [signature]	DATE: 4/5/99
PRINT NAME: Debra S. Mestkimen FIRM: NCA	TIME: 1540	PRINT NAME: Mary McShane FIRM: NCA	TIME: 1540

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North Creek Analytical Report

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	4/5/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	4/5/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/19/99 09:16

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
RA1815S04	P904096-01	Soil	4/5/99
RA1816S04	P904096-02	Soil	4/5/99
RA1816S02	P904096-03	Soil	4/5/99
RA1817S04	P904096-04	Soil	4/5/99
RA1817S02	P904096-05	Soil	4/5/99
RALL01502	P904096-06	Soil	4/5/99
RA13a45S01	P904096-07	Soil	4/5/99

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.

9

Deborah Griffiths, Project Manager

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	4/5/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	4/5/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/19/99 09:16

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*
RA1815S04			**P904096-01**				**Soil**	
Arsenic	0490152	4/5/99	4/6/99	EPA 6020	2.50	ND	mg/kg dry	
RA1816S04			**P904096-02**				**Soil**	
Arsenic	0490152	4/5/99	4/6/99	EPA 6020	2.50	ND	mg/kg dry	
RA1816S02			**P904096-03**				**Soil**	
Arsenic	0490152	4/5/99	4/7/99	EPA 6020	2.50	**3.87**	mg/kg dry	J
RA1817S04			**P904096-04**				**Soil**	
Arsenic	0490152	4/5/99	4/7/99	EPA 6020	2.50	**3.60**	mg/kg dry	J
RA1817S02			**P904096-05**				**Soil**	
Arsenic	0490152	4/5/99	4/7/99	EPA 6020	2.50	**3.90**	mg/kg dry	J
RALL01502			**P904096-06**				**Soil**	
Arsenic	0490152	4/5/99	4/7/99	EPA 6020	2.50	**3.67**	mg/kg dry	J
RA13a45S01			**P904096-07**				**Soil**	
Arsenic	0490152	4/5/99	4/7/99	EPA 6020	2.50	**4.13**	mg/kg dry	J

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	4/5/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	4/5/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/19/99 09:16

Metals Scan by ICP/MS
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
RA1815S04			**P904096-01**				**Soil**	
Arsenic	0490152	4/5/99	4/6/99	EPA 6020	2.5	ND	mg/kg dry	
RA1816S04			**P904096-02**				**Soil**	
Arsenic	0490152	4/5/99	4/6/99	EPA 6020	2.5	ND	mg/kg dry	
RA1816S02			**P904096-03**				**Soil**	
Arsenic	0490152	4/5/99	4/6/99	EPA 6020	2.5	ND	mg/kg dry	
RA1817S04			**P904096-04**				**Soil**	
Arsenic	0490152	4/5/99	4/6/99	EPA 6020	2.5	ND	mg/kg dry	
RA1817S02			**P904096-05**				**Soil**	
Arsenic	0490152	4/5/99	4/6/99	EPA 6020	2.5	ND	mg/kg dry	
RALL01502			**P904096-06**				**Soil**	
Arsenic	0490152	4/5/99	4/6/99	EPA 6020	2.5	ND	mg/kg dry	
RA13a45S01			**P904096-07**				**Soil**	
Arsenic	0490152	4/5/99	4/6/99	EPA 6020	2.5	ND	mg/kg dry	

**Refer to end of report for text of notes and definitions.*

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Deborah Griffiths, Project Manager

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	4/5/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	4/5/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/19/99 09:16

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*
RA1815S04			**P904096-01**				**Soil**	
Benzo (a) anthracene	0490199	4/5/99	4/6/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	1
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	1
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	**5.62**	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	**10.1**	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*113*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*125*	"	
RA1816S04			**P904096-02**				**Soil**	
Benzo (a) anthracene	0490199	4/5/99	4/6/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*114*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*132*	"	
RA1816S02			**P904096-03**				**Soil**	
Benzo (a) anthracene	0490199	4/5/99	4/6/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*97.9*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*114*	"	
RA1817S04			**P904096-04**				**Soil**	
Benzo (a) anthracene	0490199	4/5/99	4/6/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	

**Refer to end of report for text of notes and definitions.*

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Deborah Griffiths, Project Manager

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	4/5/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	4/5/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/19/99 09:16

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*
RA1817S04 (continued)			**P904096-04**				**Soil**	
Benzo (b) fluoranthene	0490199	4/5/99	4/6/99		5.00	ND	mg/kg dry	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*91.2*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*136*	"	
RA1817S02			**P904096-05**				**Soil**	
Benzo (a) anthracene	0490199	4/5/99	4/6/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*113*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*125*	"	
RALL01502			**P904096-06**				**Soil**	
Benzo (a) anthracene	0490199	4/5/99	4/6/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*97.4*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*132*	"	
RA13a45S01			**P904096-07**				**Soil**	**2**
Benzo (a) anthracene	0490199	4/5/99	4/6/99		20.0	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		20.0	ND	"	
Benzo (b) fluoranthene	"	"	"		20.0	**20.8**	"	
Benzo (k) fluoranthene	"	"	"		20.0	ND	"	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	4/5/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	4/5/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/19/99 09:16

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*
RA13a45S01 (continued)			**P904096-07**				**Soil**	**2**
Chrysene	0490199	4/5/99	4/6/99		20.0	ND	mg/kg dry	
Dibenzo (a,h) anthracene	"	"	"		20.0	**20.8**	"	
Indeno (1,2,3-cd) pyrene	"	"	"		20.0	**23.7**	"	
Pentachlorophenol	"	"	"		40.0	**306**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*98.4*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*105*	"	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	4/5/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	4/5/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/19/99 09:16

Semivolatile Organic Compound Screen per EPA Method 8270C Modified
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
RA1815S04			**P904096-01**				**Soil**	
Benzo (a) anthracene	0490124	4/6/99	4/6/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	1
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	1
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	**5.62**	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	**10.1**	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*113*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*125*	"	
RA1816S04			**P904096-02**				**Soil**	
Benzo (a) anthracene	0490124	4/6/99	4/6/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*114*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*132*	"	
RA1816S02			**P904096-03**				**Soil**	
Benzo (a) anthracene	0490124	4/6/99	4/6/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*97.9*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*114*	"	
RA1817S04			**P904096-04**				**Soil**	
Benzo (a) anthracene	0490124	4/6/99	4/6/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	

**Refer to end of report for text of notes and definitions.*

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Deborah Griffiths, Project Manager

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	4/5/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	4/5/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/19/99 09:16

Semivolatile Organic Compound Screen per EPA Method 8270C Modified
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
RA1817S04 (continued)			**P904096-04**				**Soil**	
Benzo (b) fluoranthene	0490124	4/6/99	4/6/99		5.00	ND	mg/kg dry	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*91.2*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*136*	"	
RA1817S02			**P904096-05**				**Soil**	
Benzo (a) anthracene	0490124	4/6/99	4/6/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*113*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*125*	"	
RALL01502			**P904096-06**				**Soil**	
Benzo (a) anthracene	0490124	4/6/99	4/6/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*97.4*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*132*	"	
RA13a45S01			**P904096-07**				**Soil**	2
Benzo (a) anthracene	0490124	4/6/99	4/6/99		20.0	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		20.0	ND	"	
Benzo (b) fluoranthene	"	"	"		20.0	**20.8**	"	
Benzo (k) fluoranthene	"	"	"		20.0	ND	"	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	4/5/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	4/5/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/19/99 09:16

Semivolatile Organic Compound Screen per EPA Method 8270C Modified
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
RA13a45S01 (continued)			**P904096-07**				**Soil**	**2**
Chrysene	0490124	4/6/99	4/6/99		20.0	ND	mg/kg dry	
Dibenzo (a,h) anthracene	"	"	"		20.0	**20.8**	"	
Indeno (1,2,3-cd) pyrene	"	"	"		20.0	**23.7**	"	
Pentachlorophenol	"	"	"		40.0	**306**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*98.4*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*105*	"	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	4/5/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	4/5/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/19/99 09:16

Dry Weight Determination
North Creek Analytical - Portland

Sample Name	Lab ID	Matrix	Result	Units
RA1815S04	P904096-01	Soil	90.9	%
RA1816S04	P904096-02	Soil	90.6	%
RA1816S02	P904096-03	Soil	93.7	%
RA1817S04	P904096-04	Soil	89.3	%
RA1817S02	P904096-05	Soil	86.8	%
RALL01502	P904096-06	Soil	93.9	%
RA13a45S01	P904096-07	Soil	86.7	%

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	4/5/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	4/5/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/19/99 09:16

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: 0490152	**Date Prepared: 4/5/99**				**Extraction Method: EPA 3050**					
Blank	**0490152-BLK1**									
Arsenic	4/6/99			**ND**	mg/kg dry	**2.50**				
LCS	**0490152-BS1**									
Arsenic	4/6/99	250		216	mg/kg dry	80.0-120	86.4			
Duplicate	**0490152-DUP1**		**P904096-01**							
Arsenic	4/6/99		ND	ND	mg/kg dry			40.0		
Matrix Spike	**0490152-MS1**		**P904096-01**							
Arsenic	4/6/99	275	ND	239	mg/kg dry	75.0-125	**86.9**			
Matrix Spike Dup	**0490152-MSD1**		**P904096-01**							
Arsenic	4/6/99	275	ND	239	mg/kg dry	75.0-125	**86.9**	40.0	**0**	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	4/5/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	4/5/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/19/99 09:16

Metals Scan by ICP/MS/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: 0490152	**Date Prepared: 4/5/99**				**Extraction Method: EPA 3050**					
Blank	**0490152-BLK1**									
Arsenic	4/6/99			**ND**	mg/kg dry	**2.5**				
LCS	**0490152-BS1**									
Arsenic	4/6/99	250		220	mg/kg dry	80-120	88			

North Creek Analytical - Portland

**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

HJB 5/19/99

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	4/5/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	4/5/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/19/99 09:16

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: 0490199	**Date Prepared: 4/5/99**				**Extraction Method: EPA 3550**					
Blank	**0490199-BLK1**									
Benzo (a) anthracene	4/6/99			**ND**	mg/kg dry	**5.00**				
Benzo (a) pyrene	"			**ND**	"	**5.00**				
Benzo (b) fluoranthene	"			**ND**	"	**5.00**				
Benzo (k) fluoranthene	"			**ND**	"	**5.00**				
Chrysene	"			**ND**	"	**5.00**				
Dibenzo (a,h) anthracene	"			**ND**	"	**5.00**				
Indeno (1,2,3-cd) pyrene	"			**ND**	"	**5.00**				
Pentachlorophenol	"			**ND**	"	**10.0**				
Surrogate: p-Terphenyl-d14	"	*50.0*		*48.2*	"	*20.0-150*	*96.4*			
Surrogate: 2,4,6-Tribromophenol	"	*100*		*107*	"	*10.0-150*	*107*			
LCS	**0490199-BS1**									
Benzo (a) pyrene	4/5/99	100		106	mg/kg dry	35.0-142	106			
Chrysene	"	100		103	"	35.0-142	103			
Pentachlorophenol	"	100		104	"	17.0-109	104			
Surrogate: p-Terphenyl-d14	"	*50.0*		*53.0*	"	*20.0-150*	*106*			
Surrogate: 2,4,6-Tribromophenol	"	*100*		*113*	"	*10.0-150*	*113*			
Matrix Spike	**0490199-MS1**		**P904090-08**							
Benzo (a) pyrene	4/5/99	109	ND	116	mg/kg dry	35.0-142	**106**			
Chrysene	"	109	ND	114	"	35.0-142	**105**			
Pentachlorophenol	"	109	ND	127	"	17.0-109	**117**			3
Surrogate: p-Terphenyl-d14	"	*54.6*		*55.7*	"	*20.0-150*	*102*			
Surrogate: 2,4,6-Tribromophenol	"	*109*		*132*	"	*10.0-150*	*121*			
Matrix Spike Dup	**0490199-MSD1**		**P904090-08**							
Benzo (a) pyrene	4/5/99	109	ND	104	mg/kg dry	35.0-142	**95.4**	36.0	**10.5**	
Chrysene	"	109	ND	103	"	35.0-142	**94.5**	36.0	**10.5**	
Pentachlorophenol	"	109	ND	106	"	17.0-109	**97.2**	47.0	**18.5**	
Surrogate: p-Terphenyl-d14	"	*54.6*		*53.2*	"	*20.0-150*	*97.4*			
Surrogate: 2,4,6-Tribromophenol	"	*109*		*115*	"	*10.0-150*	*106*			

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	4/5/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	4/5/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/19/99 09:16

Semivolatile Organic Compound Screen per EPA Method 8270C Modified/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: 0490124	**Date Prepared: 4/5/99**				**Extraction Method: EPA 3550**					
Blank	**0490124-BLK1**									
Benzo (a) anthracene	4/5/99			**ND**	mg/kg dry	**5.00**				
Benzo (a) pyrene	"			**ND**	"	**5.00**				
Benzo (b) fluoranthene	"			**ND**	"	**5.00**				
Benzo (k) fluoranthene	"			**ND**	"	**5.00**				
Chrysene	"			**ND**	"	**5.00**				
Dibenzo (a,h) anthracene	"			**ND**	"	**5.00**				
Indeno (1,2,3-cd) pyrene	"			**ND**	"	**5.00**				
Pentachlorophenol	"			**ND**	"	**10.0**				
Surrogate: p-Terphenyl-d14	"	*50.0*		*49.8*	"	*20.0-150*	*99.6*			
Surrogate: 2,4,6-Tribromophenol	"	*100*		*114*	"	*10.0-150*	*114*			
LCS	**0490124-BS1**									
Benzo (a) pyrene	4/5/99	100		106	mg/kg dry	20.0-150	106			
Chrysene	"	100		103	"	20.0-150	103			
Pentachlorophenol	"	100		104	"	10.0-150	104			
Surrogate: p-Terphenyl-d14	"	*50.0*		*53.0*	"	*20.0-150*	*106*			
Surrogate: 2,4,6-Tribromophenol	"	*100*		*113*	"	*10.0-150*	*113*			
Matrix Spike	**0490124-MS1**		**P904090-08**							
Benzo (a) pyrene	4/5/99	109	ND	116	mg/kg dry	20.0-150	**106**			
Chrysene	"	109	ND	114	"	20.0-150	**105**			
Pentachlorophenol	"	109	ND	127	"	10.0-150	**117**			
Surrogate: p-Terphenyl-d14	"	*54.6*		*55.7*	"	*20.0-150*	*102*			
Surrogate: 2,4,6-Tribromophenol	"	*109*		*132*	"	*10.0-150*	*121*			
Matrix Spike Dup	**0490124-MSD1**		**P904090-08**							
Benzo (a) pyrene	4/5/99	109	ND	104	mg/kg dry	20.0-150	**95.4**	50.0	**10.5**	
Chrysene	"	109	ND	103	"	20.0-150	**94.5**	50.0	**10.5**	
Pentachlorophenol	"	109	ND	106	"	10.0-150	**97.2**	50.0	**18.5**	
Surrogate: p-Terphenyl-d14	"	*54.6*		*53.2*	"	*20.0-150*	*97.4*			
Surrogate: 2,4,6-Tribromophenol	"	*109*		*115*	"	*10.0-150*	*106*			

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	4/5/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	4/5/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	4/19/99 09:16

Notes and Definitions

#	Note
J	Estimated value.
1	Due to matrix unable to resolve Benzofluoranthene isomers. Value reported only in Benzo(b) category represents Total Benzo(b+k)fluoranthene.
2	Reporting limits raised due to dilution necessary for analysis.
3	The spike recovery 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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DATA VALIDATION
MEMORANDUM

DATE: May 19, 1999

TO: Kevin Smith, Project Manager, E & E, Seattle

FROM: Heather Brunelle, Chemist, E & E, Portland HB

SUBJ: Data Validation of North Creek Analytical Data
McCormick Baxter
Portland, Oregon

REF: Project Number: OH0498
Laboratory Job Number: P903060 and P903235

Sample Matrix: Eleven soil samples.

Sample Nos.:

RA201S01	RA207S01	RA13b25S04
RA202S01	RA208S01	
RA203S01	RA209S01	
RA205S01	RA13b23S04	
RA206S01	RA13b24S04	

The analytical data provided by North Creek Analytical, Inc. (NCA) were reviewed for laboratory precision, accuracy, and completeness. All data were deemed acceptable as reported, with the following qualifications.

Three soil samples were initially collected and screened for the following analyses: arsenic, pentachlorophenol (PCP), and carcinogenic polyaromatic hydrocarbons (PAHs). Nine soil samples were initially collected and screened for arsenic analysis only. Eleven samples were confirmed for arsenic analysis. Three samples were confirmed for PCP and PAHs analyses. Only the confirmation analyses were reviewed. The data was in accordance with the current edition of Quality Assurance (QA)/Quality Control (QC) guidance outlined in the United States Environmental Protection Agency's (EPA's) Test Methods for Evaluating Solid Waste (EPA SW-846) and the most current editions of the EPA's Functional Guidelines for Reviewing Organic and Inorganic Analyses, as they apply to analyses conducted outside the EPA's Contract Laboratory Program (CLP).

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I. ARSENIC DATA

1.0 HOLDING TIMES

Holding times are established and monitored to ensure analytical results accurately represent analyte concentrations in a sample at the time of collection. Exceeding the holding time for a sample generally results in a loss of the analyte due to a variety of mechanisms, such as deposition on the sample container walls or precipitation.

REVIEW RESULTS:

Holding time limits:

Metals - 6 months (mercury - 28 days)

All samples met holding criteria.

2.0 INITIAL AND CONTINUING CALIBRATION VERIFICATION

Initial and continuing calibration verification solutions contain known concentrations of target analytes and are repeatedly checked at the beginning of analyses (initial) and throughout a sample batch run (continuing). Instrument accuracy and stability are documented during calibrations. Accuracy is determined by the percent recovery (%R) of known standards during the initial calibration. Stability is measured by the %R of known standards during the continuing calibration. The inability of the laboratory to perform acceptably on the calibration criteria may indicate that problems exist in the laboratory's analytical system. Associated sample data generated under such conditions should be considered suspect.

REVIEW RESULTS:

The QC criteria for initial and continuing calibration for all elements were achieved.

3.0 BLANKS

Laboratory blank samples are analyzed and evaluated to determine the existence and magnitude of possible contamination. Generally, if analyte concentrations greater than the LDL for a given analyte are found in a laboratory blank, it is likely that the analyte is present as a contaminant in some phase of the analysis procedure and associated sample concentrations may be biased high.

REVIEW RESULTS:

The following analytes were detected in laboratory blanks (NCA Job Number P903060) above the LDL:

Blank*	Analyte	Conc. (µg/L)	LDL (µg/L)	Associated Samples
ICB	Arsenic	2.389	1.00	None
CCB4	Arsenic	1.126	1.00	None

Conc. = Concentration.

* ICB = Calibration Blank; CCB = Continuing Calibration Blank; PB = Preparation Blank.

a - Blank results were converted from original units (mg/kg) to µg/L by the reviewer for comparison to the LDL.

Sample results below five times the highest analyte level reported in the associated blanks were flagged "B" (blank contamination).

4.0 INDUCTIVELY COUPLED ARGON PLASMA (ICP) SPECTROMETRY INTERFERENCE CHECK SAMPLE

Interference check samples (ICS) are analyzed to verify inter-element and background correction factors used by the laboratory during sample analysis. If laboratory results for the interference check sample do not match the actual known concentration, it is possible that certain elements in solution are affecting the results when analyzing for other elements. Such matrix effects could be due to chemical interactions or physical interferences. It is assumed that similar problems would exist for sample results, and therefore, they should be treated with caution.

REVIEW RESULTS:

All criteria for ICP interference check samples were achieved.

5.0 MATRIX SPIKE SAMPLE ANALYSIS

The spiked sample analysis also is designed to provide information about the effect of the sample matrix on the digestion and measurement methodology. Sample spike recovery values that do not meet laboratory QC criteria may indicate that sample analyte results are being attenuated in the analysis procedure. It is possible to estimate the bias of other sample results by noting the degree to which the spike concentration was elevated or lowered in the spike analysis. However, these bias results should serve as approximations; sample-specific problems may be the cause of the discrepancy, particularly in soil samples.

REVIEW RESULTS:

The matrix spike percent recovery (%R) values were within laboratory QC limits.

6.0 DUPLICATE SAMPLE ANALYSIS

Duplicate samples are analyzed to evaluate the precision of the sample results. The failure of the laboratory to reproduce similar results for a duplicate sample may indicate that the sample was non-homogeneous (particularly in soil samples), or method defects exist in laboratory techniques.

REVIEW RESULTS

The relative percent difference (RPD) values were within QC criteria.

7.0 LABORATORY CONTROL SAMPLE ANALYSIS

The laboratory control sample (LCS) is analyzed to serve as a monitor of the efficiency of the digestion procedure. The inability of the laboratory to successfully analyze an LCS is indicative of an analytical problem related to the digestion/sample preparation procedures and/or instrument operations.

REVIEW RESULTS:

All LCS analyses for soil were within control limits.

II. ORGANIC ANALYSES

1.0 HOLDING TIMES

Holding times are established and monitored to ensure analytical results accurately represent analyte concentrations in a sample at the time of collection. Exceeding the holding time for a sample generally results in a loss of the analyte due to a variety of mechanisms, such as deposition on the sample container wall, co-precipitation with particulates or volatilization through leaks in the container.

REVIEW RESULTS:

Holding time limits:

PCP and PAH:

soil - 14 days for extraction, 40 days for analysis

All samples were extracted and analyzed within the required holding times.

2.0 GAS CHROMATOGRAPH/MASS SPECTROMETER (GC/MS) TUNING

Prior to sample analysis, GC/MS tuning is carried out on the analytical instrumentation using decafluorotriphenylphosphine (DFTPP) for the PCP and PAH fraction. For this compound, certain ions in their mass spectra must be present in specific amounts to ensure the resolution, identifica-

tions, and sensitivity of the system. The failure of the laboratory to meet GC/MS tuning criteria indicates that deficiencies exist with the GC/MS system being used.

REVIEW RESULTS:

All tuning check compounds mass abundances and ratios were within required limits for PCP and PAH analysis

3.0 INITIAL CALIBRATION

Prior to sample analysis, the GC/MS system is calibrated initially at five concentrations for each PCP and PAH target compound to determine the linearity of response. For each compound, an Average Relative Response Factor (RRF) is determined, which is later used for compound quantitation in sample results. A Relative Standard Deviation (RSD) for the average RRF also is calculated and must be less than the established QC percentage value. Low RRF values and high RSD values are indicative of unsatisfactory instrument calibration; the system may not be capable of acceptable performance for compounds exhibiting such deficiencies.

For the initial (IC) and continuing calibrations (CC) calibrations, RRF criteria is as follows:

RRF	Analyte
0.050	PCP
0.40	Benzo(a)anthracene
0.35	Benzo(b)fluoranthene, benzo(k)fluoranthene, Benzo(a)pyrene, and chrysene
0.20	Dibenzo(a,h)anthracene
0.25	Indeno(1,2,3-c,d)pyrene

REVIEW RESULTS:

All criteria for initial calibration were achieved for the PCP and PAH analysis

4.0 CONTINUING CALIBRATION

The GC/MS initial calibration must be verified each 12-hour period for a GC/MS system; continuing calibration results check satisfactory maintenance and adjustment on a day-to-day basis. A continuing calibration RRF value is calculated for each TCL compound, and this value is compared to the initial calibration average RRF value. Continuing calibration compound results with low RRF values and/or RRFs with high percent difference values indicate the instrument is no longer correctly calibrated for these compounds

REVIEW RESULTS:

All criteria for the continuing calibration for PCP and PAH analysis.

5.0 BLANKS

Laboratory method blank samples are evaluated to assess the existence and magnitude of possible contamination. Comparison of sample results to compound concentrations found in blanks makes it possible to determine if these compounds were actually present in the sample or were introduced as a contaminant during some phase of the analytical procedure.

REVIEW RESULTS:

Frequency criteria were met for laboratory blank analysis.

No contaminants were detected in any of the laboratory blanks.

6.0 SURROGATE SPIKE RECOVERY

Laboratory performance for individual samples is established by means of surrogate spiking activities. Samples are spiked with surrogate compounds prior to preparation and analysis. Unusually low or high surrogate recovery values may indicate some deficiency in the analytical system or that some matrix effect exists, resulting in similarly low or high sample results for other compounds as well.

REVIEW RESULTS:

As noted by NCA, the surrogate 2,4,6-Tribromophenol is flagged with an E on many of the samples. The spike amount, 200 ppb, exceeded the upper calibration limit of 200 ppb when recovery was greater than 100%. All surrogate percent recovery values were within laboratory QC criteria for all analysis.

7.0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) ANALYSIS

The MS/MSD analysis is designed to evaluate possible effects of the inherent sample matrix on target analyte recovery. To assess the possible matrix effect, specific analytes are spiked into a selected sample and a duplicate of that sample. The spike recoveries and relative percent difference (RPD) between the sample and the duplicate are then determined. Poor spike recoveries and high RPD values may indicate that a significant matrix effect is present and is adversely affecting sample results for that particular matrix or sample medium.

REVIEW RESULTS:

All MS and MSD percent recovery values met laboratory QC guidelines.

8.0 INTERNAL STANDARDS PERFORMANCE

The VOC and SVOC TCL analytes identified in samples are quantified using internal standards that are spiked at specific concentrations into each sample. The retention times and chromatogram peak areas for the internal standards in each sample must fall within established QC limits to ensure that sample quantitation is correct.

REVIEW RESULTS:

All internal standards were within established QC.

9.0 COMPOUND IDENTIFICATION

9.1 PCP and PAH Analysis

The presence of all compounds found in samples is verified by comparing the mass spectra for the sample compounds to those of the calibration standards run through the GC/MS systems. Retention times for sample compounds are also checked and should match retention times established by the calibration standards. If a sample compound does not meet these criteria, its identification should be rejected.

REVIEW RESULTS:

All criteria for compound identification were achieved for both the PCP and PAH analyses.

DATA QUALIFIERS

ND - The material was analyzed for, but was not detected. The associated numerical value is a method quantitation limit adjusted for sample weight/sample volume, extraction volume, percent solids and sample dilution.

U - The material was analyzed for, but was not detected. The associated numerical value is a method quantitation limit adjusted for sample weight/sample volume, extraction volume, percent solids and sample dilution.

J - The analyte was analyzed for and was positively identified, but the associated numerical value may not be consistent with the amount actually present in the environmental sample. The data should be seriously considered for decision-making and are usable for many purposes.

UJ - The material was analyzed for, but was not detected. The associated numerical value is an estimated/adjusted quantitation limit. The associated numerical value may not accurately or precisely represent the concentration necessary to detect the analyte in this sample.

R - Quality Control indicates that data are unusable for all purposes. The analyte was analyzed for, but the presence or absence of the analyte has not been verified. Resampling and reanalysis are necessary for verification to confirm or deny the presence of an analyte.

B - Blank contamination. The material was detected at less than five times (10 times for common solvents) the concentration found in one or more associated laboratory blanks. The data should be used with caution.

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DATA PACKAGE

for

Ecology and Environment

Portland SDG #: P903060

Client Project Name: McCormick & Baxter Soil Removal
Client Project #: 749.OH04-00.98

The total number of pages contained in this package is:

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Prepared by:

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Case Narrative

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Case Narrative

CLIENT:	**Ecology & Environment (Seattle)**	**March 16, 1999**
PROJECT:	**McCormick and Baxter Soil Removal**	
PROJECT #:	**749.OH04-00.98**	**page 1 of 2**
NCA #:	**P903060**	

1.0 DESCRIPTION OF CASE

North Creek Analytical, Portland received nine soil samples on 3/3/99 from Ecology & Environment for analysis by the following Methods: Metals scan by ICP/MS (As). Selected samples were then confirmed by the following EPA Methods: 6020 Total Metals (As).

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 # (SDG#), preceded 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 Ecology & Environment. The samples were clearly labeled and matched the chain of custody. Sample temperature (4.5°C) was measured upon receipt using a Raytek PM 30 Infrared Temperature gun and recorded.

3.2 Analysis

The samples were analyzed following the procedures outlined in the applicable methods. Refer to the NCA report for specific prep methods used. The samples were refrigerated at approximately 4°C and were extracted and analyzed within the EPA recommended holding times without incident.

The Arsenic screens were run on 3/3/99. The batch QC met criteria for confirmation on the 3/3/99 run. The selected samples were re-run on 3/6/99 for confirmation results.

4.0 QC RESULTS

Surrogate and quality control parameters that were outside control limits are noted on the appropriate pages of the analytical report.

5.0 SAMPLE RESULTS

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Case Narrative

CLIENT:	**Ecology & Environment (Seattle)**	**March 16, 1999**
PROJECT:	**McCormick and Baxter Soil Removal**	
PROJECT #:	**749.OH04-00.98**	**page 2 of 2**
NCA #:	**P903060**	

Where applicable, qualifiers have been added to sample results 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: None Needed

" 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

Rochelle Carpenter, QA Manager
North Creek Analytical, Beaverton

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Chain of Custody Report

North Creek Analytical, Inc.
Environmental Laboratory Network

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

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4.5°

CHAIN OF CUSTODY REPORT

Work Order # 903060

REPORT TO:
ATTENTION: Heather Brunelle
ADDRESS: 333 SW Fifth Ave Ste. 608
Portland, OR 97204
Site PHONE: 503/735-3879 Site FAX: 503/735-4651
PROJECT NAME: McCormick Baxter Soil Removal
PROJECT NUMBER: 749.0H04.00.98
SAMPLED BY: H. Brunelle & M. Witmaver

INVOICE TO:
ATTENTION:
ADDRESS:
P.O. NUMBER: NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 (Standard) | 7 | 5 | 4 | 3 | 2 | 1 | Same Day
Fuels & Hydrocarbon Analyses: 5 (Standard) | 3-4 | 2 | 1 | Same Day
OTHER Specify: 24-hr
* Turnaround Requests less than standard may incur Rush Charges

Analysis Request: Screening TAS

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Screening TAS	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1.	RA201S01	3/3/99 13:37		X	S	1	24-hr fax
2.	RA202S01	3/3/99 13:35		↓	↓	↓	Results to
3.	RA203S01	3/3/99 13:25		↓	↓	↓	site fax
4.	RA204S01	3/3/99 13:50		↓	↓	↓	735-4651
5.	RA205S01	3/3/99 13:42		↓	↓	↓	
6.	RA206S01	3/3/99 13:44		↓	↓	↓	
7.	RA207S01	3/3/99 13:54		↓	↓	↓	
8.	RA208S01	3/3/99 14:00		↓	↓	↓	
9.	RA209S01	3/3/99 14:00		↓	↓	↓	
10.		~~3/3/99~~ HTB		↓	↓	↓	

RELINQUISHED BY (Signature): [signature]	DATE: 3/3/99	RECEIVED BY (Signature): Debra T Meskimen	DATE: 3/3/99
PRINT NAME: Heather Brunelle FIRM: E&E	TIME: 15:16	PRINT NAME: Debra Meskimen FIRM: NCA	TIME: 3:15
RELINQUISHED BY (Signature): Debra Meskimen	DATE: 3/3/99	RECEIVED BY (Signature): [signature]	DATE: 3/3/99
PRINT NAME: Debra Meskimen FIRM: NCA	TIME: 3:55	PRINT NAME: Mary McShane FIRM: NCA	TIME: 15:55

ADDITIONAL REMARKS:

PAGE OF

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North Creek Analytical Report

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/3/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/3/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/16/99 14:45

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
RA201S01	P903060-01	Soil	3/3/99
RA202S01	P903060-02	Soil	3/3/99
RA203S01	P903060-03	Soil	3/3/99
RA204S01	P903060-04	Soil	3/3/99
RA205S01	P903060-05	Soil	3/3/99
RA206S01	P903060-06	Soil	3/3/99
RA207S01	P903060-07	Soil	3/3/99
RA208S01	P903060-08	Soil	3/3/99
RA209S01	P903060-09	Soil	3/3/99

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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

North Creek Analytical, Inc.
Environmental Laboratory Network

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/3/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/3/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/16/99 14:45

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*
RA201S01			**P903060-01**				**Soil**	
Arsenic	0390097	3/3/99	3/6/99	EPA 6020	2.50	**24.7**	mg/kg dry	
RA202S01			**P903060-02**				**Soil**	
Arsenic	0390097	3/3/99	3/6/99	EPA 6020	2.50	**3.57**	mg/kg dry	
RA203S01			**P903060-03**				**Soil**	
Arsenic	0390097	3/3/99	3/6/99	EPA 6020	2.50	**44.9**	mg/kg dry	
RA205S01			**P903060-05**				**Soil**	
Arsenic	0390097	3/3/99	3/6/99	EPA 6020	2.50	**2.62**	mg/kg dry	
RA206S01			**P903060-06**				**Soil**	
Arsenic	0390097	3/3/99	3/6/99	EPA 6020	2.50	**3.15**	mg/kg dry	
RA207S01			**P903060-07**				**Soil**	
Arsenic	0390097	3/3/99	3/6/99	EPA 6020	2.50	**59.4**	mg/kg dry	
RA208S01			**P903060-08**				**Soil**	
Arsenic	0390097	3/3/99	3/6/99	EPA 6020	2.50	**136**	mg/kg dry	
RA209S01			**P903060-09**				**Soil**	
Arsenic	0390097	3/3/99	3/6/99	EPA 6020	2.50	**118**	mg/kg dry	

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**Refer to end of report for text of notes and definitions.*

HTS 5/17/99

Deborah Griffiths, Project Manager

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/3/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/3/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/16/99 14:45

Metals Scan by ICP/MS
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
RA201S01			**P903060-01**				**Soil**	
Arsenic	0390097	3/3/99	3/3/99	EPA 6020	2.5	**26**	mg/kg dry	
RA202S01			**P903060-02**				**Soil**	
Arsenic	0390097	3/3/99	3/3/99	EPA 6020	2.5	**4.3**	mg/kg dry	
RA203S01			**P903060-03**				**Soil**	
Arsenic	0390097	3/3/99	3/3/99	EPA 6020	2.5	**50**	mg/kg dry	
RA204S01			**P903060-04**				**Soil**	
Arsenic	0390097	3/3/99	3/3/99	EPA 6020	2.5	**820**	mg/kg dry	E
RA205S01			**P903060-05**				**Soil**	
Arsenic	0390097	3/3/99	3/3/99	EPA 6020	2.5	**4.2**	mg/kg dry	
RA206S01			**P903060-06**				**Soil**	
Arsenic	0390097	3/3/99	3/3/99	EPA 6020	2.5	**3.4**	mg/kg dry	
RA207S01			**P903060-07**				**Soil**	
Arsenic	0390097	3/3/99	3/3/99	EPA 6020	2.5	**58**	mg/kg dry	
RA208S01			**P903060-08**				**Soil**	
Arsenic	0390097	3/3/99	3/3/99	EPA 6020	2.5	**140**	mg/kg dry	E
RA209S01			**P903060-09**				**Soil**	
Arsenic	0390097	3/3/99	3/3/99	EPA 6020	2.5	**100**	mg/kg dry	E

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/3/99
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Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/16/99 14:45

Dry Weight Determination
North Creek Analytical - Portland

Sample Name	Lab ID	Matrix	Result	Units
RA201S01	P903060-01	Soil	88.6	%
RA202S01	P903060-02	Soil	88.2	%
RA203S01	P903060-03	Soil	86.8	%
RA204S01	P903060-04	Soil	87.6	%
RA205S01	P903060-05	Soil	89.9	%
RA206S01	P903060-06	Soil	88.9	%
RA207S01	P903060-07	Soil	84.7	%
RA208S01	P903060-08	Soil	86.7	%
RA209S01	P903060-09	Soil	86.6	%

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/3/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/3/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/16/99 14:45

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: 0390097	**Date Prepared: 3/3/99**				**Extraction Method: EPA 3050**					
Blank	**0390097-BLK1**									
Arsenic	3/3/99			**ND**	mg/kg dry	**2.50**				
LCS	**0390097-BS1**									
Arsenic	3/3/99	250		230	mg/kg dry	80.0-120	92.0			
Duplicate	**0390097-DUP1**		**P903059-01**							
Arsenic	3/3/99		4.00	3.66	mg/kg dry			40.0	**8.88**	
Matrix Spike	**0390097-MS1**		**P903059-01**							
Arsenic	3/3/99	281	4.00	282	mg/kg dry	75.0-125	**98.9**			
Matrix Spike Dup	**0390097-MSD1**		**P903059-01**							
Arsenic	3/3/99	281	4.00	263	mg/kg dry	75.0-125	**92.2**	40.0	**7.01**	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/3/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/3/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/16/99 14:45

Metals Scan by ICP/MS/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: 0390097	**Date Prepared: 3/3/99**				**Extraction Method: EPA 3050**					
Blank	**0390097-BLK1**									
Arsenic	3/3/99			**ND**	mg/kg dry	**2.5**				
LCS	**0390097-BS1**									
Arsenic	3/3/99	250		230	mg/kg dry	80-120	92			E

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/3/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/3/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/16/99 14:45

Notes and Definitions

#	Note
E	Estimated value. The reported value exceeds the calibration range of the analysis.
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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DATA PACKAGE

for

Ecology and Environment

Portland SDG #: P903235

Client Project Name: McCormick & Baxter Soil Removal
Client Project #: 749.OH04-00.98

The total number of pages contained in this package is:

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Prepared by:

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Case Narrative

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Case Narrative

CLIENT:	**Ecology & Environment (Seattle)**	**March 24, 1999**
PROJECT:	**McCormick and Baxter Soil Removal**	
PROJECT #:	**749.OH04-00.98**	**page 1 of 2**
NCA #:	**P903235**	

1.0 DESCRIPTION OF CASE

North Creek Analytical, Portland received three soil samples on 3/11/99 from Ecology & Environment for analysis by the following Methods: Metals scan by ICP/MS (As) and 8270C Modified (carcinogenic PAHs/PCP Screening method). Selected samples were then confirmed by the following EPA Methods: 6020 Total Metals (As) and 8270C (carcinogenic PAHs/PCP).

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 # (SDG#), preceded 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 Ecology & Environment. The samples were clearly labeled and matched the chain of custody. Sample temperature (9°C) was measured upon receipt using a Raytek PM 30 Infrared Temperature gun and recorded.

3.2 Analysis

The samples were analyzed following the procedures outlined in the applicable methods. Refer to the NCA report for specific prep methods used. The samples were refrigerated at approximately 4°C and were extracted and analyzed within the EPA recommended holding times without incident.

Confirmation QA/QC requirements for laboratory analyses were met for all 8270C and 6020 (screen and confirmation) results.

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Case Narrative

CLIENT:	**Ecology & Environment (Seattle)**	**March 24, 1999**
PROJECT:	**McCormick and Baxter Soil Removal**	
PROJECT #:	**749.OH04-00.98**	**page 2 of 2**
NCA #:	**P903235**	

4.0 QC RESULTS

Surrogate and quality control parameters that were outside control limits are noted on the appropriate pages of the analytical report.

PAH/PCP by 8070C

The surrogate 2,4,6-Tribromophenol is flagged with an E on many of the QC samples. 2,4,6-Tribromophenol is spiked into the samples at 200 ppb. When recovery is greater than 100%, this compound exceeds our upper calibration limit of 200 ppb. All of the surrogate recoveries are within specifications.

The recovery of Pentachlorophenol for the Blank Spike Sample is flagged outside of control limits. Since we have too few points to plot a control chart for this extraction procedure, the limits in the report should be considered advisory. Although this result is exceeds the DQOs for the project, this does not represent an out of control situation for the batch as per 8270C.

5.0 SAMPLE RESULTS

Where applicable, qualifiers have been added to sample results 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:

PAH/PCP by 8070C

The surrogate 2,4,6-Tribromophenol is flagged with an E on many of the samples. 2,4,6-Tribromophenol is spiked into the samples at 200 ppb. When recovery is greater than 100%, this compound exceeds our upper calibration limit of 200 ppb. All of the surrogate recoveries are within specifications.

" 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

Rochelle Carpenter, QA Manager
North Creek Analytical, Beaverton

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Chain of Custody Report

6

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9.0

CHAIN OF CUSTODY REPORT

Work Order # P903235

REPORT TO:

ATTENTION: HEATHER BRUNELLE
ADDRESS: 333 SW FIFTH AVE. STE 608
PORTLAND, OR. 97204
PHONE: STE 735-3879 FAX: 735-4651
PROJECT NAME: McCORMICK + BAXTER
PROJECT NUMBER: 749.0H04.0098
SAMPLED BY: KEVIN SMITH R. CULLEN

INVOICE TO:

ATTENTION:
ADDRESS:
P.O. NUMBER: NCA QUOTE #:

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: 10 (Standard) | 7 | 5 | 4 | 3 | 2 | 1 | Same Day

Fuels & Hydrocarbon Analyses: 5 (Standard) | 3-4 | 2 | 1 | Same Day

OTHER Specify: 24-HR FAX

* Turnaround Requests less than standard may incur Rush Charges.

Analysis Request: Screen As, Screen PCP, Screen PAHs

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Screen As	Screen PCP	Screen PAHs	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1. RA13623504	3/11/99 09:34		X	X	X	S	1	24-HR FAX
2. RA13624504	3/11/99 9:36		X	X	X	S	1	RESULTS TO
3. RA13625504	3/11/99 9:38		X	X	X	S	1	735-4651
4								
5								
6.								
7								
8.								
9								
10								

RELINQUISHED BY (Signature): Mike Coenen DATE: 3/11/99
PRINT NAME: MIKE COENEN FIRM: E&E TIME: 14:00

RECEIVED BY (Signature): [illegible] DATE: 3-11-99
PRINT NAME: Carry Spangler FIRM: NCA TIME: 1035

RELINQUISHED BY (Signature): DATE:
PRINT NAME: FIRM: TIME:

RECEIVED BY (Signature): DATE:
PRINT NAME: FIRM: TIME:

ADDITIONAL REMARKS:

PAGE 1 OF 1

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/11/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/24/99 09:27

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
RA13b23S04	P903235-01	Soil	3/11/99
RA13b24S04	P903235-02	Soil	3/11/99
RA13b25S04	P903235-03	Soil	3/11/99

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.

Rochelle Carpenter for
Deborah Griffiths, Project Manager

North Creek Analytical, Inc.
Environmental Laboratory Network

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/11/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/24/99 09:27

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*
RA13b23S04			**P903235-01**				**Soil**	
Arsenic	0390316	3/11/99	3/11/99	EPA 6020	2.50	**84.8**	mg/kg dry	
RA13b24S04			**P903235-02**				**Soil**	
Arsenic	0390316	3/11/99	3/11/99	EPA 6020	2.50	**4.00**	mg/kg dry	
RA13b25S04			**P903235-03**				**Soil**	
Arsenic	0390316	3/11/99	3/11/99	EPA 6020	2.50	**3.25**	mg/kg dry	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/11/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/24/99 09:27

Metals Scan by ICP/MS
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
RA13b23S04			**P903235-01**				**Soil**	
Arsenic	0390316	3/11/99	3/11/99	EPA 6020	2.5	**85**	mg/kg dry	
RA13b24S04			**P903235-02**				**Soil**	
Arsenic	0390316	3/11/99	3/11/99	EPA 6020	2.5	**4.0**	mg/kg dry	
RA13b25S04			**P903235-03**				**Soil**	
Arsenic	0390316	3/11/99	3/11/99	EPA 6020	2.5	**3.3**	mg/kg dry	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/11/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/24/99 09:27

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*
RA13b23S04			**P903235-01**				**Soil**	
Benzo (a) anthracene	0390382	3/11/99	3/11/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	**5.08**	"	1
Benzo (b) fluoranthene	"	"	"		5.00	**9.17**	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	**6.00**	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		50.0	**263**	"	2
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*92.3*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*119*	"	
RA13b24S04			**P903235-02**				**Soil**	
Benzo (a) anthracene	0390382	3/11/99	3/11/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*94.4*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*132*	"	*E*
RA13b25S04			**P903235-03**				**Soil**	
Benzo (a) anthracene	0390382	3/11/99	3/11/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**10.7**	"	1
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*84.7*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*114*	"	*E*

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/11/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/24/99 09:27

Semivolatile Organic Compound Screen per EPA Method 8270C Modified
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
RA13b23S04			**P903235-01**				**Soil**	
Benzo (a) anthracene	0390307	3/11/99	3/11/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	**5.08**	"	1
Benzo (b) fluoranthene	"	"	"		5.00	**9.17**	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	**6.00**	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		50.0	**263**	"	2
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*92.3*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*119*	"	
RA13b24S04			**P903235-02**				**Soil**	
Benzo (a) anthracene	0390307	3/11/99	3/11/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*94.4*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*132*	"	*E*
RA13b25S04			**P903235-03**				**Soil**	
Benzo (a) anthracene	0390307	3/11/99	3/11/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**10.7**	"	1
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*84.7*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*114*	"	*E*

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/11/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/24/99 09:27

Dry Weight Determination
North Creek Analytical - Portland

Sample Name	Lab ID	Matrix	Result	Units
RA13b23S04	P903235-01	Soil	93.0	%
RA13b24S04	P903235-02	Soil	93.7	%
RA13b25S04	P903235-03	Soil	90.7	%

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/11/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/24/99 09:27

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: 0390316	**Date Prepared: 3/11/99**				**Extraction Method: EPA 3050**					
Blank	**0390316-BLK1**									
Arsenic	3/11/99			**ND**	mg/kg dry	**2.50**				
LCS	**0390316-BS1**									
Arsenic	3/11/99	250		224	mg/kg dry	80.0-120	89.6			
Duplicate	**0390316-DUP1**		**P903235-01**							
Arsenic	3/11/99		84.8	85.6	mg/kg dry			40.0	**0.939**	
Matrix Spike Dup	**0390316-MSD1**		**P903235-01**							
Arsenic	3/11/99	269	84.8	308	mg/kg dry	75.0-125	**83.0**	40.0		

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/11/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/24/99 09:27

Metals Scan by ICP/MS/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: 0390316	**Date Prepared: 3/11/99**				**Extraction Method: EPA 3050**					
Blank	**0390316-BLK1**									
Arsenic	3/11/99			**ND**	mg/kg dry	**2.5**				
LCS	**0390316-BS1**									
Arsenic	3/11/99	250		220	mg/kg dry	80-120	88			

North Creek Analytical - Portland

**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

MB 5/19/99

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/11/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/24/99 09:27

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: 0390382	**Date Prepared: 3/11/99**				**Extraction Method: EPA 3550**					
Blank	**0390382-BLK1**									
Benzo (a) anthracene	3/11/99			**ND**	mg/kg dry	**5.00**				
Benzo (a) pyrene	"			**ND**	"	**5.00**				
Benzo (b) fluoranthene	"			**ND**	"	**5.00**				
Benzo (k) fluoranthene	"			**ND**	"	**5.00**				
Chrysene	"			**ND**	"	**5.00**				
Dibenzo (a,h) anthracene	"			**ND**	"	**5.00**				
Indeno (1,2,3-cd) pyrene	"			**ND**	"	**5.00**				
Pentachlorophenol	"			**ND**	"	**10.0**				
Surrogate: p-Terphenyl-d14	"	*100*		*86.4*	"	*20.0-150*	*86.4*			
Surrogate: 2,4,6-Tribromophenol	"	*200*		*239*	"	*10.0-150*	*120*			*E*
LCS	**0390382-BS1**									
Benzo (a) pyrene	3/11/99	100		89.5	mg/kg dry	35.0-142	89.5			
Chrysene	"	100		105	"	35.0-142	105			
Pentachlorophenol	"	100		114	"	17.0-109	114			3
Surrogate: p-Terphenyl-d14	"	*100*		*87.4*	"	*20.0-150*	*87.4*			
Surrogate: 2,4,6-Tribromophenol	"	*200*		*245*	"	*10.0-150*	*123*			*E*
Matrix Spike	**0390382-MS1**		**P903235-01**							
Benzo (a) pyrene	3/11/99	107	5.08	99.6	mg/kg dry	35.0-142	**88.3**			
Chrysene	"	107	6.00	115	"	35.0-142	**102**			
Pentachlorophenol	"	107	263	317	"	17.0-109	**50.5**			
Surrogate: p-Terphenyl-d14	"	*107*		*93.1*	"	*20.0-150*	*87.0*			
Surrogate: 2,4,6-Tribromophenol	"	*215*		*229*	"	*10.0-150*	*107*			
Matrix Spike Dup	**0390382-MSD1**		**P903235-01**							
Benzo (a) pyrene	3/11/99	107	5.08	96.1	mg/kg dry	35.0-142	**85.1**	36.0	**3.69**	
Chrysene	"	107	6.00	113	"	35.0-142	**100**	36.0	**1.98**	
Pentachlorophenol	"	107	263	314	"	17.0-109	**47.7**	47.0	**5.70**	
Surrogate: p-Terphenyl-d14	"	*107*		*91.9*	"	*20.0-150*	*85.9*			
Surrogate: 2,4,6-Tribromophenol	"	*215*		*236*	"	*10.0-150*	*110*			

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/11/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/24/99 09:27

Semivolatile Organic Compound Screen per EPA Method 8270C Modified/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: 0390307	**Date Prepared: 3/11/99**				**Extraction Method: EPA 3550**					
Blank	**0390307-BLK1**									
Benzo (a) anthracene	3/11/99			**ND**	mg/kg dry	**5.00**				
Benzo (a) pyrene	"			**ND**	"	**5.00**				
Benzo (b) fluoranthene	"			**ND**	"	**5.00**				
Benzo (k) fluoranthene	"			**ND**	"	**5.00**				
Chrysene	"			**ND**	"	**5.00**				
Dibenzo (a,h) anthracene	"			**ND**	"	**5.00**				
Indeno (1,2,3-cd) pyrene	"			**ND**	"	**5.00**				
Pentachlorophenol	"			**ND**	"	**10.0**				
Surrogate: p-Terphenyl-d14	"	*100*		*86.4*	"	*20.0-150*	*86.4*			
Surrogate: 2,4,6-Tribromophenol	"	*200*		*239*	"	*10.0-150*	*120*			
LCS	**0390307-BS1**									
Benzo (a) pyrene	3/11/99	100		89.5	mg/kg dry	20.0-150	89.5			
Chrysene	"	100		105	"	20.0-150	105			
Pentachlorophenol	"	100		114	"	20.0-150	114			
Surrogate: p-Terphenyl-d14	"	*100*		*87.4*	"	*20.0-150*	*87.4*			
Surrogate: 2,4,6-Tribromophenol	"	*200*		*245*	"	*10.0-150*	*123*			*E*
Matrix Spike	**0390307-MS1**		**P903235-01**							
Benzo (a) pyrene	3/11/99	107	5.08	99.6	mg/kg dry	20.0-150	**88.3**			
Chrysene	"	107	6.00	115	"	20.0-150	**102**			
Pentachlorophenol	"	107	263	317	"	10.0-150	**50.5**			
Surrogate: p-Terphenyl-d14	"	*107*		*93.1*	"	*20.0-150*	*87.0*			
Surrogate: 2,4,6-Tribromophenol	"	*215*		*229*	"	*10.0-150*	*107*			
Matrix Spike Dup	**0390307-MSD1**		**P903235-01**							
Benzo (a) pyrene	3/11/99	107	5.08	96.1	mg/kg dry	20.0-150	**85.1**	50.0	**3.69**	
Chrysene	"	107	6.00	113	"	20.0-150	**100**	50.0	**1.98**	
Pentachlorophenol	"	107	263	315	"	10.0-150	**48.6**	50.0	**3.83**	
Surrogate: p-Terphenyl-d14	"	*107*		*91.9*	"	*20.0-150*	*85.9*			
Surrogate: 2,4,6-Tribromophenol	"	*215*		*237*	"	*10.0-150*	*110*			

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/11/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/24/99 09:27

Notes and Definitions

#	Note
E	Estimated value. The reported value exceeds the calibration range of the analysis.
1	Analyte detected below MRL in sample extract. Percent solids calculation raised result above MRL. Result reported as Estimated Value.
2	The reporting limit for this analyte was raised due to the high analyte concentration present in the sample.
3	The spike recovery 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

DATA VALIDATION
MEMORANDUM

DATE: June 14, 1999

TO: Kevin Smith, Project Manager, E & E, Seattle

FROM: Heather Brunelle, Chemist, E & E, Portland HB

SUBJ: Data Validation of North Creek Analytical Data
McCormick Baxter
Portland, Oregon

REF: Project Number: OH0498
Laboratory Job Number: P903610 and P903263

Sample Matrix: Fourteen soil samples.

Sample Nos.:

RA1701S04	RA13a12S04	RA907S02
RA1704S04	RA13a14S04	RA908S02
RA1705S04	RA13a17S04	RA909S02
RA1707S04	RA13a18S04	RA910S02
RA1709S04	RA906S02	

The analytical data provided by North Creek Analytical, Inc. were reviewed for laboratory precision, accuracy, and completeness. All data were deemed acceptable as reported, with the following qualifications.

Twenty one soil samples were initially collected and screened for arsenic analysis. Sixteen soil samples were initially collected and screened for the following analyses: pentachlorophenol (PCP), and carcinogenic polyaromatic hydrocarbons (PAHs). Fourteen samples were confirmed for arsenic analysis. Nine samples were confirmed for the following analyses: PCP, and PAHs. Only the confirmation analyses were reviewed. The data was in accordance with the current edition of Quality Assurance (QA)/Quality Control (QC) guidance outlined in the United States Environmental Protection Agency's (EPA's) Test Methods for Evaluating Solid Waste (EPA SW-846) and the most current editions of the EPA's Functional Guidelines for Reviewing Organic and Inorganic Analyses, as they apply to analyses conducted outside the EPA's Contract Laboratory Program (CLP).

I. ARSENIC DATA

1.0 HOLDING TIMES

Holding times are established and monitored to ensure analytical results accurately represent analyte concentrations in a sample at the time of collection. Exceeding the holding time for a sample generally results in a loss of the analyte due to a variety of mechanisms, such as deposition on the sample container walls or precipitation.

REVIEW RESULTS:

Holding time limits:

Metals - 6 months (mercury - 28 days)

All samples met holding criteria.

2.0 INITIAL AND CONTINUING CALIBRATION VERIFICATION

Initial and continuing calibration verification solutions contain known concentrations of target analytes and are repeatedly checked at the beginning of analyses (initial) and throughout a sample batch run (continuing). Instrument accuracy and stability are documented during calibrations. Accuracy is determined by the percent recovery (%R) of known standards during the initial calibration. Stability is measured by the %R of known standards during the continuing calibration. The inability of the laboratory to perform acceptably on the calibration criteria may indicate that problems exist in the laboratory's analytical system. Associated sample data generated under such conditions should be considered suspect.

REVIEW RESULTS:

The QC criteria for initial and continuing calibration for all elements were achieved.

3.0 BLANKS

Laboratory blank samples are analyzed and evaluated to determine the existence and magnitude of possible contamination. Generally, if analyte concentrations greater than the LDL for a given analyte are found in a laboratory blank, it is likely that the analyte is present as a contaminant in some phase of the analysis procedure and associated sample concentrations may be biased high.

REVIEW RESULTS:

The following analyte was detected in laboratory blanks above the LDL:

Blank*	Analyte	Conc. (µg/L)	LDL (µg/L)	Associated Samples
CCB2	Arsenic	1.44	1.00	P903263-03, -06, -07, -08, -09, -10, -11, -12, blank

Conc. = Concentration.

* CCB = Continuing Calibration Blank.

a - Blank results were converted from original units (mg/kg) to µg/L by the reviewer for comparison to the LDL.

The method blank associated with CCB2, 0390362-BLK1, did not result in a concentration above the LDL.

4.0 INDUCTIVELY COUPLED ARGON PLASMA (ICP) SPECTROMETRY INTERFERENCE CHECK SAMPLE

Interference check samples (ICS) are analyzed to verify inter-element and background correction factors used by the laboratory during sample analysis. If laboratory results for the interference check sample do not match the actual known concentration, it is possible that certain elements in solution are affecting the results when analyzing for other elements. Such matrix effects could be due to chemical interactions or physical interferences. It is assumed that similar problems would exist for sample results, and therefore, they should be treated with caution.

REVIEW RESULTS:

All criteria for ICP interference check samples were not achieved for Laboratory Job Numbers P903610 and P903263. The ICS solution result for P903610 was 134% of the true value for the analytes in the solution. All P903610 positive results are flagged "J". The ICS solution result for P903263 was 129% of the true value for the analytes in the solution. All P903263 positive results are flagged "J".

5.0 MATRIX SPIKE SAMPLE ANALYSIS

The spiked sample analysis also is designed to provide information about the effect of the sample matrix on the digestion and measurement methodology. Sample spike recovery values that do not meet laboratory QC criteria may indicate that sample analyte results are being attenuated in the analysis procedure. It is possible to estimate the bias of other sample results by noting the degree to which the spike concentration was elevated or lowered in the spike analysis. However, these bias results should serve as approximations; sample-specific problems may be the cause of the discrepancy, particularly in soil samples.

REVIEW RESULTS:

The matrix spike percent recovery (%R) values were within laboratory QC limits.

6.0 DUPLICATE SAMPLE ANALYSIS

Duplicate samples are analyzed to evaluate the precision of the sample results. The failure of the laboratory to reproduce similar results for a duplicate sample may indicate that the sample was non-homogeneous (particularly in soil samples), or method defects exist in laboratory techniques.

REVIEW RESULTS

The relative percent difference (RPD) values were within QC criteria.

7.0 LABORATORY CONTROL SAMPLE ANALYSIS

The laboratory control sample (LCS) is analyzed to serve as a monitor of the efficiency of the digestion procedure. The inability of the laboratory to successfully analyze an LCS is indicative of an analytical problem related to the digestion/sample preparation procedures and/or instrument operations.

REVIEW RESULTS:

All LCS analyses for soil were within control limits.

II. ORGANIC ANALYSES

1.0 HOLDING TIMES

Holding times are established and monitored to ensure analytical results accurately represent analyte concentrations in a sample at the time of collection. Exceeding the holding time for a sample generally results in a loss of the analyte due to a variety of mechanisms, such as deposition on the sample container wall, co-precipitation with particulates or volatilization through leaks in the container.

REVIEW RESULTS:

Holding time limits:

PCP and PAH:

soil - 14 days for extraction, 40 days for analysis

All samples were extracted and analyzed within the required holding times.

2.0 GAS CHROMATOGRAPH/MASS SPECTROMETER (GC/MS) TUNING

Prior to sample analysis, GC/MS tuning is carried out on the analytical instrumentation using decafluorotriphenylphosphine (DFTPP) for the PCP and PAH fraction. For this compound, certain ions in their mass spectra must be present in specific amounts to ensure the resolution, identifications, and sensitivity of the system. The failure of the laboratory to meet GC/MS tuning criteria indicates that deficiencies exist with the GC/MS system being used.

REVIEW RESULTS:

All tuning check compounds mass abundances and ratios were within required limits for PCP and PAH analysis.

3.0 INITIAL CALIBRATION

Prior to sample analysis, the GC/MS system is calibrated initially at five concentrations for each PCP and PAH target compound to determine the linearity of response. For each compound, an Average Relative Response Factor (RRF) is determined, which is later used for compound quantitation in sample results. A Relative Standard Deviation (RSD) for the average RRF also is calculated and must be less than the established QC percentage value. Low RRF values and high RSD values are indicative of unsatisfactory instrument calibration; the system may not be capable of acceptable performance for compounds exhibiting such deficiencies.

For the initial (IC) and continuing calibrations (CC) calibrations, RRF criteria is as follows:

RRF	Analyte
0.050	PCP
0.40	Benzo(a)anthracene
0.35	Benzo(b)fluoranthene, benzo(k)fluoranthene, Benzo(a)pyrene, and chrysene
0.20	Dibenzo(a,h)anthracene
0.25	Indeno(1,2,3-c,d)pyrene

REVIEW RESULTS:

All criteria for initial calibration were achieved for the PCP and PAH analysis.

4.0 CONTINUING CALIBRATION

The GC/MS initial calibration must be verified each 12-hour period for a GC/MS system; continuing calibration results check satisfactory maintenance and adjustment on a day-to-day basis. A continuing calibration RRF value is calculated for each TCL compound, and this value is compared to the initial calibration average RRF value. Continuing calibration compound results with

low RRF values and/or RRFs with high percent difference values indicate the instrument is no longer correctly calibrated for these compounds

REVIEW RESULTS:

All criteria for the continuing calibration for PCP and PAH analysis.

5.0 BLANKS

Laboratory method blank samples are evaluated to assess the existence and magnitude of possible contamination. Comparison of sample results to compound concentrations found in blanks makes it possible to determine if these compounds were actually present in the sample or were introduced as a contaminant during some phase of the analytical procedure.

REVIEW RESULTS:

Frequency criteria were met for laboratory blank analysis.

No contaminants were detected in any of the laboratory blanks.

6.0 SURROGATE SPIKE RECOVERY

Laboratory performance for individual samples is established by means of surrogate spiking activities. Samples are spiked with surrogate compounds prior to preparation and analysis. Unusually low or high surrogate recovery values may indicate some deficiency in the analytical system or that some matrix effect exists, resulting in similarly low or high sample results for other compounds as well.

REVIEW RESULTS:

All surrogate percent recovery values were within laboratory QC criteria for all analysis.

7.0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) ANALYSIS

The MS/MSD analysis is designed to evaluate possible effects of the inherent sample matrix on target analyte recovery. To assess the possible matrix effect, specific analytes are spiked into a selected sample and a duplicate of that sample. The spike recoveries and relative percent difference (RPD) between the sample and the duplicate are then determined. Poor spike recoveries and high RPD values may indicate that a significant matrix effect is present and is adversely affecting sample results for that particular matrix or sample medium.

REVIEW RESULTS:

All MS and MSD percent recovery values met laboratory QC guidelines.

8.0 INTERNAL STANDARDS PERFORMANCE

The VOC and SVOC TCL analytes identified in samples are quantified using internal standards that are spiked at specific concentrations into each sample. The retention times and chromatogram peak areas for the internal standards in each sample must fall within established QC limits to ensure that sample quantitation is correct.

REVIEW RESULTS:

All internal standards were within established QC.

9.0 COMPOUND IDENTIFICATION

9.1 PCP and PAH Analysis

The presence of all compounds found in samples is verified by comparing the mass spectra for the sample compounds to those of the calibration standards run through the GC/MS systems. Retention times for sample compounds are also checked and should match retention times established by the calibration standards. If a sample compound does not meet these criteria, its identification should be rejected.

REVIEW RESULTS:

All criteria for compound identification were achieved for both the PCP and PAH analyses.

DATA QUALIFIERS

ND - The material was analyzed for, but was not detected. The associated numerical value is a method quantitation limit adjusted for sample weight/sample volume, extraction volume, percent solids and sample dilution.

U - The material was analyzed for, but was not detected. The associated numerical value is a method quantitation limit adjusted for sample weight/sample volume, extraction volume, percent solids and sample dilution.

J - The analyte was analyzed for and was positively identified, but the associated numerical value may not be consistent with the amount actually present in the environmental sample. The data should be seriously considered for decision-making and are usable for many purposes.

UJ - The material was analyzed for, but was not detected. The associated numerical value is an estimated/adjusted quantitation limit. The associated numerical value may not accurately or precisely represent the concentration necessary to detect the analyte in this sample.

R - Quality Control indicates that data are unusable for all purposes. The analyte was analyzed for, but the presence or absence of the analyte has not been verified. Resampling and reanalysis are necessary for verification to confirm or deny the presence of an analyte.

B - Blank contamination. The material was detected at less than five times (10 times for common solvents) the concentration found in one or more associated laboratory blanks. The data should be used with caution.

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FAX

To: Heather Brunell **Date:** 8/1/99

Company: E + L **# of Pages:** 1

Fax: 248-5577 **From:** Deborah Griffiths, NCA-Portland

Email: dgriffiths@ncalabs.com

RE: **Phone:** (503) 906-9234

☐ **Urgent** ☐ **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

• **Comments:**

Response to your question regarding metals.
Should you have questions, please call.

Thanks,

Debbie

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May 28, 1999

Heather Brunell
Ecology & Environment
333 SW 5th Ave., Suite 608
Portland, OR 97204

RE: Metals Quality Assurance Data

Dear Heather:

I response to your question regarding quality assurance data for the metals results, NCA has reviewed the associated information. Based on this review, we have found that we have reported our results correctly.

There was no need for additional quality assurance to be completed, as all results were from the 13th were within specifications and limits. Samples were rerun on the 15th and reported from that date due to low level contamination in the blank.

Should you have any additional questions regarding this information, please feel free to contact me or Rochelle Carpenter at (503) 906-9200. We will be happy to help you with any questions that you may have.

Sincerely,
North Creek Analytical, Inc.

Deborah Griffiths
Project Manager

Rochelle Carpenter
Quality Assurance Manager

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DATA PACKAGE

for

Ecology and Environment

Portland SDG #: P903610

Client Project Name: McCormick & Baxter Soil Removal
Client Project #: 749.OH04-00.98

The total number of pages contained in this package is:

296

Prepared by:

NORTH CREEK ANALYTICAL, Inc.
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Case Narrative

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Case Narrative

CLIENT:	**Ecology & Environment (Seattle)**	**May 5, 1999**
PROJECT:	**McCormick and Baxter Soil Removal**	
PROJECT #:	**749.OH04-00.98**	**page 1 of 2**
NCA #:	**P903610**	

1.0 DESCRIPTION OF CASE

North Creek Analytical, Portland received nine soil samples on 3/30/99 from Ecology & Environment for analysis by the following Methods as per the chain of custody: Metals scan by ICP/MS (As) and 8270C Modified (carcinogenic PAHs/PCP Screening method). Selected samples were then confirmed by the following EPA Methods: 6020 Total Metals (As) and 8270C (carcinogenic PAHs/PCP).

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 # (SDG#), preceded 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 Ecology & Environment. The samples were clearly labeled and matched the chain of custody. Sample temperature (1.1°C) was measured upon receipt using a Raytek PM 30 Infrared Temperature gun and recorded.

3.2 Analysis

The samples were analyzed following the procedures outlined in the applicable methods. Refer to the NCA report for specific prep methods used. The samples were refrigerated at approximately 4°C and were extracted and analyzed within the EPA recommended holding times without incident.

4.0 QC RESULTS

Surrogate and quality control parameters that were outside control limits are noted on the appropriate pages of the analytical report.

PAH/PCP by 8270C

The recovery of Pentachlorophenol for the Blank Spike is flagged outside of control limits for the confirmation data. Control charting for this extraction procedure indicates that the recovery of Pentachlorophenol in this sample is well within limits. Although this result is exceeds the DQOs for the project, this does not represent an out of control situation for the batch as per 8270C.

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Case Narrative

CLIENT:	Ecology & Environment (Seattle)	May 5, 1999
PROJECT:	McCormick and Baxter Soil Removal	
PROJECT #:	749.OH04-00.98	page 2 of 2
NCA #:	P903610	

5.0 SAMPLE RESULTS

Where applicable, qualifiers have been added to sample results 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:

PAH/PCP by 8270C

Curve BNA03309 was not acceptable for confirmations. Only screening data was quantified from this curve.

Curve BNA04019 had three compounds that required a quadratic curve fit. The Coefficient of the determination (COD) is 0.99 or greater for these compounds, as per the method. However, the Quadratic curve fit introduces a slight high bias for Indeno (1,2,3-cd) pyrene and Dibenzo (a,h) anthracene between 2 and 5 ppb. This is noted on the raw data, but does not represent a deviation from method 8270C.

Samples RA1702S04, RA1704S04, & RA1709S04 (P903610-02, -04, & -09) were run on March 31 for screen results. The area counts for the internal standard associated with several of the analytes was over 200% of the daily CCV. The results for these analytes are therefore flagged as estimates. This is a requirement according to our SOP but does not represent a deviation from method 8270C.

" 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

Rochelle Carpenter, QA Manager
North Creek Analytical, Beaverton

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Chain of Custody Report

North Creek Analytical, Inc.
Environmental Laboratory Network

Dgi 1.1° 6.8°

CHAIN OF CUSTODY RECORD

ASC analytical services center

Ecology and Environment, Inc., Analytical Services Center
4493 Walden Avenue, Lancaster, New York, 14086, Tel: 716/685-8080, Fax 716/685-0852
Where Scientific Excellence and Efficiency Meet

Cooler No: _____
Lab: P903610

Page: ____ of ____

PROJECT No: 749.0H04.04.18
SITE NAME: Milonnel + Baxter RA
LOCATION: (Include State)
CLIENT: Ecology & Environment, Inc.
PROJECT MANAGER:
OFFICE No:
FIELD TEAM LEADER:
PHONE No:
SAMPLERS: (PRINT) H. Brunelle & M. Wittnauer

CONTAINER TYPE AND PRESERVATIVE

REQUESTED ANALYSIS

TURNAROUND TIME
24-HOUR fax ☒
48-HOUR ☐
1-WEEK ☐
STANDARD ☐
RUSH _____ days
OTHER _____

(FOR LAB USE ONLY)
Lab Job No:
Report type:
Batch QC:
Yes No

DATE	TIME	SAMPLE ID	SAMPLE MATRIX	CHECK FOR MS/MSD	SAMPLE TYPE	No. OF CONTAINERS	Screening As	Screening PCP	Screening cPAHs					OVA/HNU READINGS (PPM)	BEGINNING DEPTH (FEET BGS)	ENDING DEPTH (FEET BGS)	REMARKS
3/30/99	0743	RA17Ø1SØ4	S			1	X	X	X								24 hour
3/30/99	0746	RA17Ø2SØ4	S			1	X	X	X								fax results
3/30/99	0749	RA17Ø3SØ4	S			1	X	X	X								to 735-4151
3/30/99	0751	RA17Ø4SØ4	S			1	X	X	X								
3/30/99	0746	RA17Ø5SØ4	S			1	X	X	X								
3/30/99	0744	RA17Ø6SØ4	S			1	X	X	X								
3/30/99	0835	RA17Ø7SØ4	S			1	X	X	X								
3/30/99	0840	RA17Ø8SØ4	S			1	X	X	X								
3/30/99	0845	RA17Ø9SØ4	S			1	X	X	X								

Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:	Ship Via:	Date:	Temperature Blank Info.
[signature]	3/30/99 09:15	[signature]	3-30-99 1005			Enclosed: Yes No
Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:	BL/Airbill Number:		(FOR LAB USE ONLY)
[signature]	3-30-99	Sara McCluz	3-30-99 1035			Date: _____ Time: _____
						Temperature: _____ °C

Distribution: White - Lab original Yellow - Field team leader

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North Creek Analytical Report

North Creek Analytical, Inc.
Environmental Laboratory Network

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/30/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/30/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	5/4/99 12:35

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
RA17 01S04	P903610-01	Soil	3/30/99
RA17 02S04	P903610-02	Soil	3/30/99
RA17 03S04	P903610-03	Soil	3/30/99
RA17 04S04	P903610-04	Soil	3/30/99
RA17 05S04	P903610-05	Soil	3/30/99
RA17 06S04	P903610-06	Soil	3/30/99
RA17 07S04	P903610-07	Soil	3/30/99
RA17 08S04	P903610-08	Soil	3/30/99
RA17 09S04	P903610-09	Soil	3/30/99

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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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/30/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/30/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	5/4/99 12:35

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*
RA17 01S04			**P903610-01**				**Soil**	
Arsenic	0390859	3/30/99	3/31/99	EPA 6020	2.50	**4.29**	mg/kg dry	
RA17 04S04			**P903610-04**				**Soil**	
Arsenic	0390859	3/30/99	3/31/99	EPA 6020	2.50	**3.17**	mg/kg dry	
RA17 05S04			**P903610-05**				**Soil**	
Arsenic	0390859	3/30/99	3/31/99	EPA 6020	2.50	**3.22**	mg/kg dry	
RA17 07S04			**P903610-07**				**Soil**	
Arsenic	0390859	3/30/99	3/31/99	EPA 6020	2.50	**2.96**	mg/kg dry	
RA17 09S04			**P903610-09**				**Soil**	
Arsenic	0390859	3/30/99	3/31/99	EPA 6020	2.50	**40.8**	mg/kg dry	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/30/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/30/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	5/4/99 12:35

Metals Scan by ICP/MS
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
RA17 01S04			**P903610-01**				**Soil**	
Arsenic	0390859	3/30/99	3/30/99	EPA 6020	2.5	**3.7**	mg/kg dry	
RA17 02S04			**P903610-02**				**Soil**	
Arsenic	0390859	3/30/99	3/30/99	EPA 6020	2.5	**3.7**	mg/kg dry	
RA17 03S04			**P903610-03**				**Soil**	
Arsenic	0390859	3/30/99	3/30/99	EPA 6020	2.5	**3.5**	mg/kg dry	
RA17 04S04			**P903610-04**				**Soil**	
Arsenic	0390859	3/30/99	3/30/99	EPA 6020	2.5	**2.8**	mg/kg dry	
RA17 05S04			**P903610-05**				**Soil**	
Arsenic	0390859	3/30/99	3/30/99	EPA 6020	2.5	**3.7**	mg/kg dry	
RA17 06S04			**P903610-06**				**Soil**	
Arsenic	0390859	3/30/99	3/30/99	EPA 6020	2.5	**3.3**	mg/kg dry	
RA17 07S04			**P903610-07**				**Soil**	
Arsenic	0390859	3/30/99	3/30/99	EPA 6020	2.5	**2.7**	mg/kg dry	
RA17 08S04			**P903610-08**				**Soil**	
Arsenic	0390859	3/30/99	3/30/99	EPA 6020	2.5	ND	mg/kg dry	
RA17 09S04			**P903610-09**				**Soil**	
Arsenic	0390859	3/30/99	3/30/99	EPA 6020	2.5	**42**	mg/kg dry	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/30/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/30/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	5/4/99 12:35

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*
RA17 01S04			**P903610-01**				**Soil**	
Benzo (a) anthracene	0490014	3/30/99	4/15/99		5.00	**6.03**	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	**7.55**	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	**5.58**	"	
Pentachlorophenol	"	"	4/8/99		100	**348**	"	1
Surrogate: p-Terphenyl-d14	"	"	*4/15/99*	*20.0-150*		*84.2*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*117*	"	
RA17 04S04			**P903610-04**				**Soil**	2
Benzo (a) anthracene	0490014	3/30/99	4/9/99		10.0	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		10.0	ND	"	
Benzo (b) fluoranthene	"	"	"		10.0	**17.3**	"	3
Benzo (k) fluoranthene	"	"	"		10.0	ND	"	3
Chrysene	"	"	"		10.0	ND	"	
Dibenzo (a,h) anthracene	"	"	"		10.0	**10.0**	"	
Indeno (1,2,3-cd) pyrene	"	"	"		10.0	**11.1**	"	
Pentachlorophenol	"	"	"		20.0	**33.9**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*85.5*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*106*	"	
RA17 05S04			**P903610-05**				**Soil**	
Benzo (a) anthracene	0490014	3/30/99	4/15/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*80.3*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*118*	"	
RA17 07S04			**P903610-07**				**Soil**	
Benzo (a) anthracene	0490014	3/30/99	4/15/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	

**Refer to end of report for text of notes and definitions.*

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Deborah Griffiths, Project Manager

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/30/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/30/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	5/4/99 12:35

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*
RA17 07S04 (continued)			**P903610-07**				**Soil**	
Benzo (b) fluoranthene	0490014	3/30/99	4/15/99		5.00	ND	mg/kg dry	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**13.6**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*82.5*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*115*	"	
RA17 09S04			**P903610-09**				**Soil**	**2**
Benzo (a) anthracene	0490014	3/30/99	4/15/99		10.0	**16.2**	mg/kg dry	
Benzo (a) pyrene	"	"	"		10.0	**12.7**	"	
Benzo (b) fluoranthene	"	"	"		10.0	**23.2**	"	
Benzo (k) fluoranthene	"	"	"		10.0	**11.3**	"	
Chrysene	"	"	"		10.0	**23.3**	"	
Dibenzo (a,h) anthracene	"	"	"		10.0	**13.0**	"	
Indeno (1,2,3-cd) pyrene	"	"	"		10.0	**16.5**	"	
Pentachlorophenol	"	"	"		20.0	**21.0**	"	4
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*82.4*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*118*	"	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/30/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/30/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	5/4/99 12:35

Semivolatile Organic Compound Screen per EPA Method 8270C Modified
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
RA17 01S04			**P903610-01**				**Soil**	
Benzo (a) anthracene	0390825	3/30/99	3/30/99		5.00	**6.20**	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	**7.93**	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	**5.73**	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	**7.10**	"	
Pentachlorophenol	"	"	"		10.0	**364**	"	E
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*94.1*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*106*	"	
RA17 02S04			**P903610-02**				**Soil**	
Benzo (a) anthracene	0390825	3/30/99	3/31/99		5.00	**22.4**	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	**7.76**	"	5
Benzo (b) fluoranthene	"	"	"		5.00	**10.2**	"	5
Benzo (k) fluoranthene	"	"	"		5.00	**8.24**	"	5
Chrysene	"	"	"		5.00	**31.5**	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	**6.28**	"	5
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	**8.15**	"	5
Pentachlorophenol	"	"	"		10.0	**757**	"	E
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*82.1*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*127*	"	
RA17 03S04			**P903610-03**				**Soil**	
Benzo (a) anthracene	0390825	3/30/99	3/31/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**526**	"	E
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*90.0*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*112*	"	
RA17 04S04			**P903610-04**				**Soil**	**2**
Benzo (a) anthracene	0390825	3/30/99	3/31/99		10.0	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		10.0	**10.4**	"	5

**Refer to end of report for text of notes and definitions.*

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Deborah Griffiths, Project Manager

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/30/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/30/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	5/4/99 12:35

Semivolatile Organic Compound Screen per EPA Method 8270C Modified
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits.	Reporting Limit	Result	Units	Notes*
RA17 04S04 (continued)			**P903610-04**				**Soil**	**2**
Benzo (b) fluoranthene	0390825	3/30/99	3/31/99		10.0	**17.9**	mg/kg dry	3,5
Benzo (k) fluoranthene	"	"	"		10.0	ND	"	3,5
Chrysene	"	"	"		10.0	ND	"	
Dibenzo (a,h) anthracene	"	"	"		10.0	**11.3**	"	5
Indeno (1,2,3-cd) pyrene	"	"	"		10.0	**13.8**	"	5
Pentachlorophenol	"	"	"		20.0	**54.1**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*78.0*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*135*	"	
RA17 05S04			**P903610-05**				**Soil**	
Benzo (a) anthracene	0390825	3/30/99	3/30/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*98.3*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*88.5*	"	
RA17 06S04			**P903610-06**				**Soil**	
Benzo (a) anthracene	0390825	3/30/99	3/31/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	**6.14**	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	**5.51**	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	**6.34**	"	
Pentachlorophenol	"	"	"		10.0	**877**	"	E
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*92.8*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*120*	"	
RA17 07S04			**P903610-07**				**Soil**	
Benzo (a) anthracene	0390825	3/30/99	3/31/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	

Refer to end of report for text of notes and definitions.

HTS 5/19/99

Deborah Griffiths, Project Manager

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/30/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/30/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	5/4/99 12:35

Semivolatile Organic Compound Screen per EPA Method 8270C Modified
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
RA17 07S04 (continued)			**P903610-07**				**Soil**	
Chrysene	0390825	3/30/99	3/31/99		5.00	ND	mg/kg dry	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**14.5**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*78.4*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*122*	"	
RA17 08S04			**P903610-08**				**Soil**	**2**
Benzo (a) anthracene	0390825	3/30/99	3/31/99		10.0	**137**	mg/kg dry	
Benzo (a) pyrene	"	"	"		10.0	**28.8**	"	
Benzo (b) fluoranthene	"	"	"		10.0	**32.7**	"	
Benzo (k) fluoranthene	"	"	"		10.0	**35.9**	"	
Chrysene	"	"	"		10.0	**116**	"	
Dibenzo (a,h) anthracene	"	"	"		10.0	**12.4**	"	
Indeno (1,2,3-cd) pyrene	"	"	"		10.0	**15.6**	"	
Pentachlorophenol	"	"	"		20.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*83.6*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*108*	"	
RA17 09S04			**P903610-09**				**Soil**	**2**
Benzo (a) anthracene	0390825	3/30/99	3/31/99		10.0	**16.6**	mg/kg dry	
Benzo (a) pyrene	"	"	"		10.0	**13.0**	"	5
Benzo (b) fluoranthene	"	"	"		10.0	**22.5**	"	5
Benzo (k) fluoranthene	"	"	"		10.0	**12.8**	"	5
Chrysene	"	"	"		10.0	**25.0**	"	
Dibenzo (a,h) anthracene	"	"	"		10.0	**13.7**	"	5
Indeno (1,2,3-cd) pyrene	"	"	"		10.0	**17.5**	"	5
Pentachlorophenol	"	"	"		20.0	**26.3**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*80.4*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*113*	"	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/30/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/30/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	5/4/99 12:35

Dry Weight Determination
North Creek Analytical - Portland

Sample Name	Lab ID	Matrix	Result	Units
RA17 01S04	P903610-01	Soil	86.8	%
RA17 02S04	P903610-02	Soil	87.0	%
RA17 03S04	P903610-03	Soil	86.3	%
RA17 04S04	P903610-04	Soil	91.0	%
RA17 05S04	P903610-05	Soil	92.2	%
RA17 06S04	P903610-06	Soil	89.4	%
RA17 07S04	P903610-07	Soil	89.3	%
RA17 08S04	P903610-08	Soil	93.1	%
RA17 09S04	P903610-09	Soil	83.8	%

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/30/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/30/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	5/4/99 12:35

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: 0390859	**Date Prepared: 3/30/99**				**Extraction Method: EPA 3050**					
Blank	**0390859-BLK1**									
Arsenic	3/31/99			**ND**	mg/kg dry	**2.50**				
LCS	**0390859-BS1**									
Arsenic	3/31/99	250		266	mg/kg dry	80.0-120	106			
Duplicate	**0390859-DUP1**		**P903610-01**							
Arsenic	3/31/99		4.29	3.67	mg/kg dry			40.0	**15.6**	
Matrix Spike	**0390859-MS1**		**P903610-01**							
Arsenic	3/31/99	288	4.29	309	mg/kg dry	75.0-125	**106**			
Matrix Spike Dup	**0390859-MSD1**		**P903610-01**							
Arsenic	3/31/99	288	4.29	287	mg/kg dry	75.0-125	**98.2**	40.0	**7.64**	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/30/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/30/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	5/4/99 12:35

Metals Scan by ICP/MS/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: 0390859	**Date Prepared: 3/30/99**				**Extraction Method: EPA 3050**					
Blank	**0390859-BLK1**									
Arsenic	3/30/99			**ND**	mg/kg dry	**2.5**				
LCS	**0390859-BS1**									
Arsenic	3/30/99	250		270	mg/kg dry	80-120	110			

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/30/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/30/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	5/4/99 12:35

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: 0490014	**Date Prepared: 3/30/99**				**Extraction Method: EPA 3550**					
Blank	**0490014-BLK1**									
Benzo (a) anthracene	4/15/99			ND	mg/kg dry	5.00				
Benzo (a) pyrene	"			ND	"	5.00				
Benzo (b) fluoranthene	"			ND	"	5.00				
Benzo (k) fluoranthene	"			ND	"	5.00				
Chrysene	"			ND	"	5.00				
Dibenzo (a,h) anthracene	"			ND	"	5.00				
Indeno (1,2,3-cd) pyrene	"			ND	"	5.00				
Pentachlorophenol	"			ND	"	10.0				
Surrogate: p-Terphenyl-d14	"	*50.0*		*40.8*	"	*20.0-150*	*81.6*			
Surrogate: 2,4,6-Tribromophenol	"	*100*		*118*	"	*10.0-150*	*118*			
LCS	**0490014-BS1**									
Benzo (a) pyrene	4/15/99	100		102	mg/kg dry	35.0-142	102			
Chrysene	"	100		96.8	"	35.0-142	96.8			
Pentachlorophenol	"	100		110	"	17.0-109	110			6
Surrogate: p-Terphenyl-d14	"	*50.0*		*43.8*	"	*20.0-150*	*87.6*			
Surrogate: 2,4,6-Tribromophenol	"	*100*		*121*	"	*10.0-150*	*121*			
Matrix Spike	**0490014-MS1**		**P903610-01**							
Benzo (a) pyrene	4/15/99	115	ND	130	mg/kg dry	35.0-142	113			
Chrysene	"	115	7.55	129	"	35.0-142	106			
Pentachlorophenol	4/8/99	115	348	501	"	17.0-109	133			7
Surrogate: p-Terphenyl-d14	*4/15/99*	*57.6*		*56.6*	"	*20.0-150*	*98.3*			
Surrogate: 2,4,6-Tribromophenol	"	*115*		*157*	"	*10.0-150*	*137*			
Matrix Spike Dup	**0490014-MSD1**		**P903610-01**							
Benzo (a) pyrene	4/15/99	115	ND	129	mg/kg dry	35.0-142	112	36.0	0.889	
Chrysene	"	115	7.55	127	"	35.0-142	104	36.0	1.90	
Pentachlorophenol	4/8/99	115	348	521	"	17.0-109	150	47.0	12.0	7
Surrogate: p-Terphenyl-d14	*4/15/99*	*57.6*		*52.2*	"	*20.0-150*	*90.6*			
Surrogate: 2,4,6-Tribromophenol	"	*115*		*154*	"	*10.0-150*	*134*			

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/30/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/30/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	5/4/99 12:35

Semivolatile Organic Compound Screen per EPA Method 8270C Modified/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: 0390825	**Date Prepared: 3/30/99**				**Extraction Method: EPA 3550**					
Blank	**0390825-BLK1**									
Benzo (a) anthracene	3/30/99			**ND**	mg/kg dry	**5.00**				
Benzo (a) pyrene	"			**ND**	"	**5.00**				
Benzo (b) fluoranthene	"			**ND**	"	**5.00**				
Benzo (k) fluoranthene	"			**ND**	"	**5.00**				
Chrysene	"			**ND**	"	**5.00**				
Dibenzo (a,h) anthracene	"			**ND**	"	**5.00**				
Indeno (1,2,3-cd) pyrene	"			**ND**	"	**5.00**				
Pentachlorophenol	"			**ND**	"	**10.0**				
Surrogate: p-Terphenyl-d14	"	*50.0*		*39.1*	"	*20.0-150*	*78.2*			
Surrogate: 2,4,6-Tribromophenol	"	*100*		*118*	"	*10.0-150*	*118*			
LCS	**0390825-BS1**									
Benzo (a) pyrene	3/30/99	100		108	mg/kg dry	20.0-150	108			
Chrysene	"	100		109	"	20.0-150	109			
Pentachlorophenol	"	100		105	"	10.0-150	105			
Surrogate: p-Terphenyl-d14	"	*50.0*		*50.0*	"	*20.0-150*	*100*			
Surrogate: 2,4,6-Tribromophenol	"	*100*		*114*	"	*10.0-150*	*114*			
Matrix Spike	**0390825-MS1**		**P903610-01**							
Benzo (a) pyrene	3/30/99	115	ND	128	mg/kg dry	20.0-150	**111**			
Chrysene	"	115	7.93	137	"	20.0-150	**112**			
Pentachlorophenol	"	115	364	544	"	10.0-150	**157**			7,E
Surrogate: p-Terphenyl-d14	"	*57.6*		*66.3*	"	*20.0-150*	*115*			
Surrogate: 2,4,6-Tribromophenol	"	*115*		*145*	"	*10.0-150*	*126*			
Matrix Spike Dup	**0390825-MSD1**		**P903610-01**							
Benzo (a) pyrene	3/30/99	115	ND	118	mg/kg dry	20.0-150	**103**	50.0	**7.48**	
Chrysene	"	115	7.93	130	"	20.0-150	**106**	50.0	**5.50**	
Pentachlorophenol	"	115	364	528	"	10.0-150	**143**	50.0	**9.33**	E
Surrogate: p-Terphenyl-d14	"	*57.6*		*61.4*	"	*20.0-150*	*107*			
Surrogate: 2,4,6-Tribromophenol	"	*115*		*144*	"	*10.0-150*	*125*			

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/30/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/30/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	5/4/99 12:35

Notes and Definitions

#	Note
E	Estimated value. The reported value exceeds the calibration range of the analysis.
J	Estimated value.
1	The reporting limit for this analyte was raised due to the high analyte concentration present in the sample.
2	Reporting limits raised due to dilution necessary for analysis.
3	Due to matrix unable to resolve Benzofluoranthene isomers. Value reported only in Benzo(b) category represents Total Benzo(b+k)fluoranthene.
4	Analyte detected below MRL in sample extract. Percent solids calculation raised result above MRL. Result reported as Estimated Value.
5	Estimated concentration. Internal standard recovery exceeds 200%.
6	The spike recovery 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.
7	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.
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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DATA PACKAGE

for

Ecology and Environment

Portland SDG #: P903263

Client Project Name: McCormick & Baxter Soil Removal
Client Project #: 749.OH04-00.98

The total number of pages contained in this package is:

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Prepared by:

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Case Narrative

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Case Narrative

CLIENT:	**Ecology & Environment (Seattle)**	**March 25, 1999**
PROJECT:	**McCormick and Baxter Soil Removal**	
PROJECT #:	**749.OH04-00.98**	**page 1 of 2**
NCA #:	**P903263**	

1.0 DESCRIPTION OF CASE

North Creek Analytical, Portland received nine soil samples on 3/12/99 from Ecology & Environment for analysis by the following Methods: Metals scan by ICP/MS (As) and 8270C Modified (carcinogenic PAHs/PCP Screening method). Selected samples were then confirmed by the following EPA Methods: 6020 Total Metals (As) and 8270C (carcinogenic PAHs/PCP).

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 # (SDG#), preceded 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 Ecology & Environment. The samples were clearly labeled and matched the chain of custody. Sample temperature (8.7°C) was measured upon receipt using a Raytek PM 30 Infrared Temperature gun and recorded.

3.2 Analysis

The samples were analyzed following the procedures outlined in the applicable methods. Refer to the NCA report for specific prep methods used. The samples were refrigerated at approximately 4°C and were extracted and analyzed within the EPA recommended holding times without incident.

4.0 QC RESULTS

Surrogate and quality control parameters that were outside control limits are noted on the appropriate pages of the analytical report.

PAH/PCP by 8070C

The surrogate 2,4,6-Tribromophenol is flagged with an E on many of the QC samples. 2,4,6-Tribromophenol is spiked into the samples at 200 ppb. When recovery is greater than 100%, this compound exceeds our upper calibration limit of 200 ppb. All of the surrogate recoveries are within specifications.

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Case Narrative

CLIENT:	**Ecology & Environment (Seattle)**	**March 25, 1999**
PROJECT:	**McCormick and Baxter Soil Removal**	
PROJECT #:	**749.OH04-00.98**	**page 2 of 2**
NCA #:	**P903263**	

The recovery of Pentachlorophenol for the Matrix Spike Duplicate Sample is flagged outside of control limits. Since we have too few points to plot a control chart for this extraction procedure, the limits in the report should be considered advisory. Although this result is exceeds the DQOs for the project, this does not represent an out of control situation for the batch as per 8270C.

5.0 SAMPLE RESULTS

Where applicable, qualifiers have been added to sample results 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:

PAH/PCP by 8070C

The surrogate 2,4,6-Tribromophenol is flagged with an E on many of the samples. 2,4,6-Tribromophenol is spiked into the samples at 200 ppb. When recovery is greater than 100%, this compound exceeds our upper calibration limit of 200 ppb. All of the surrogate recoveries are within specifications.

" 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

Rochelle Carpenter, QA Manager
North Creek Analytical, Beaverton

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Chain of Custody Report

North Creek Analytical, Inc.
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CHAIN OF CUSTODY REPORT

Work Order # P903263

REPORT TO:
ATTENTION: Heather Brunelle
ADDRESS: 333 SW Fifth Ave Ste 608, Portland, OR 97204
PHONE: 503/735-3879 FAX: 735-4651
PROJECT NAME: McCormick & Baxter Soil Removal
PROJECT NUMBER: 749.0H04.00.98
SAMPLED BY: R. Culleton, M. Coenen, H. Brunelle

INVOICE TO:
ATTENTION:
ADDRESS:
P.O. NUMBER: NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 (Standard) | 7 | 5 | 4 | 3 | 2 | 1 | Same Day
Fuels & Hydrocarbon Analyses: 5 (Standard) | 3-4 | 2 | 1 | Same Day
OTHER Specify: 24-hr fax
* Turnaround Requests less than standard may incur Rush Charges.

Analysis Request: Screening As | Screening PCP | Screening PAHs

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Screening As	Screening PCP	Screening PAHs	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1. RA13a12S04	3/11/99 1553		X	X	X	S	1	24-hr fax
2. RA13a13S04	3/11/99 1555		X	X	X	S	1	results to
3. RA13a14S04	3/11/99 1557		X	X	X	S	1	735-4651
4. RA13a15SS	3/12/99 08:43		X	X	X	S	1	
5. RA13a16SS	3/12/99 08:55		X	X	X	S	1	
6. RA13a17SS	3/12/99 08:30		X	X	X	S	1	
7. RA13a18SS	3/12/99 08:36		X	X	X	S	1	
8. RA906S02	3/12/99 08:45		X			S	1	
9. RA907S02	3/12/99 08:45		X			S	1	
10. RA908S02	3/12/99 08:51		X			S	1	

RELINQUISHED BY (Signature): [signature] DATE: 3/12/99
PRINT NAME: Heather Brunelle FIRM: EEE TIME: 10:15
RECEIVED BY (Signature): [signature] DATE: 3-12-99
PRINT NAME: Mary Spangla FIRM: NCA TIME: 10:15

RELINQUISHED BY (Signature): DATE:
PRINT NAME: FIRM: TIME:
RECEIVED BY (Signature): DATE:
PRINT NAME: FIRM: TIME:

ADDITIONAL REMARKS:

PAGE 1 OF 1

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CHAIN OF CUSTODY REPORT

Work Order # P903263

REPORT TO:
ATTENTION: Heather Brunelle
ADDRESS: 333 SW Fifth Ave, Ste 608
Portland, OR 97204
PHONE: 735-3879 FAX: 735-4651
PROJECT NAME: McCormick + Baxter Soil Removal
PROJECT NUMBER: 749.0H04.00.98
SAMPLED BY: H. Brunelle

INVOICE TO:
ATTENTION:
ADDRESS:
P.O. NUMBER: NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 (Standard) | 7 | 5 | 4 | 3 | 2 | 1 | Same Day
Fuels & Hydrocarbon Analyses: 5 (Standard) | 3-4 | 2 | 1 | Same Day
OTHER Specify: 24 hr fax

* Turnaround Requests less than standard may incur Rush Charges.

Analysis Request: Screening Ag

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Screening Ag	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1.	RA9Ø9SØ2	3/12/99 08:47		X	S	1	24-hr fax
2.	RA91ØSØ2	3/12/99 08:53		X	S	1	Results to 735-4651
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							

RELINQUISHED BY (Signature): [signature] DATE: 3/12/99
PRINT NAME: Heather Brunelle FIRM: E&E TIME: 10:15
RECEIVED BY (Signature): [signature] DATE: 3-12-99
PRINT NAME: Larry Spangler FIRM: NCA TIME: 1015

RELINQUISHED BY (Signature): DATE:
PRINT NAME: FIRM: TIME:
RECEIVED BY (Signature): DATE:
PRINT NAME: FIRM: TIME:

ADDITIONAL REMARKS:

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99 to 3/12/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/12/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/25/99 13:10

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
RA13a 12S04	P903263-01	Soil	3/11/99
RA13a 13S04	P903263-02	Soil	3/11/99
RA13a 14S04	P903263-03	Soil	3/11/99
RA13a 15S04	P903263-04	Soil	3/12/99
RA13a 16S04	P903263-05	Soil	3/12/99
RA13a 17S04	P903263-06	Soil	3/12/99
RA13a 18S04	P903263-07	Soil	3/12/99
[illegible]9 06S02	P903263-08	Soil	3/12/99
RA9 07S02	P903263-09	Soil	3/12/99
RA9 08S02	P903263-10	Soil	3/12/99
RA9 09S02	P903263-11	Soil	3/12/99
RA9 10S02	P903263-12	Soil	3/12/99

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.

Rochelle Carpenter for
Deborah Griffiths, Project Manager

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99 to 3/12/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/12/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/25/99 13:10

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*
RA13a 12S04			**P903263-01**				**Soil**	
Arsenic	0390362	3/12/99	3/13/99	EPA 6020	2.50	**9.15**	mg/kg dry	5
RA13a 14S04			**P903263-03**				**Soil**	
Arsenic	0390362	3/12/99	3/15/99	EPA 6020	2.50	**30.7**	mg/kg dry	5
RA13a 17S04			**P903263-06**				**Soil**	
Arsenic	0390362	3/12/99	3/15/99	EPA 6020	2.50	**250**	mg/kg dry	5
RA13a 18S04			**P903263-07**				**Soil**	
Arsenic	0390362	3/12/99	3/15/99	EPA 6020	2.50	**189**	mg/kg dry	5
RA9 06S02			**P903263-08**				**Soil**	
Arsenic	0390362	3/12/99	3/15/99	EPA 6020	2.50	**4.26**	mg/kg dry	5
RA9 07S02			**P903263-09**				**Soil**	
Arsenic	0390362	3/12/99	3/15/99	EPA 6020	2.50	**5.51**	mg/kg dry	5
RA9 08S02			**P903263-10**				**Soil**	
Arsenic	0390362	3/12/99	3/15/99	EPA 6020	2.50	**5.72**	mg/kg dry	5
RA9 09S02			**P903263-11**				**Soil**	
Arsenic	0390362	3/12/99	3/15/99	EPA 6020	2.50	**26.3**	mg/kg dry	5
RA9 10S02			**P903263-12**				**Soil**	
Arsenic	0390362	3/12/99	3/15/99	EPA 6020	2.50	**27.5**	mg/kg dry	5

5/19/99

**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99 to 3/12/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/12/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/25/99 13:10

Metals Scan by ICP/MS
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
RA13a 12S04			**P903263-01**				**Soil**	
Arsenic	0390362	3/12/99	3/13/99	EPA 6020	2.5	**9.2**	mg/kg dry	
RA13a 13S04			**P903263-02**				**Soil**	
Arsenic	0390362	3/12/99	3/13/99	EPA 6020	2.5	**340**	mg/kg dry	
RA13a 14S04			**P903263-03**				**Soil**	
Arsenic	0390362	3/12/99	3/13/99	EPA 6020	2.5	**26**	mg/kg dry	
RA13a 15S04			**P903263-04**				**Soil**	
Arsenic	0390362	3/12/99	3/13/99	EPA 6020	2.5	**630**	mg/kg dry	E
RA13a 16S04			**P903263-05**				**Soil**	
Arsenic	0390362	3/12/99	3/13/99	EPA 6020	2.5	**1300**	mg/kg dry	E
RA13a 17S04			**P903263-06**				**Soil**	
Arsenic	0390362	3/12/99	3/13/99	EPA 6020	2.5	**220**	mg/kg dry	
RA13a 18S04			**P903263-07**				**Soil**	
Arsenic	0390362	3/12/99	3/13/99	EPA 6020	2.5	**150**	mg/kg dry	
RA9 06S02			**P903263-08**				**Soil**	
Arsenic	0390362	3/12/99	3/13/99	EPA 6020	2.5	**4.5**	mg/kg dry	
RA9 07S02			**P903263-09**				**Soil**	
Arsenic	0390362	3/12/99	3/13/99	EPA 6020	2.5	**5.4**	mg/kg dry	
RA9 08S02			**P903263-10**				**Soil**	
Arsenic	0390362	3/12/99	3/13/99	EPA 6020	2.5	**5.1**	mg/kg dry	
RA9 09S02			**P903263-11**				**Soil**	
Arsenic	0390362	3/12/99	3/13/99	EPA 6020	2.5	**24**	mg/kg dry	
RA9 10S02			**P903263-12**				**Soil**	
Arsenic	0390362	3/12/99	3/13/99	EPA 6020	2.5	**23**	mg/kg dry	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99 to 3/12/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/12/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/25/99 13:10

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*
RA13a 12S04			**P903263-01**				**Soil**	
Benzo (a) anthracene	0390420	3/12/99	3/12/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*93.5*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*122*	"	*E*
RA13a 14S04			**P903263-03**				**Soil**	
Benzo (a) anthracene	0390420	3/12/99	3/12/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*95.4*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*127*	"	*E*
RA13a 17S04			**P903263-06**				**Soil**	
Benzo (a) anthracene	0390420	3/12/99	3/12/99		5.00	**19.0**	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	**11.8**	"	
Benzo (b) fluoranthene	"	"	"		5.00	**17.9**	"	
Benzo (k) fluoranthene	"	"	"		5.00	**14.5**	"	
Chrysene	"	"	"		5.00	**28.3**	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**53.3**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*89.1*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*119*	"	*E*
RA13a 18S04			**P903263-07**				**Soil**	
Benzo (a) anthracene	0390420	3/12/99	3/12/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	

**Refer to end of report for text of notes and definitions.*

SC for
Deborah Griffiths, Project Manager

5/19/99

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99 to 3/12/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/12/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/25/99 13:10

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*
RA13a 18S04 (continued)			**P903263-07**				**Soil**	
Benzo (b) fluoranthene	0390420	3/12/99	3/12/99		5.00	ND	mg/kg dry	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**11.0**	"	1
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*102*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*140*	"	*E*

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99 to 3/12/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/12/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/25/99 13:10

Semivolatile Organic Compound Screen per EPA Method 8270C Modified
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
RA13a 12S04			**P903263-01**				**Soil**	
Benzo (a) anthracene	0390347	3/12/99	3/12/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*93.5*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*122*	"	*E*
RA13a 13S04			**P903263-02**				**Soil**	
Benzo (a) anthracene	0390347	3/12/99	3/12/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*92.7*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*130*	"	*E*
RA13a 14S04			**P903263-03**				**Soil**	
Benzo (a) anthracene	0390347	3/12/99	3/12/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	
Chrysene	"	"	"		5.00	ND	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	ND	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*95.4*	*%*	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*127*	"	*E*
RA13a 15S04			**P903263-04**				**Soil**	**2**
Benzo (a) anthracene	0390347	3/12/99	3/12/99		10.0	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		10.0	ND	"	

**Refer to end of report for text of notes and definitions.*

Deborah Griffiths, Project Manager

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99 to 3/12/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/12/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/25/99 13:10

Semivolatile Organic Compound Screen per EPA Method 8270C Modified
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
RA13a 15S04 (continued)			**P903263-04**				**Soil**	**2**
Benzo (b) fluoranthene	0390347	3/12/99	3/12/99		10.0	**14.7**	mg/kg dry	
Benzo (k) fluoranthene	"	"	"		10.0	ND	"	
Chrysene	"	"	"		10.0	**11.9**	"	
Dibenzo (a,h) anthracene	"	"	"		10.0	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		10.0	ND	"	
Pentachlorophenol	"	"	"		20.0	**43.1**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*91.9*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*120*	"	
RA13a 16S04			**P903263-05**				**Soil**	**2**
Benzo (a) anthracene	0390347	3/12/99	3/12/99		10.0	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		10.0	**10.3**	"	1
Benzo (b) fluoranthene	"	"	"		10.0	**23.3**	"	
Benzo (k) fluoranthene	"	"	"		10.0	ND	"	
Chrysene	"	"	"		10.0	**15.2**	"	
Dibenzo (a,h) anthracene	"	"	"		10.0	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		10.0	ND	"	
Pentachlorophenol	"	"	"		20.0	**83.3**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*85.7*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*112*	"	
RA13a 17S04			**P903263-06**				**Soil**	
Benzo (a) anthracene	0390347	3/12/99	3/12/99		5.00	**19.0**	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	**11.8**	"	
Benzo (b) fluoranthene	"	"	"		5.00	**17.9**	"	
Benzo (k) fluoranthene	"	"	"		5.00	**14.5**	"	
Chrysene	"	"	"		5.00	**28.3**	"	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**53.3**	"	
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*89.1*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*119*	"	*E*
RA13a 18S04			**P903263-07**				**Soil**	
Benzo (a) anthracene	0390347	3/12/99	3/12/99		5.00	ND	mg/kg dry	
Benzo (a) pyrene	"	"	"		5.00	ND	"	
Benzo (b) fluoranthene	"	"	"		5.00	ND	"	
Benzo (k) fluoranthene	"	"	"		5.00	ND	"	

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**Refer to end of report for text of notes and definitions.*

QC for

Deborah Griffiths, Project Manager

North Creek Analytical, Inc.
Environmental Laboratory Network

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99 to 3/12/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/12/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/25/99 13:10

Semivolatile Organic Compound Screen per EPA Method 8270C Modified
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
RA13a 18S04 (continued)			**P903263-07**				**Soil**	
Chrysene	0390347	3/12/99	3/12/99		5.00	ND	mg/kg dry	
Dibenzo (a,h) anthracene	"	"	"		5.00	ND	"	
Indeno (1,2,3-cd) pyrene	"	"	"		5.00	ND	"	
Pentachlorophenol	"	"	"		10.0	**11.0**	"	1
Surrogate: p-Terphenyl-d14	"	"	"	*20.0-150*		*102*	%	
Surrogate: 2,4,6-Tribromophenol	"	"	"	*10.0-150*		*140*	"	*E*

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99 to 3/12/99
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Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/25/99 13:10

Dry Weight Determination
North Creek Analytical - Portland

Sample Name	Lab ID	Matrix	Result	Units
RA13a 12S04	P903263-01	Soil	93.5	%
RA13a 13S04	P903263-02	Soil	91.4	%
RA13a 14S04	P903263-03	Soil	92.6	%
RA13a 15S04	P903263-04	Soil	90.1	%
RA13a 16S04	P903263-05	Soil	86.6	%
RA13a 17S04	P903263-06	Soil	83.8	%
RA13a 18S04	P903263-07	Soil	89.6	%
RA9 06S02	P903263-08	Soil	88.8	%
RA9 07S02	P903263-09	Soil	89.7	%
RA9 08S02	P903263-10	Soil	91.1	%
RA9 09S02	P903263-11	Soil	88.1	%
RA9 10S02	P903263-12	Soil	88.9	%

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333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/12/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/25/99 13:10

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: 0390362	**Date Prepared: 3/12/99**				**Extraction Method: EPA 3050**					
Blank	**0390362-BLK1**									
Arsenic	3/13/99			**ND**	mg/kg dry	**2.50**				
LCS	**0390362-BS1**									
Arsenic	3/13/99	250		242	mg/kg dry	80.0-120	96.8			
Duplicate	**0390362-DUP1**		**P903263-01**							
Arsenic	3/13/99		9.15	4.26	mg/kg dry			40.0	**72.9**	3
Matrix Spike	**0390362-MS1**		**P903263-01**							
Arsenic	3/13/99	267	9.15	252	mg/kg dry	75.0-125	**91.0**			
Matrix Spike Dup	**0390362-MSD1**		**P903263-01**							
Arsenic	3/13/99	267	9.15	256	mg/kg dry	75.0-125	**92.5**	40.0	**1.63**	

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99 to 3/12/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/12/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/25/99 13:10

Metals Scan by ICP/MS/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: 0390362	**Date Prepared: 3/12/99**				**Extraction Method: EPA 3050**					
Blank	**0390362-BLK1**									
Arsenic	3/13/99			**ND**	mg/kg dry	**2.5**				
LCS	**0390362-BS1**									
Arsenic	3/13/99	250		240	mg/kg dry	80-120	96			

North Creek Analytical - Portland

**Refer to end of report for text of notes and definitions.*

Deborah Griffith, Project Manager

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99 to 3/12/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/12/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/25/99 13:10

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: 0390420	**Date Prepared: 3/12/99**				**Extraction Method: EPA 3550**					
Blank	**0390420-BLK1**									
Benzo (a) anthracene	3/12/99			**ND**	mg/kg dry	**5.00**				
Benzo (a) pyrene	"			**ND**	"	**5.00**				
Benzo (b) fluoranthene	"			**ND**	"	**5.00**				
Benzo (k) fluoranthene	"			**ND**	"	**5.00**				
Chrysene	"			**ND**	"	**5.00**				
Dibenzo (a,h) anthracene	"			**ND**	"	**5.00**				
Indeno (1,2,3-cd) pyrene	"			**ND**	"	**5.00**				
Pentachlorophenol	"			**ND**	"	**10.0**				
Surrogate: p-Terphenyl-d14	"	*100*		*83.1*	"	*20.0-150*	*83.1*			
Surrogate: 2,4,6-Tribromophenol	"	*200*		*226*	"	*10.0-150*	*113*			*E*
LCS	**0390420-BS1**									
Benzo (a) pyrene	3/12/99	100		79.0	mg/kg dry	35.0-142	79.0			
Chrysene	"	100		103	"	35.0-142	103			
Pentachlorophenol	"	100		105	"	17.0-109	105			
Surrogate: p-Terphenyl-d14	"	*100*		*88.0*	"	*20.0-150*	*88.0*			
Surrogate: 2,4,6-Tribromophenol	"	*200*		*231*	"	*10.0-150*	*116*			*E*
Matrix Spike	**0390420-MS1**		**P903263-01**							
Benzo (a) pyrene	3/12/99	107	ND	82.5	mg/kg dry	35.0-142	**77.1**			
Chrysene	"	107	ND	107	"	35.0-142	**100**			
Pentachlorophenol	"	107	ND	111	"	17.0-109	**104**			
Surrogate: p-Terphenyl-d14	"	*107*		*90.5*	"	*20.0-150*	*84.6*			
Surrogate: 2,4,6-Tribromophenol	"	*214*		*237*	"	*10.0-150*	*111*			*E*
Matrix Spike Dup	**0390420-MSD1**		**P903263-01**							
Benzo (a) pyrene	3/12/99	107	ND	85.4	mg/kg dry	35.0-142	**79.8**	36.0	**3.44**	
Chrysene	"	107	ND	110	"	35.0-142	**103**	36.0	**2.96**	
Pentachlorophenol	"	107	ND	119	"	17.0-109	**111**	47.0	**6.51**	4
Surrogate: p-Terphenyl-d14	"	*107*		*88.9*	"	*20.0-150*	*83.1*			
Surrogate: 2,4,6-Tribromophenol	"	*214*		*243*	"	*10.0-150*	*114*			*E*

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99 to 3/12/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/12/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/25/99 13:10

Semivolatile Organic Compound Screen per EPA Method 8270C Modified/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: 0390347	**Date Prepared: 3/12/99**				**Extraction Method: EPA 3550**					
Blank	**0390347-BLK1**									
Benzo (a) anthracene	3/12/99			**ND**	mg/kg dry	**5.00**				
Benzo (a) pyrene	"			**ND**	"	**5.00**				
Benzo (b) fluoranthene	"			**ND**	"	**5.00**				
Benzo (k) fluoranthene	"			**ND**	"	**5.00**				
Chrysene	"			**ND**	"	**5.00**				
Dibenzo (a,h) anthracene	"			**ND**	"	**5.00**				
Indeno (1,2,3-cd) pyrene	"			**ND**	"	**5.00**				
Pentachlorophenol	"			**ND**	"	**10.0**				
Surrogate: p-Terphenyl-d14	"	*100*		*83.1*	"	*20.0-150*	*83.1*			
Surrogate: 2,4,6-Tribromophenol	"	*200*		*226*	"	*10.0-150*	*113*			*E*
[illegible]S	**0390347-BS1**									
Benzo (a) pyrene	3/12/99	100		79.0	mg/kg dry	20.0-150	79.0			
Chrysene	"	100		103	"	20.0-150	103			
Pentachlorophenol	"	100		105	"	10.0-150	105			
Surrogate: p-Terphenyl-d14	"	*100*		*88.0*	"	*20.0-150*	*88.0*			
Surrogate: 2,4,6-Tribromophenol	"	*200*		*231*	"	*10.0-150*	*116*			*E*
Matrix Spike	**0390347-MS1**		**P903263-01**							
Benzo (a) pyrene	3/12/99	107	ND	82.5	mg/kg dry	20.0-150	**77.1**			
Chrysene	"	107	ND	107	"	20.0-150	**100**			
Pentachlorophenol	"	107	ND	111	"	10.0-150	**104**			
Surrogate: p-Terphenyl-d14	"	*107*		*90.5*	"	*20.0-150*	*84.6*			
Surrogate: 2,4,6-Tribromophenol	"	*214*		*237*	"	*10.0-150*	*111*			*E*
Matrix Spike Dup	**0390347-MSD1**		**P903263-01**							
Benzo (a) pyrene	3/12/99	107	ND	85.4	mg/kg dry	20.0-150	**79.8**	50.0	**3.44**	
Chrysene	"	107	ND	110	"	20.0-150	**103**	50.0	**2.96**	
Pentachlorophenol	"	107	ND	119	"	10.0-150	**111**	50.0	**6.51**	
Surrogate: p-Terphenyl-d14	"	*107*		*88.9*	"	*20.0-150*	*83.1*			
Surrogate: 2,4,6-Tribromophenol	"	*214*		*243*	"	*10.0-150*	*114*			*E*

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Ecology & Environment	Project:	McCormick & Baxter Soil Removal	Sampled:	3/11/99 to 3/12/99
333 SW Fifth Avenue, Suite 608	Project Number:	749.OH04-00.98	Received:	3/12/99
Portland, OR 97204	Project Manager:	Heather Brunell	Reported:	3/25/99 13:10

Notes and Definitions

#	Note
E	Estimated value. The reported value exceeds the calibration range of the analysis.
1	Analyte detected below MRL in sample extract. Percent solids calculation raised result above MRL. Result reported as Estimated Value.
2	Reporting limits raised due to dilution necessary for analysis.
3	Analyses are not controlled on RPD values from sample concentrations less than 5 times the reporting limit.
4	The spike recovery 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

F

UST Decommissioning Report

ecology and environment, inc.
International Specialists in the Environment

333 SW Fifth Avenue
Portland, Oregon 97204
Tel: 503/248-5600, Fax: 503/248-5577

June 30, 1999

Mr. Bill Dana
Project Manager
Site Response Section
Waste Management and Cleanup Division
Oregon Department of Environmental Quality
811 SW Sixth Avenue, 8th Floor
Portland, Oregon 97204

RE: Underground Storage Tank Decommissioning
McCormick and Baxter Creosoting Company
6900 North Edgewater Street
Portland, Oregon 97203

Dear Mr. Dana,

Ecology and Environment (E & E), under contract to the Oregon Department of Environmental Quality (DEQ), has prepared this Underground Storage Tank (UST) removal report to document underground storage tank decommissioning activities performed on April 21, 1999 at the McCormick and Baxter Creosote Company Site (McCormick and Baxter). Removal activities were performed as part of soil removal activities. Soil sampling was performed under Soil Matrix Cleanup License Number 15137.

Site Description

McCormick and Baxter is a former wood treatment facility located along the Willamette River at 6900 North Edgewater Street in Portland, Oregon. A site location map is presented as Figure 1. The United States Environmental Protection Agency (EPA) has listed the site on the National Priorities List. Prior to decommissioning activities, two USTs shared a common cavity between the shop building and the office trailers. One heating oil UST occupied a single cavity to the southwest of the laboratory building.

Exploration

Three underground storage tanks were discovered during soil removal activities at McCormick and Baxter. A site map is presented as Figure 2. Two tanks were discovered between the shop building and the office trailers. One tank was discovered adjacent to the laboratory building.

On April 6, 1999, one sample (RA3 Vault) was collected from the northern UST (Tank 1) located between the shop building and the office trailers to determine the contents of the tank. Analysis of sample RA3 Vault for volatile organic compounds (VOCs) by EPA Method 8260B reported concentrations of benzene, n-butylbenzene, ethylbenzene, isopropylbenzene, naphthalene, n-propylbenzene, toluene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, o-xylene, and m,p-xylene. The laboratory reported that analysis of sample RA3 Vault demonstrated a chemical pattern consistent with gasoline hydrocarbons. A summary of these analytical results is presented in Table 1. At the time of this sampling, it appeared that there was one tank present at this location. Upon further exploration, another tank (Tank 2) was discovered to the south of Tank 1, between the shop and the office trailers. An additional tank (Tank 3) also was discovered near the former laboratory building during demolition. Heating oil piping was still present from Tank 3 to the laboratory building. No sampling was performed to confirm the contents of Tank 3.

Underground Storage Tank Removal Activities

On April 21, 1999, Wilder Construction Company of Kent, Washington decommissioned by excavation and removal one 1,200 gallon steel gasoline UST, one 1,200 gallon steel diesel fuel UST, and one 700 gallon steel heating oil UST. Wilder Construction performed all permitting, excavation, and backfilling under a separate contract with DEQ.

No apparent holes were encountered in the USTs. Groundwater was not encountered in the excavations. The excavations were backfilled with clean sand fill and clean excavated material.

Soil Sampling

Soil sampling locations and field screening results are presented on Figure 2. Soil samples were field screened using a photo-ionization detector (PID). A description of soil sampling procedures is presented in Attachment A. All laboratory analysis was performed by North Creek Analytical of Beaverton, Oregon. Analytical Results are presented in Tables 1 and 2. Certified analytical reports and chain-of-custody documentation are presented in Attachment B.

Gasoline and Diesel Fuel Underground Storage Tank Soil Sampling

On April 21, 1999, two soil samples (T-1(6) and T-2(6)) were collected from the gasoline and diesel fuel UST cavity. The two samples were analyzed for hydrocarbon identification by NWTPH-HCID Methodology (NWTPH-HCID). One soil sample was collected from native soil within two feet from the bottom of each UST. Sample T-1(6) was collected at 6 feet below ground surface under Tank 1. Analysis of sample T-1(6) by NWTPH-HCID did not detect concentrations of total petroleum hydrocarbons (TPH) as gasoline and diesel range hydrocarbons, but did detect concentrations of TPH as heavy oil range hydrocarbons. The laboratory noted that the detected hydrocarbons in sample T-1(6) did not have pattern or range consistent with typical petroleum hydrocarbons. Sample T-2(6) was collected at 6 feet below ground surface under Tank 2. Analysis of

(T-2(6)) by NWTPH-HCID did not detect concentrations of TPH as gasoline, diesel fuel, or heavy oil.
Quantification of sample T-1(6) for diesel fuel and heavy oil by Method NWTPH-Dx did not detect TPH in the diesel fuel range, but detected hydrocarbons in the heavy oil range at 82.7 parts per million (ppm). The laboratory extracted the sample T-1(6) for NWTPH-Dx outside of the EPA recommended hold time. Over-excavation of the Tank cavity was not performed.

Heating Oil Underground Storage Tank Soil Sampling

On April 21, 1999, one soil sample (T-3(7)) was collected under Tank 3 at 7 feet below ground surface from native soil within two feet from the bottom of the UST. Analysis of sample T-3(7) by NWTPH-HCID did not detect concentrations of TPH as gasoline, diesel fuel or heavy oil. Sample T-3(7) was quantified by NWTPH-Dx. No concentrations of TPH were detected in sample T-3(7).

DEQ Notification

Tina Lablato of the DEQ was notified of elevated hydrocarbon concentrations on May 13, 1999. Because of detected hydrocarbons, the site was assigned suspected release number 26-SR99004.

The site has not been evaluated for soil cleanup standards under DEQ's Soil Matrix guidelines. Cleanup is currently underway at the site as described in the March 1996 "Record of Decision" by the DEQ/EPA.

Waste Disposal

A soil stockpile was not produced during excavation of the USTs. Residual liquid wastes from the USTs consisting predominantly of petroleum hydrocarbons were recycled through Oil Re-Refining Company of Portland, Oregon.

Initially, the contents from Tank 1 were analyzed. On May 3, 1999, a sample (T-1 T-2 Waste) of liquid waste from Tank 1 and Tank 2 was analyzed for VOCs by EPA Method 8021B. Analytical results are presented in Table 1. Analysis of samples T-1 and T-2 waste for VOCs detected concentrations of benzene, toluene, ethylbenzene, and xylenes.

Liquid wastes consisting of predominantly water were treated through the existing site water treatment system.

Conclusion

On April 21, 1999, Wilder Construction Company of Kent, Washington decommissioned by removal one 1,200 gallon gasoline UST (Tank 1), one 1,200 gallon diesel fuel UST (Tank 2), and one 700 gallon heating oil UST (Tank 3). Three soil samples were collected (T-1(6), T-2(6), T-3(7)) beneath the tanks. Analysis of samples T-2(6) and T-3(7) did not detect TPH concentrations. Analysis of sample T-1(6) did not detect TPH concentrations in the gasoline or diesel fuel range, but did detect concentrations of TPH in the heavy oil range. Quantification of sample T-1(6) for heavy oil range hydrocarbons reported concentrations in the heavy oil range at 82.7 ppm. The laboratory noted the

pattern and range of detected hydrocarbons in sample T-1(6) were not consistent with typical petroleum hydrocarbons.

If you have any questions concerning this report, please do not hesitate to call our office at (503) 248-5600.

Sincerely,

Jennifer Callison
Staff Scientist

John Montgomery
Project Manager

Attachments:

Figure 1:	Site Location Map
Figure 2:	Under ground Tank Soil Sampling and Removal
Table 1:	Product Analytical Results
Table 2:	Soil Analytical Results
Attachment A:	Soil Sampling Procedures
	Waste Disposal Receipt
Attachment B:	Certified Analytical Results, Chain-of-Custody Documentation

Attachment A

Soil Sampling Procedures
Waste Disposal Receipts

Attachment A

Soil Sampling Procedures

Soil samples were collected from the bottom of the tank cavity directly from the backhoe bucket. Samples for chemical analysis were retained in glass jars with Teflon lined lids and placed in sealable plastic bags. Samples were placed on ice for transport to the laboratory, accompanied by chain-of-custody documentation.

Organic Vapor Screening

Soil samples were screened in the field for ionizable organic compounds using a Thermo Environmental Instruments Inc. Model 580B photo-ionization detector equipped with a 10.0 electron volts (eV) lamp. The test procedure involved measuring approximately 30 grams from an undisturbed soil sample, and placing this sub-sample in a sealable plastic bag. The bag was allowed to warm to ambient temperature, then the bag was pierced and the head space within the bag was tested for total organic vapor, measured in parts per million (ppm, volume/volume). The instrument was previously calibrated using a 100 ppm isobutylene standard (in air), and set to a response factor of 1. The detection limit of the instrument ranges from 0.1 ppm to 2,000 ppm. It should be noted that the PID measurements are considered semi-quantitative data since the instrument detects all organic compounds with ionization potentials less that 10eV.

Attachment B

Certified Analytical Results
Chain-of-Custody Documentation

Table 1
McCormick and Baxter Creosotong Company
6900 North Edgewater
Portland Oregon, 97203

Product Analytical Results

Sample Identification	Date Sampled	Analyte	Concentration (ppb)
RA3 Vault	4/6/99	Acetone	ND
		Benzene	163,000,000
		Bromobenzene	ND
		Bromochlormethane	ND
		Bromodichloromethane	ND
		Bromoform	ND
		Bromomethane	ND
		2-Butanone	ND
		n-Butylbenzene	33,000,000
		sec-Butylbenzene	ND
		tert-Butylbenzene	ND
		Carbon disulfide	ND
		Carbon tetrachloride	ND
		Chlorobenzene	ND
		Chloroethane	ND
		Chloroform	ND
		Chloromethane	ND
		2-Chlorotoluene	ND
		4-Chlorotoluene	ND
		1,2-Dibromo-3-chloropropane	ND
		Dibromochloromethane	ND
		1,2-Dibromoethane	ND
		Dibromomethane	ND
		1,2-Dichlorobenzene	ND
		1,3-Dichlorbenzene	ND
		1,4-Dichlorbenzene	ND
		Dichlorodifluoromethane	ND
		1,1-Dichloroethane	ND
		1,2-Dicholorethane	ND
		1,1-Dichloroethene	ND
		cis-1,2-Dichloroethene	ND
		trans-1,2-Dichloroethene	ND
		1,2-Dichloropropane	ND
		1,3-Dichloropropane	ND
		2,2-Dichloropropane	ND
		1,1-Dichloropropene	ND
		cis-1,3-Dichloropropene	ND
		trans-1,3-Dichloropropene	ND
		Ethylbenzene	320,000,000
		Hexachlorobutadiene	ND
		2-Hexanone	ND
		Isopropylbenzene	27,000,000

Table 1
McCormick and Baxter Creosotong Company
6900 North Edgewater
Portland Oregon, 97203

Product Analytical Results

Sample Identification	Date Sampled	Analyte	Concentration (ppb)
RA3 Vault (continued)		p-Isopropyltoluene	ND
		4-Methyl-2-pentanone	ND
		Methylene chloride	ND
		Naphthalene	47,200,000
		n-propylbenzene	108,000,000
		styrene	ND
		1,1,1,2-Tetrachloroethane	ND
		1,1,2,2-Tetrachloroethane	ND
		Tetrachloroethene	ND
		Toluene	941,000,000
		1,2,3-Trichlorobenzene	ND
		1,2,4-Trichlorobenzene	ND
		1,1,1-Trichloroethane	ND
		1,1,2-Trichloroethane	ND
		Trichloroethene	ND
		Trichlorofluoromethane	ND
		1,2,3-Trichloropropane	ND
		1,2,4-Trimethylbenzene	632,000,000
		1,3,5-Trimethylbenzene	187,000,000
		Vinyl chloride	ND
		o-Xylene	505,000,000
		m,p-Xylene	1,380,000,000

Table 1
McCormick and Baxter Creosotong Company
6900 North Edgewater
Portland Oregon, 97203

Product Analytical Results

Sample Identification	Date Sampled	Analyte	Concentration (ppb)
T-1 T-2 Waste	5/3/99	1,1,1,2-Tetrachloroethane	ND
		1,1,1-Trichloroethane	ND
		1,1,2,2-Tetrachloroethane	ND
		1,1,2-Trichloroethane	ND
		1,1-Dichloroethane	ND
		1,1-Dichloroethene	ND
		1,2,3-Trichloropropane	ND
		1,2-Dibromoethane	ND
		1,2-Dichlorobenzene	ND
		1,2-Dichloroethane	ND
		1,2-Dichloropropane	ND
		1,3-Dichlorobenzene	ND
		1,4-Dichlorobenzene	ND
		2-BCB (ELCD)	ND
		2-BCB(PID)	ND
		Benzene	5,640,000
		Bromobenzene	ND
		Bromodichloromethane	ND
		Bromoform	ND
		Bromomethane	ND
		Carbon tetrachloride	ND
		Chlorobenzene	ND
		Chloroethane	ND
		Chloroform	ND
		Chloromethane	ND
		cis-1,2-Dichloroethene	ND
		cis-1,3-Dichloropropene	ND
		Dibromochloromethane	ND
		Dibromomethane	ND
		Dichlorodifluoromethane	ND
		Ethylbenzene	14,100,000
		Methylene chloride	ND
		Tetrachloroethene	ND
		Toluene	40,400,000
		trans-1,2-Dichloroethene	ND
		trans-1,3-Dichloropropene	ND
		Trichloroethene	ND
		Trichlorofluoromethane	ND
		Vinyl chloride	ND
		Xylenes (total)	90,400,000

Table 1
McCormick and Baxter Creosotong Company
6900 North Edgewater
Portland Oregon, 97203

Product Analytical Results

Sample Identification	Date Sampled	Analyte	Concentration (ppb)

NOTES:

ND = Not Detected
ppb = parts per billion
Sample RA3 Vault analyzed for Volatile Organic Compounds per EPA Method 8260B
Sample T-1 T-2 Waste analyzed for Volatile Organic Compounds per EPA Method 8021B
Please refer to laboratory analytical results for specific analyte detection limits.

Table 2
McCormick and Baxter Creosoting Company
6900 North Edgewater
Portland, Oregon 97203

Soil Analytical Results

Sample Identification	Date Sampled	Depth (feet)	NWTPH-HCID (g, d, o)	NWTPH-Dx	
				diesel fuel (ppm)	heavy oil (ppm)
T-1(6)	4/21/99	6	o[1]	ND[2]	82.7[2]
T-2(6)	4/21/99	6	ND	-	-
T-3(7)	4/21/99	7	ND	ND	ND

Notes:

g = gasoline range hydrocarbons detected
d = diesel fuel range hydrocarbons detected
o = heavy oil range hydrocarbons detected
ND = not detected
DET = detected
- = not analyzed
ppm = parts per million
NWTPH-HCID = hydrocarbon identification by NWTPH-HCID Methodology
NWTPH-Dx = diesel fuel and heavy oil range hydrocarbon quantification by NWTPH-Dx Method with Acid/Silica Gel Cleanup
[1] = sample was extracted outside the EPA recommended hold time
[2] = detected hydrocarbons do not have pattern and range consistent with typical petroleum products

G

Hazardous Waste Manifest Summary

Summary of F and D - Listed Hazardous Waste Stream
ESII Waste Stream Number: 15792011

Site: McCormic and Baxter Creosoting Co. Site
Site Address: 6900 N. Edgewater St., Portland, Oregon
Generator: State of Oregon Department of Environmental Quality
USEPA Site Generator No.: ORD009020603

Disposal Facility: Envirosafe Services of Idaho, Inc.
Facility Address: 10.5 Miles NW Grand View Missile Base Rd., Grand View, Idaho
USEPA Facility No.: IDD073114654

Manifest Number	Shipment Date	Weight on Manifest (tons)	Rail Gondola Car No.	Arrival Date	Disposal Facility Weight (tons)
119	3/17/99	43	MP643444	3/23/99	45.2
120	3/17/99	43	CNW130155	3/23/99	33.97
121	3/17/99	43	MP640241	3/23/99	14.88
121	3/17/99	43	MP640241	3/24/99	19.26
247	4/1/99	96.9	SP338005	4/12/99	94.95
248	4/1/99	93.9	CHTT640622	4/12/99	98.08
249	4/1/99	98.2	CBRY4049	4/12/99	98.17
255	4/2/99	96.95	SP339150	4/14/99	94.73
256	4/2/99	96.15	MP640699	4/14/99	93.77
257	4/2/99	107.95	CHTT286168	4/15/99	105.57
258	4/2/99	99.05	CHTT642148	4/15/99	95.17
259	4/2/99	95	CNW350392	4/15/99	97.37
260	4/2/99	96.85	UMP5265	4/15/99	98.2
261	4/2/99	96.65	MP643205	4/15/99	77.92
297	4/7/99	96	CNW130018	4/15/99	99.66
TOTALS		1245.6			1166.9

Summary of F-listed Hazardous Waste Stream
ESII Waste Stream Number: 15792010

Site: McCormic and Baxter Creosoting Co. Site
Site Address: 6900 N. Edgewater St., Portland, Oregon
Generator: State of Oregon Department of Environmental Quality
USEPA Site Generator No.: ORD009020603

Disposal Facility: Envirosafe Services of Idaho, Inc.
Facility Address: 10.5 Miles NW Grand View Missile Base Rd., Grand View, Idaho
USEPA Facility No.: IDD073114654

Manifest Number	Shipment Date	Weight on Manifest (tons)	Rail Gondola Car No.	Arrival Date	Disposal Facility Weight (tons)
1	3/5/99	107	CTRN501201	3/12/99	99.85
2	3/5/99	107.2	CTRN501271	3/12/99	97.62
3	3/5/99	95	MP643749	3/12/99	90.01
4	3/5/99	94.7	CNW350374	3/12/99	93.69
5	3/5/99	97.5	MP642881	3/12/99	34.42
5	3/5/99	97.5	MP642881	3/15/99	52.03
6	3/5/99	107.5	CHTT286410	3/15/99	101.41
7	3/5/99	107.5	CHTT286615	3/15/99	104.27
8	3/5/99	96	CHTT640538	3/15/99	95.41
9	3/5/99	97	MP642855	3/15/99	94.53
10	3/5/99	94	GONX320280	3/15/99	93.01
11	3/5/99	79	GONX340294	3/15/99	89.49
12	3/5/99	94.5	CNW340056	3/15/99	96.54
13	3/5/99	107.5	CHTT286000	3/15/99	101.75
14	3/6/99	96.05	MP642220	3/19/99	91.02
15	3/6/99	96.6	MP643232	3/19/99	96.56
16	3/6/99	107.6	CTRN501334	3/19/99	104.81
17	3/6/99	108.1	CHTT286526	3/19/99	22.7
17	3/6/99	108.1	CHTT286526	3/20/99	79.68
18	3/6/99	97.9	CNW340084	3/20/99	94.79
19	3/6/99	94.2	CNW350173	3/20/99	86.43
20	3/6/99	96.9	CNW340271	3/20/99	95.76
21	3/6/99	108.15	CHTT286539	3/20/99	101.66
22	3/6/99	95.5	MP641707	3/20/99	89.91
23	3/6/99	97.85	MP640992	3/20/99	97.18
24	3/6/99	96	MP643701	3/20/99	92.48
25	3/6/99	98.2	CHTT640390	3/20/99	95.73
26	3/6/99	95.9	MP641877	3/20/99	61.11
27	3/8/99	96.5	CHTT286226	3/19/99	96.9
28	3/8/99	93.8	CNW350665	3/16/99	89.65
29	3/8/99	93.2	CNW350540	3/16/99	93.42

Summary of F-listed Hazardous Waste Stream
ESII Waste Stream Number: 15792010

Site: McCormic and Baxter Creosoting Co. Site
Site Address: 6900 N. Edgewater St., Portland, Oregon
Generator: State of Oregon Department of Environmental Quality
USEPA Site Generator No.: ORD009020603

Disposal Facility: Envirosafe Services of Idaho, Inc.
Facility Address: 10.5 Miles NW Grand View Missile Base Rd., Grand View, Idaho
USEPA Facility No.: IDD073114654

Manifest Number	Shipment Date	Weight on Manifest (tons)	Rail Gondola Car No.	Arrival Date	Disposal Facility Weight (tons)
30	3/8/99	97.5	MP641108	3/16/99	94.5
31	3/8/99	95.1	CNW340537	3/16/99	87.64
32	3/8/99	97.2	SP337571	3/17/99	91.49
33	3/8/99	98.25	CNW340338	3/16/99	96.31
34	3/8/99	97.5	MP642691	3/16/99	97.14
35	3/8/99	93.4	MP641144	3/16/99	89.66
36	3/8/99	99.3	CHTT642105	3/16/99	93.44
37	3/8/99	98.9	CHTT642017	3/16/99	93.93
38	3/8/99	107.35	CTRN501202	3/16/99	88.14
38	3/8/99	107.35	CTRN501202	3/17/99	16.11
39	3/8/99	97.9	GVSR327121	3/17/99	96.67
40	3/9/99	108.13	CHTT286079	3/25/99	100.94
41	3/9/99	96.1	MP643756	3/25/99	86.99
42	3/9/99	97.5	MP642581	3/24/99	96.36
43	3/9/99	108.45	CHTT286347	3/24/99	98.55
44	3/9/99	93.85	CHTT640621	3/24/99	93.32
45	3/9/99	94.25	DRGW310224	3/24/99	62.35
45	3/9/99	94.25	DRGW310224	3/25/99	34.74
46	3/9/99	94.15	CHTT640587	3/25/99	103.66
47	3/9/99	94.1	DRGW320483	3/25/99	103.14
48	3/9/99	97.9	MP640983	3/15/99	97.9
49	3/9/99	96.35	GONX340213	3/15/99	97.04
50	3/9/99	94.3	CNW350157	3/15/99	67.84
50	3/9/99	94.3	CNW350157	3/16/99	20.51
51	3/9/99	96.85	SP338055	3/16/99	97.34
52	3/9/99	97.05	CHTT640507	3/16/99	96.99
53	3/10/99	98.1	CHTT286155	3/17/99	102.33
54	3/10/99	95.25	TIMX520142	3/16/99	94.15
55	3/10/99	98.9	DRGW56322	3/16/99	82.09
56	3/10/99	97	SP338192	3/17/99	91.76
57	3/10/99	82.6	CNW340370	3/17/99	80.64
58	3/10/99	94.4	CNW350481	3/25/99	103.69

Summary of F-listed Hazardous Waste Stream
ESII Waste Stream Number: 15792010

Site: McCormic and Baxter Creosoting Co. Site
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USEPA Site Generator No.: ORD009020603

Disposal Facility: Envirosafe Services of Idaho, Inc.
Facility Address: 10.5 Miles NW Grand View Missile Base Rd., Grand View, Idaho
USEPA Facility No.: IDD073114654

Manifest Number	Shipment Date	Weight on Manifest (tons)	Rail Gondola Car No.	Arrival Date	Disposal Facility Weight (tons)
59	3/10/99	97.85	CBRY4043	3/17/99	92.85
60	3/10/99	92.95	MP642727	3/25/99	81.87
61	3/10/99	97.8	MP641109	3/17/99	105.06
62	3/10/99	98.25	CBRY4006	3/17/99	91.08
63	3/10/99	98.65	CHTT640335	3/17/99	100.01
64	3/11/99	96.45	MP640261	3/25/99	93.11
65	3/11/99	97.45	MP643036	3/17/99	94.64
66	3/11/99	97.45	MP642693	3/17/99	94.23
67	3/11/99	98.05	CNW340234	3/17/99	64.74
68	3/11/99	97.3	MP642703	3/17/99	58.58
68	3/11/99	97.3	MP642703	3/18/99	36
69	3/11/99	98.2	MP641126	3/18/99	97.74
70	3/11/99	108.05	CHTT286761	3/18/99	104.03
71	3/11/99	94.05	DRGW320446	3/18/99	96.97
72	3/11/99	97.15	UP32225	3/18/99	96.8
73	3/11/99	94.15	CHTT640582	3/18/99	94.64
74	3/11/99	107.65	CTRN501248	3/18/99	98.69
75	3/11/99	108.15	CHTT286453	3/18/99	105.53
76	3/11/99	98.1	CNW340284	3/18/99	99.55
77	3/12/99	95.85	MP641472	3/19/99	93.02
78	3/12/99	94.25	CNW350351	3/19/99	96.87
79	3/12/99	98.25	CBRY3946	3/19/99	96.92
80	3/12/99	108.3	CHTT286611	3/19/99	112.2
81	3/12/99	94.1	GONX330437	3/19/99	85.89
82	3/12/99	98.05	MP641063	3/18/99	97.77
83	3/12/99	99.3	MKT16055	3/18/99	96.82
84	3/12/99	95.9	MP641791	3/18/99	89.91
85	3/12/99	96.55	MP642857	3/18/99	96.02
86	3/12/99	95.77	MP641452	3/18/99	91.55
87	3/12/99	93.65	CNW350629	3/18/99	7.87
87	3/12/99	93.65	CNW350629	3/19/99	88.88
88	3/12/99	108.3	CHTT286289	3/19/99	89.77

Summary of F-listed Hazardous Waste Stream
ESII Waste Stream Number: 15792010

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Generator: State of Oregon Department of Environmental Quality
USEPA Site Generator No.: ORD009020603

Disposal Facility: Envirosafe Services of Idaho, Inc.
Facility Address: 10.5 Miles NW Grand View Missile Base Rd., Grand View, Idaho
USEPA Facility No.: IDD073114654

Manifest Number	Shipment Date	Weight on Manifest (tons)	Rail Gondola Car No.	Arrival Date	Disposal Facility Weight (tons)
89	3/12/99	107.65	CTRN501163	3/19/99	102.52
90	3/13/99	94.9	SP337914	3/20/99	93.59
91	3/13/99	93.7	CHTT642103	3/20/99	89.98
92	3/13/99	95.05	CNW340578	3/20/99	56.54
92	3/13/99	95.05	CNW340578	3/22/99	40.1
93	3/13/99	93.65	CNW350547	3/22/99	86.91
94	3/13/99	95.17	MP641194	3/22/99	103.55
95	3/13/99	99.15	CHTT642139	3/22/99	94.84
96	3/13/99	97.4	MP642796	4/2/99	105.03
97	3/13/99	93.95	CHTT640639	3/22/99	94.57
98	3/13/99	97.9	MP641099	3/22/99	94.93
99	3/13/99	97.65	GVSR327103	3/22/99	99.29
100	3/13/99	97.93	SP323165	3/22/99	97.27
101	3/13/99	93.55	CNW350612	3/22/99	93.96
102	3/16/99	95.8	MP642253	3/23/99	95.66
103	3/16/99	95.65	MP643492	3/23/99	83.86
104	3/16/99	93.8	CNW350576	3/23/99	100.89
105	3/16/99	107.95	CHTT286105	3/23/99	105
106	3/16/99	96.15	MP640576	3/24/99	97.77
107	3/16/99	96.65	UP32280	3/24/99	101.43
108	3/16/99	99.25	CHTT642090	3/24/99	97.74
109	3/16/99	97.4	UP32688	3/24/99	98.82
110	3/16/99	96.8	CNW130236	3/24/99	103.81
111	3/16/99	98.1	GVSR323106	3/24/99	83.98
112	3/16/99	97.2	GVSR323026	3/24/99	106.66
113	3/16/99	95.65	MP642225	4/15/99	37.41
113	3/16/99	95.65	MP642225	4/19/99	55.64
114	3/16/99	94.4	CNW350184	3/24/99	86.36
115	3/17/99	96.05	MP642407	3/25/99	72.54
116	3/17/99	97.85	MP641096	3/25/99	105.23
117	3/17/99	96.4	SP800079	3/25/99	101.82
118	3/17/99	96.7	CNW340100	3/23/99	88.92

Summary of F-listed Hazardous Waste Stream
ESII Waste Stream Number: 15792010

Site: McCormic and Baxter Creosoting Co. Site
Site Address: 6900 N. Edgewater St., Portland, Oregon
Generator: State of Oregon Department of Environmental Quality
USEPA Site Generator No.: ORD009020603

Disposal Facility: Envirosafe Services of Idaho, Inc.
Facility Address: 10.5 Miles NW Grand View Missile Base Rd., Grand View, Idaho
USEPA Facility No.: IDD073114654

Manifest Number	Shipment Date	Weight on Manifest (tons)	Rail Gondola Car No.	Arrival Date	Disposal Facility Weight (tons)
122	3/17/99	93.55	CNW350572	3/23/99	101.3
123	3/17/99	107.8	CHTT286672	3/23/99	51.99
123	3/17/99	107.8	CHTT286672	3/24/99	46.32
124	3/17/99	95.9	MP641178	3/23/99	89.69
125	3/17/99	108.2	CHTT286780	3/23/99	107.61
126	3/17/99	95.85	MP641858	3/23/99	102.87
127	3/17/99	97.5	MP642898	3/23/99	98.33
128	3/18/99	94.2	CNW350123	3/26/99	101.34
129	3/18/99	97.4	MP642852	3/26/99	81.07
130	3/18/99	96	CNW340171	3/26/99	104.11
131	3/18/99	95.5	MP641414	3/26/99	94.57
132	3/18/99	99.9	CNW741072	3/26/99	104.39
133	3/18/99	99.8	CNW741031	3/26/99	92.14
134	3/18/99	94.3	CNW350113	3/26/99	47.1
134	3/18/99	94.3	CNW350113	3/29/99	40.66
135	3/18/99	95.75	CHTT640500	3/29/99	100.92
136	3/18/99	95.7	MP641455	3/29/99	88.61
137	3/18/99	89.3	DRGW340130	3/29/99	90.23
138	3/18/99	96.15	SP338399	3/29/99	93.6
139	3/18/99	99.15	MKT16250	3/29/99	99.78
140	3/18/99	96	CNW130018	3/29/99	94.31
141	3/19/99	96.3	MP640687	3/26/99	104.05
142	3/19/99	99	DRGW56326	3/26/99	79.18
143	3/19/99	97.65	MP642772	4/12/99	98.32
144	3/19/99	97.5	MP642928	3/26/99	92.13
145	3/19/99	95.95	MP641548	3/26/99	102.17
146	3/19/99	97.35	MP642647	3/26/99	102.05
147	3/19/99	96.5	CNW340367	3/26/99	99.22
148	3/19/99	95.9	MP642365	3/31/99	104.33
149	3/19/99	97.45	SP323135	3/29/99	102.9
150	3/19/99	96.2	CHTT640475	3/29/99	87.07
151	3/19/99	93.75	CNW350561	3/31/99	86.12

Summary of F-listed Hazardous Waste Stream
ESII Waste Stream Number: 15792010

Site: McCormic and Baxter Creosoting Co. Site
Site Address: 6900 N. Edgewater St., Portland, Oregon
Generator: State of Oregon Department of Environmental Quality
USEPA Site Generator No.: ORD009020603

Disposal Facility: Envirosafe Services of Idaho, Inc.
Facility Address: 10.5 Miles NW Grand View Missile Base Rd., Grand View, Idaho
USEPA Facility No.: IDD073114654

Manifest Number	Shipment Date	Weight on Manifest (tons)	Rail Gondola Car No.	Arrival Date	Disposal Facility Weight (tons)
152	3/19/99	97.5	MP642760	3/29/99	98.82
153	3/19/99	95.2	CHTT950079	3/29/99	26.23
153	3/19/99	95.2	CHTT950079	3/31/99	72.55
154	3/22/99	96.85	MP643690	3/31/99	105.4
155	3/22/99	96	MP641915	3/31/99	85.2
156	3/22/99	97.25	GVSR323015	3/31/99	99.68
157	3/22/99	107.5	CTRN501122	3/31/99	28.11
157	3/22/99	107.5	CTRN501122	4/2/99	70.35
158	3/22/99	94.2	CNW350495	4/2/99	88.83
159	3/22/99	97	CBRY5113	3/31/99	97.16
160	3/22/99	96.85	CNW130162	3/31/99	97.93
161	3/22/99	99.2	MKT16136	4/2/99	100.47
162	3/22/99	97.95	MP640850	4/2/99	97.42
163	3/22/99	97.4	MP642952	4/2/99	106.63
164	3/22/99	94.25	DRGW320056	4/2/99	91.89
165	3/22/99	99	MKT16020	4/2/99	109.28
166	3/22/99	97.85	MP640943	4/2/99	103.72
167	3/25/99	97.45	MP643036	4/1/99	96.17
168	3/25/99	97.45	MP642693	4/1/99	98.31
169	3/25/99	97.3	MP642703	4/1/99	105.85
170	3/25/99	98.2	MP641126	3/31/99	106.03
171	3/25/99	108.05	CHTT286761	3/31/99	101.22
172	3/25/99	94.05	DRGW320446	3/31/99	97.25
173	3/25/99	94.15	CHTT640582	3/31/99	93
174	3/25/99	107.65	CTRN501248	3/31/99	115.56
175	3/25/99	95.85	MP641472	4/1/99	82.86
176	3/25/99	94.25	CNW350351	4/1/99	102.26
177	3/25/99	98.25	CBRY3946	4/1/99	91.98
178	3/25/99	108.3	CHTT286611	4/1/99	119.57
179	3/25/99	94.1	GONX330437	4/1/99	31.48
179	3/25/99	94.1	GONX330437	4/2/99	55.54
180	3/26/99	96.5	CHTT286226	4/3/99	86.46

Summary of F-listed Hazardous Waste Stream
ESII Waste Stream Number: 15792010

Site: McCormic and Baxter Creosoting Co. Site
Site Address: 6900 N. Edgewater St., Portland, Oregon
Generator: State of Oregon Department of Environmental Quality
USEPA Site Generator No.: ORD009020603

Disposal Facility: Envirosafe Services of Idaho, Inc.
Facility Address: 10.5 Miles NW Grand View Missile Base Rd., Grand View, Idaho
USEPA Facility No.: IDD073114654

Manifest Number	Shipment Date	Weight on Manifest (tons)	Rail Gondola Car No.	Arrival Date	Disposal Facility Weight (tons)
181	3/26/99	93.65	CNW350624	4/3/99	95.09
182	3/26/99	108.3	CHTT286289	4/3/99	107.35
183	3/26/99	107.65	CTRN501163	4/3/99	109.52
184	3/26/99	95.9	MP641791	4/3/99	97.36
185	3/26/99	96.55	MP642857	4/3/99	99.24
186	3/26/99	95.775	MP641452	4/6/99	98.85
187	3/26/99	108.15	CHTT286453	4/3/99	105.11
188	3/26/99	98.05	MP641063	4/3/99	104.64
189	3/26/99	97.9	MP640983	4/2/99	90.03
190	3/26/99	94.35	GONX340213	4/6/99	86.92
191	3/26/99	94.3	CNW350157	4/2/99	98.32
192	3/26/99	96.85	SP338055	4/2/99	96.86
193	3/27/99	97.05	CHTT640507	4/2/99	68.02
193	3/27/99	97.05	CHTT640507	4/3/99	25.15
194	3/27/99	93.8	CNW350665	4/3/99	91.38
195	3/27/99	93.2	CNW350540	4/3/99	95.66
196	3/27/99	97.85	MP641108	4/3/99	102.56
197	3/27/99	95.1	CNW340537	4/3/99	77.29
198	3/27/99	98.25	CNW340338	4/3/99	106.06
199	3/27/99	97.85	CBRY4043	4/3/99	28.53
199	3/27/99	97.85	CBRY4043	4/5/99	74.73
200	3/27/99	97.8	MP641109	4/5/99	98.04
201	3/27/99	98.25	CBRY4006	4/5/99	92.88
202	3/27/99	98.65	CHTT640335	4/5/99	102.94
203	3/27/99	97.2	SP337571	4/5/99	94.16
204	3/27/99	97.9	GVSR327121	4/5/99	100.89
205	3/27/99	107.45	CTRN501202	4/5/99	115.26
206	3/29/99	108.1	CHTT286155	4/8/99	107.8
207	3/29/99	98	SP338192	4/8/99	99.65
208	3/29/99	82.6	CNW340370	4/7/99	73.97
209	3/29/99	98.9	CHTT642017	4/7/99	108.71
210	3/29/99	98.9	DRGW56322	4/6/99	34.43

Summary of F-listed Hazardous Waste Stream
ESII Waste Stream Number: 15792010

Site: McCormic and Baxter Creosoting Co. Site
Site Address: 6900 N. Edgewater St., Portland, Oregon
Generator: State of Oregon Department of Environmental Quality
USEPA Site Generator No.: ORD009020603

Disposal Facility: Envirosafe Services of Idaho, Inc.
Facility Address: 10.5 Miles NW Grand View Missile Base Rd., Grand View, Idaho
USEPA Facility No.: IDD073114654

Manifest Number	Shipment Date	Weight on Manifest (tons)	Rail Gondola Car No.	Arrival Date	Disposal Facility Weight (tons)
210	3/29/99	98.9	DRGW56322	4/7/99	59.92
211	3/29/99	97.5	MP642691	4/7/99	94.71
212	3/29/99	93.4	MP641144	4/7/99	93.98
213	3/29/99	99.3	CHTT642105	4/7/99	106.49
214	3/29/99	98.2	CBRY3954	4/7/99	90.62
215	3/29/99	97.4	CHTT640596	4/7/99	94.65
216	3/29/99	97.4	MP642707	4/7/99	105.85
217	3/30/99	96.05	MP642220	4/6/99	96.15
218	3/30/99	96.6	MP643232	4/6/99	88.61
219	3/30/99	107.6	CTRN501334	4/6/99	113.96
220	3/30/99	108.1	CHTT286526	4/8/99	102.88
221	3/30/99	94.2	CNW350173	4/6/99	90.6
222	3/30/99	108.15	CHTT286539	4/5/99	102.56
223	3/30/99	95.5	MP641707	4/5/99	90.82
224	3/30/99	97.85	MP640992	4/5/99	97.39
225	3/30/99	96	MP643701	4/5/99	63.99
225	3/30/99	96	MP643701	4/6/99	41.35
226	3/30/99	93.55	CNW350612	4/6/99	98.38
227	3/30/99	99.15	CHTT642139	4/6/99	94.94
228	3/30/99	93.95	CHTT640639	4/6/99	91.17
229	3/30/99	97.9	MP641099	4/6/99	102.39
230	3/31/99	99.35	CHTT642079	4/8/99	98.23
231	3/31/99	96.2	MP643091	4/8/99	95.98
232	3/31/99	93.65	CNW350547	4/8/99	98.79
233	3/31/99	95.175	MP641194	4/8/99	88.12
234	3/31/99	93.7	CHTT642103	4/8/99	90.31
235	3/31/99	98.2	CHTT640390	4/8/99	65.76
235	3/31/99	98.2	CHTT640390	4/9/99	34.39
236	3/31/99	95.9	MP641877	4/9/99	95.3
237	3/31/99	96.1	MP643801	4/9/99	111.06
238	3/31/99	95.15	MP641151	4/9/99	103.28
239	3/31/99	95.4	MP643591	4/9/99	76.99

Summary of F-listed Hazardous Waste Stream
ESII Waste Stream Number: 15792010

Site: McCormic and Baxter Creosoting Co. Site
Site Address: 6900 N. Edgewater St., Portland, Oregon
Generator: State of Oregon Department of Environmental Quality
USEPA Site Generator No.: ORD009020603

Disposal Facility: Envirosafe Services of Idaho, Inc.
Facility Address: 10.5 Miles NW Grand View Missile Base Rd., Grand View, Idaho
USEPA Facility No.: IDD073114654

Manifest Number	Shipment Date	Weight on Manifest (tons)	Rail Gondola Car No.	Arrival Date	Disposal Facility Weight (tons)
240	3/31/99	95.7	GVSR327000	4/9/99	96.72
241	3/31/99	96.15	MP640620	4/9/99	96.21
242	4/1/99	96.85	UP32293	4/13/99	95.08
243	4/1/99	96	MP640557	4/13/99	98.68
244	4/1/99	108.1	CHTT286152	4/13/99	109.3
245	4/1/99	108.1	CHTT286157	4/13/99	107.36
246	4/1/99	97.75	CNW340306	4/13/99	96.64
250	4/1/99	98.25	SP337667	4/12/99	33.69
250	4/1/99	98.25	SP337667	4/13/99	62.49
251	4/1/99	97.9	MP640936	4/13/99	99.29
252	4/1/99	107.45	CTRN501129	4/13/99	109.51
253	4/1/99	98.2	CBRY3918	4/13/99	95.29
254	4/1/99	95.925	MP641504	4/13/99	97.84
262	4/2/99	96.35	CHTT286230	4/13/99	97.35
263	4/2/99	94.6	CNW350302	4/13/99	75.92
263	4/2/99	94.6	CNW350302	4/14/99	19.69
264	4/2/99	97.55	MP641003	4/8/99	100.13
265	4/2/99	94	CHTT286351	4/8/99	111.73
266	4/2/99	95.9	CNW350144	4/8/99	97.2
267	4/2/99	108.15	MP642394	4/8/99	95.92
268	4/3/99	94	CHTT640587	4/12/99	101.11
269	4/3/99	94	DRGW320483	4/12/99	86.26
270	4/3/99	96	MP642407	4/12/99	99.11
271	4/3/99	96	MP641548	4/12/99	100.09
272	4/3/99	98	MP642647	4/12/99	95.13
273	4/3/99	97	CNW340367	4/12/99	102.71
274	4/3/99	96	MP640687	4/12/99	95.96
275	4/3/99	99	DRGW56326	4/10/99	95.53
276	4/3/99	98	MP642928	4/14/99	99.08
277	4/3/99	96	MP640621	4/10/99	89.87
278	4/3/99	108	CHTT286079	4/10/99	118.47
279	4/3/99	96	MP643756	4/13/99	99.97

Summary of F-listed Hazardous Waste Stream
ESII Waste Stream Number: 15792010

Site: McCormic and Baxter Creosoting Co. Site
Site Address: 6900 N. Edgewater St., Portland, Oregon
Generator: State of Oregon Department of Environmental Quality
USEPA Site Generator No.: ORD009020603

Disposal Facility: Envirosafe Services of Idaho, Inc.
Facility Address: 10.5 Miles NW Grand View Missile Base Rd., Grand View, Idaho
USEPA Facility No.: IDD073114654

Manifest Number	Shipment Date	Weight on Manifest (tons)	Rail Gondola Car No.	Arrival Date	Disposal Facility Weight (tons)
280	4/3/99	96	SP800079	4/13/99	94.88
281	4/5/99	99	CHTT642134	4/14/99	96.24
282	4/5/99	97	CHTT286200	4/10/99	101.97
283	4/5/99	108	CHTT286261	4/10/99	106.05
284	4/5/99	98	MP641096	4/10/99	109.21
285	4/5/99	94	CNW350481	4/10/99	78.56
286	4/5/99	97	MP642727	4/10/99	100.31
287	4/5/99	97	MP642581	4/9/99	97.33
288	4/5/99	96	MP642380	4/9/99	95.99
289	4/5/99	108	CHTT286503	4/9/99	109.71
290	4/5/99	96	MP642167	4/9/99	13.12
290	4/5/99	96	MP642167	4/10/99	73.28
291	4/5/99	96	GVSR327028	4/10/99	109.52
292	4/5/99	96	MP643607	4/10/99	105.37
293	4/5/99	94	CNW350195	4/12/99	85.21
294	4/6/99	108	CHTT286347	4/15/99	108.05
295	4/6/99	94	CHTT640621	4/15/99	98.28
296	4/6/99	98	SP337841	4/15/99	99.62
298	4/7/99	98	MP642760	4/14/99	97.2
299	4/7/99	96	CHTT640475	4/14/99	97.39
300	4/7/99	97	SP323135	4/14/99	98.05
301	4/7/99	89	DRGW340130	4/14/99	88.52
302	4/7/99	96	MP641455	4/14/99	99.38
303	4/7/99	96	CHTT640500	4/14/99	66.3
303	4/7/99	96	CHTT640500	4/15/99	31.72
304	4/7/99	94	CNW350113	4/14/99	62.22
304	4/7/99	94	CNW350113	4/15/99	33.51
305	4/7/99	96	MP641414	4/15/99	96.79
306	4/7/99	97	MP642852	4/15/99	101.62
307	4/7/99	94	CNW350123	4/15/99	99.15
308	4/12/99	99	MKT16020	4/19/99	103.02
309	4/12/99	98	MP640943	4/19/99	95.99

Summary of F-listed Hazardous Waste Stream
ESII Waste Stream Number: 15792010

Site: McCormic and Baxter Creosoting Co. Site
Site Address: 6900 N. Edgewater St., Portland, Oregon
Generator: State of Oregon Department of Environmental Quality
USEPA Site Generator No.: ORD009020603

Disposal Facility: Envirosafe Services of Idaho, Inc.
Facility Address: 10.5 Miles NW Grand View Missile Base Rd., Grand View, Idaho
USEPA Facility No.: IDD073114654

Manifest Number	Shipment Date	Weight on Manifest (tons)	Rail Gondola Car No.	Arrival Date	Disposal Facility Weight (tons)
310	4/12/99	108	CTRN501122	4/19/99	103.79
311	4/12/99	94	CNW350495	4/19/99	99.85
312	4/12/99	97	MP642796	4/19/99	97.27
313	4/12/99	97	MP642592	4/19/99	94.49
314	4/12/99	94	DRGW320056	4/19/99	100.81
315	4/12/99	94	GONX330437	4/19/99	95.11
316	4/12/99	99	MKT16136	4/19/99	99.32
317	4/12/99	98	MP640850	4/19/99	94.99
318	4/12/99	108	CTRN501052	4/19/99	100.43
318	4/12/99	108	CTRN501052	4/20/99	13.47
319	4/12/99	96	MP641472	4/20/99	103.33
320	4/12/99	94	CNW350351	4/20/99	93.69
321	4/13/99	95	CHTT950079	4/22/99	90.65
322	4/13/99	96	MP642365	4/20/99	96.52
323	4/13/99	94	CNW350561	4/20/99	95.04
324	4/13/99	97	CBRY5113	4/20/99	102.06
325	4/13/99	97	MP643690	4/20/99	94.35
326	4/13/99	96	MP641915	4/20/99	95.42
327	4/13/99	97	GVSR323015	4/20/99	102.34
328	4/13/99	98	CNW340338	4/20/99	64.39
328	4/13/99	98	CNW340338	4/21/99	32.06
329	4/13/99	95	CNW340537	4/21/99	95.91
330	4/13/99	98	MP641108	3/21/99	102.27
331	4/13/99	93	CNW350540	4/21/99	88.58
332	4/13/99	94	CNW350665	4/21/99	101.25
333	4/13/99	97	CHTT640507	4/21/99	92.01
334	4/13/99	98	MP641063	4/21/99	104.55
335	4/14/99	98	CBRY3946	4/21/99	90.45
336	4/14/99	108	CHTT286611	4/21/99	118.35
337	4/14/99	98	MP641126	4/21/99	44.74
337	4/14/99	98	MP641126	4/23/99	52.28
338	4/14/99	107	CTRN501201	4/23/99	109.19

Summary of F-listed Hazardous Waste Stream
ESII Waste Stream Number: 15792010

Site: McCormic and Baxter Creosoting Co. Site
Site Address: 6900 N. Edgewater St., Portland, Oregon
Generator: State of Oregon Department of Environmental Quality
USEPA Site Generator No.: ORD009020603

Disposal Facility: Envirosafe Services of Idaho, Inc.
Facility Address: 10.5 Miles NW Grand View Missile Base Rd., Grand View, Idaho
USEPA Facility No.: IDD073114654

Manifest Number	Shipment Date	Weight on Manifest (tons)	Rail Gondola Car No.	Arrival Date	Disposal Facility Weight (tons)
339	4/14/99	96	MP643749	4/23/99	94.86
340	4/14/99	107	CTRN501271	4/23/99	114.66
341	4/14/99	96	MP643528	4/22/99	113.16
342	4/14/99	98	DRGW56175	4/22/99	98.36
343	4/14/99	97	MP643036	4/22/99	102.45
344	4/14/99	97	MP642693	4/22/99	97.17
345	4/14/99	97	MP642703	4/22/99	36.4
345	4/14/99	97	MP642703	4/23/99	52.32
346	4/14/99	108	CHTT286761	4/22/99	110.08
347	4/14/99	94	DRGW320446	4/22/99	108.65
348	4/16/99	97	SP338055	4/23/99	99.82
349	4/16/99	93	MP641452	4/23/99	92.28
350	4/22/99	8	none-hauled by truck	4/23/99	13.04
351	4/22/99	8	none-hauled by truck	4/23/99	15.49
352	4/22/99	8	none-hauled by truck	4/23/99	9.07
353	4/22/99	8	none-hauled by truck	4/23/99	8.81
TOTALS		35538			32605