Van Waters & Rogers Inc.
subsidiary of Univar

32131 STEVEN WAY
CONIFER, CO 80433
PHONE (303) 838-5898
FAX (303) 838-8059

January 23, 1995

OR 7398
1(c)
1/23/95

FILE COPY

Elliot Zais
State of Oregon
Department of Environmental Quality
Northwest Region
2020 SW 4th, Suite 400
Portland, Oregon 97201

RE: NPDES Permit Application No. 997438
Van Waters & Rogers Inc.
Portland, Oregon

Dear Mr. Zais:

As you are aware, the City of Portland has expressed concerns over the levels of certain Group A and B pollutants that potentially could be present in the effluent of the ground water treatment system at the Van Waters & Rogers Inc. (VW&R) Portland, Oregon facility. Specifically, they are primarily concerned over the high BOD, COD, Ammonia, Oil & Grease, and Cyanide concentrations that were listed in Section V of the submitted NPDES Permit application.

VW&R acknowledged these concerns during the meeting that was held last year with Michael Pernolt (Bureau of Environmental Services), Kevin Schanilec (EPA) and yourself, and offered a proposal which would address the concerns of the City. The proposal recommended that the two extraction wells which were to be located in the vicinity of the rail spur be relocated to the western perimeter of the facility since water of higher quality can be produced in this area. As was agreed to in the meeting, VW&R conducted two treatment efficiency tests on samples of ground water collected from monitoring and extraction wells located along the western perimeter. Each sample consisted of approximately 300 gallons collected in equal proportions from wells EXW-1, SMW-4, and SMW-12. For Test 1 and Test 2 the treatment system was run at 20 and 60 gpm respectively.

Table 1 summarizes the resulting analytical data (attached) generated from each ground water treatment system test and compares these results to those presented in the permit application. As you will observe, each analyte in question displays a significant reduction in concentration, which I believe will address the only concerns raised during the public

comment period and should remove the final barrier to issuing the NPDES permit for the Portland facility.

I will forward copies of this letter and the attached data to Michael Pernolt and to Kevin Schanilec for their review as well. I will call you and the other two gentlemen later this week to schedule a conference call or a meeting in Portland to discuss finalization of the permit process so that we may begin ground water remediation as soon as possible.

Please contact me at the above address should you have any questions.

Sincerely,

George H. Sylvester
Senior Project Manager
Environmental Affairs

CC: M. Pernolt - B.E.S.
K. Schanilec - EPA
W. Grotheer - Univar
M. Konsmo - VW&R

TABLE 1 WATER QUALITY DATA - VW&R PORTLAND, OREGON

PARAMETER	NPDES Appl.	Tst. 1	Tst. 2
Group A Pollutants:			
BOD	1,200 mg/l	36 mg/l	39 mg/l
COD	177 mg/l	37 mg/l	36 mg/l
Ammonia	26.4 mg/l	0.66 mg/l	0.63 mg/l
Group B Pollutants:			
Oil & Grease	20 mg/l	6 mg/l	< 1 mg/l
Cyanide	0.05 mg/l	<0.005 mg/l	0.0007 mg/l

Analytical Technologies, Inc.
560 Naches Avenue S.W., Suite 101, Renton, WA 98055 (206) 228-8335
Karen L. Mixon, Laboratory Manager

ATI I.D. # 410101

November 2, 1994

Van Waters & Rogers, Inc.
32131 Steven Way
Conifer CO 80433

Attention : George Sylvester

Project Number : -

Project Name : VWR - Portland OR

Dear Mr. Sylvester:

On October 13, 1994, Analytical Technologies, Inc. (ATI), received five samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and quality control data are enclosed.

The analyses for ammonia as nitrogen, biochemical oxygen demand, chemical oxygen demand, color, nitrate/nitrite as nitrogen, sulfide, sulfate, surfactants, total cyanide, total organic carbon and total phenols were performed by a subcontractor. Their report is included as appendix.

Sincerely,

Victoria L. Bayly
Project Manager

VLB/hal/mrj

Enclosure

AnalyticalTechnologies, Inc.

ATI I.D. # 410101

SAMPLE CROSS REFERENCE SHEET

CLIENT : VAN WATERS & ROGERS, INC.
PROJECT # : -
PROJECT NAME : VWR - PORTLAND OR

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
410101-1	GW-TS-EFFL-20	10/12/94	WATER
410101-2	GW-TS-EFFL-60	10/12/94	WATER
410101-3	GW-TS-EFFL-SWR	10/13/94	WATER
410101-4	GW-TS-COLOR	10/12/94	WATER
410101-5	TRIP BLANK	N/A	WATER

----- TOTALS -----

MATRIX	# SAMPLES
WATER	5

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of the report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

Analytical Technologies, inc

ATI I.D. # 410101

ANALYTICAL SCHEDULE

CLIENT : VAN WATERS & ROGERS, INC.
PROJECT # : -
PROJECT NAME : VWR - PORTLAND OR

ANALYSIS	TECHNIQUE	REFERENCE	LAB
VOLATILE ORGANIC COMPOUNDS	GCMS	EPA 8240	R
OIL & GREASE	IR	EPA 413.2	R
IRON	ICAP	EPA 6010	R
AMMONIA AS NITROGEN	COLORIMETRIC	EPA 350.1	SUB
BIOCHEMICAL OXYGEN DEMAND	ELECTRODE	EPA 405.1	SUB
CHEMICAL OXYGEN DEMAND	COLORIMETRIC	EPA 410.4	SUB
COLOR	COLORIMETRIC	EPA 110.2	SUB
CYANIDE, TOTAL	TITRIMETRIC	EPA 335.2	SUB
NITRATE/NITRITE AS NITROGEN	COLORIMETRIC	EPA 353.2	SUB
PH	ELECTRODE	EPA 150.1	R
PHENOL, TOTAL	COLORIMETRIC	EPA 420.2	SUB
SULFATE	TURBIDIMETRIC	EPA 375.4	SUB
SULFIDE	TITRIMETRIC	EPA 376.1	SUB
SURFACTANTS	COLORIMETRIC	EPA 425.1	SUB
TOTAL ORGANIC CARBON	TOC ANALYZER	EPA 415.1	SUB
TOTAL SUSPENDED SOLIDS	GRAVIMETRIC	EPA 160.2	R

R = ATI - Renton
SD = ATI - San Diego
PHX = ATI - Phoenix
PTL = ATI - Portland
ANC = ATI - Anchorage
PNR = ATI - Pensacola
FC = ATI - Fort Collins
SUB = Subcontract

AnalyticalTechnologies,inc

ATI I.D. # 410101

VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: VAN WATERS & ROGERS, INC.	DATE SAMPLED	: N/A
PROJECT #	: -	DATE RECEIVED	: N/A
PROJECT NAME	: VWR - PORTLAND OR	DATE EXTRACTED	: N/A
CLIENT I.D.	: METHOD BLANK	DATE ANALYZED	: 10/19/94
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
ACETONE	<10
BENZENE	<1
BROMODICHLOROMETHANE	<1
BROMOFORM	<5
BROMOMETHANE	<10
2-BUTANONE (MEK)	<10
CARBON DISULFIDE	<1
CARBON TETRACHLORIDE	<1
CHLOROBENZENE	<1
CHLOROETHANE	<1
CHLOROFORM	<1
CHLOROMETHANE	<10
DIBROMOCHLOROMETHANE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHANE	<1
1,1-DICHLOROETHENE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
ETHYLBENZENE	<1
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
METHYLENE CHLORIDE	<5
STYRENE	<1
1,1,2,2-TETRACHLOROETHANE	<1
TETRACHLOROETHENE	<1
TOLUENE	<1
1,1,1-TRICHLOROETHANE	<1
1,1,2-TRICHLOROETHANE	<1
TRICHLOROETHENE	<1
VINYL ACETATE	<10
VINYL CHLORIDE	<1
TOTAL XYLENES	<1

SURROGATE PERCENT RECOVERY		LIMITS
1,2-DICHLOROETHANE-D4	93	86 - 120
TOLUENE-D8	104	85 - 111
BROMOFLUOROBENZENE	97	81 - 114

AnalyticalTechnologies,Inc

ATI I.D. # 410101

TENTATIVELY IDENTIFIED COMPOUNDS
DATA SUMMARY

CLIENT	: VAN WATERS & ROGERS, INC.	DATE SAMPLED	: N/A
PROJECT #	: -	DATE RECEIVED	: N/A
PROJECT NAME	: VWR - PORTLAND OR	DATE EXTRACTED	: N/A
CLIENT I.D.	: METHOD BLANK	DATE ANALYZED	: 10/19/94
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUNDS	ESTIMATED CONC.	FLAG	R.T.

NO NON-HSL COMPOUNDS FOUND > 10% OF NEAREST INTERNAL STANDARD

AnalyticalTechnologies,inc

ATI I.D. # 410101-1

VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: VAN WATERS & ROGERS, INC.	DATE SAMPLED	: 10/12/94
PROJECT #	: -	DATE RECEIVED	: 10/13/94
PROJECT NAME	: VWR - PORTLAND OR	DATE EXTRACTED	: N/A
CLIENT I.D.	: GW-TS-EFFL-20	DATE ANALYZED	: 10/19/94
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	
ACETONE	390	D3
BENZENE	2	
BROMODICHLOROMETHANE	<1	
BROMOFORM	<5	
BROMOMETHANE	<10	
2-BUTANONE (MEK)	83	
CARBON DISULFIDE	<1	
CARBON TETRACHLORIDE	<1	
CHLOROBENZENE	<1	
CHLOROETHANE	<1	
CHLOROFORM	<1	
CHLOROMETHANE	<10	
DIBROMOCHLOROMETHANE	<1	
1,1-DICHLOROETHANE	<1	
1,2-DICHLOROETHANE	<1	
1,1-DICHLOROETHENE	<1	
1,2-DICHLOROETHENE (TOTAL)	<1	
1,2-DICHLOROPROPANE	<1	
CIS-1,3-DICHLOROPROPENE	<1	
TRANS-1,3-DICHLOROPROPENE	<1	
ETHYLBENZENE	<1	
2-HEXANONE (MBK)	<10	
4-METHYL-2-PENTANONE (MIBK)	9	J
METHYLENE CHLORIDE	<5	
STYRENE	<1	
1,1,2,2-TETRACHLOROETHANE	<1	
TETRACHLOROETHENE	<1	
TOLUENE	2	
1,1,1-TRICHLOROETHANE	<1	
1,1,2-TRICHLOROETHANE	<1	
TRICHLOROETHENE	<1	
VINYL ACETATE	<10	
VINYL CHLORIDE	<1	
TOTAL XYLENES	<1	

SURROGATE PERCENT RECOVERY		LIMITS
1,2-DICHLOROETHANE-D4	102	86 - 120
TOLUENE-D8	105	85 - 111
BROMOFLUOROBENZENE	95	81 - 114

J = Estimated value.
D3 = Value from a five fold diluted analysis.

AnalyticalTechnologies,Inc

ATI I.D. # 410101-1

TENTATIVELY IDENTIFIED COMPOUNDS
DATA SUMMARY

CLIENT	: VAN WATERS & ROGERS, INC.	DATE SAMPLED	: 10/12/94
PROJECT #	: -	DATE RECEIVED	: 10/13/94
PROJECT NAME	: VWR - PORTLAND OR	DATE EXTRACTED	: N/A
CLIENT I.D.	: GW-TS-EFFL-20	DATE ANALYZED	: 10/19/94
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUNDS	ESTIMATED CONC.	FLAG	R.T.
UNKNOWN	6		16.14

Analytical Technologies, Inc

ATI I.D. # 410101-2

VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: VAN WATERS & ROGERS, INC.	DATE SAMPLED	: 10/12/94
PROJECT #	: -	DATE RECEIVED	: 10/13/94
PROJECT NAME	: VWR - PORTLAND OR	DATE EXTRACTED	: N/A
CLIENT I.D.	: GW-TS-EFFL-60	DATE ANALYZED	: 10/20/94
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUNDS	RESULTS	
ACETONE	530	D3
BENZENE	<1	
BROMODICHLOROMETHANE	<1	
BROMOFORM	<5	
BROMOMETHANE	<10	
2-BUTANONE (MEK)	100	
CARBON DISULFIDE	<1	
CARBON TETRACHLORIDE	<1	
CHLOROBENZENE	<1	
CHLOROETHANE	<1	
CHLOROFORM	<1	
CHLOROMETHANE	<10	
DIBROMOCHLOROMETHANE	<1	
1,1-DICHLOROETHANE	<1	
1,2-DICHLOROETHANE	<1	
1,1-DICHLOROETHENE	<1	
1,2-DICHLOROETHENE (TOTAL)	3	
1,2-DICHLOROPROPANE	<1	
CIS-1,3-DICHLOROPROPENE	<1	
TRANS-1,3-DICHLOROPROPENE	<1	
ETHYLBENZENE	<1	
2-HEXANONE (MBK)	<10	
4-METHYL-2-PENTANONE (MIBK)	8	J
METHYLENE CHLORIDE	5	
STYRENE	<1	
1,1,2,2-TETRACHLOROETHANE	<1	
TETRACHLOROETHENE	3	
TOLUENE	1	
1,1,1-TRICHLOROETHANE	1	
1,1,2-TRICHLOROETHANE	<1	
TRICHLOROETHENE	4	
VINYL ACETATE	<10	
VINYL CHLORIDE	<1	
TOTAL XYLENES	<1	

SURROGATE PERCENT RECOVERY		LIMITS
1,2-DICHLOROETHANE-D4	100	86 - 120
TOLUENE-D8	110	85 - 111
BROMOFLUOROBENZENE	92	81 - 114

D3 = Value from a five fold diluted analysis.
J = Estimated value.

AnalyticalTechnologies, inc.

ATI I.D. # 410101-2

TENTATIVELY IDENTIFIED COMPOUNDS
DATA SUMMARY

CLIENT	: VAN WATERS & ROGERS, INC.	DATE SAMPLED	: 10/12/94
PROJECT #	: -	DATE RECEIVED	: 10/13/94
PROJECT NAME	: VWR - PORTLAND OR	DATE EXTRACTED	: N/A
CLIENT I.D.	: GW-TS-EFFL-60	DATE ANALYZED	: 10/20/94
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUNDS	ESTIMATED CONC.	FLAG	R.T.
UNKNOWN	7		16.11

AnalyticalTechnologies,inc

ATI I.D. # 410101-3

VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: VAN WATERS & ROGERS, INC.	DATE SAMPLED	: 10/13/94
PROJECT #	: -	DATE RECEIVED	: 10/13/94
PROJECT NAME	: VWR - PORTLAND OR	DATE EXTRACTED	: N/A
CLIENT I.D.	: GW-TS-EFFL-SWR	DATE ANALYZED	: 10/19/94
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 5

COMPOUNDS	RESULTS
ACETONE	560
BENZENE	<5
BROMODICHLOROMETHANE	<5
BROMOFORM	<25
BROMOMETHANE	<50
2-BUTANONE (MEK)	<50
CARBON DISULFIDE	<5
CARBON TETRACHLORIDE	<5
CHLOROBENZENE	<5
CHLOROETHANE	<5
CHLOROFORM	<5
CHLOROMETHANE	<50
DIBROMOCHLOROMETHANE	<5
1,1-DICHLOROETHANE	20
1,2-DICHLOROETHANE	<5
1,1-DICHLOROETHENE	43
1,2-DICHLOROETHENE (TOTAL)	770
1,2-DICHLOROPROPANE	<5
CIS-1,3-DICHLOROPROPENE	<5
TRANS-1,3-DICHLOROPROPENE	<5
ETHYLBENZENE	<5
2-HEXANONE (MBK)	<50
4-METHYL-2-PENTANONE (MIBK)	<50
METHYLENE CHLORIDE	720
STYRENE	<5
1,1,2,2-TETRACHLOROETHANE	<5
TETRACHLOROETHENE	360
TOLUENE	39
1,1,1-TRICHLOROETHANE	280
1,1,2-TRICHLOROETHANE	<5
TRICHLOROETHENE	760
VINYL ACETATE	<50
VINYL CHLORIDE	9
TOTAL XYLENES	8

SURROGATE PERCENT RECOVERY		LIMITS
1,2-DICHLOROETHANE-D4	98	86 - 120
TOLUENE-D8	109	85 - 111
BROMOFLUOROBENZENE	95	81 - 114

AnalyticalTechnologies,Inc.

ATI I.D. # 410101-3

TENTATIVELY IDENTIFIED COMPOUNDS
DATA SUMMARY

CLIENT	: VAN WATERS & ROGERS, INC.	DATE SAMPLED	: 10/13/94
PROJECT #	: -	DATE RECEIVED	: 10/13/94
PROJECT NAME	: VWR - PORTLAND OR	DATE EXTRACTED	: N/A
CLIENT I.D.	: GW-TS-EFFL-SWR	DATE ANALYZED	: 10/19/94
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 5

COMPOUNDS	ESTIMATED CONC.	FLAG	R.T.

NO NON-HSL COMPOUNDS FOUND > 10% OF NEAREST INTERNAL STANDARD

AnalyticalTechnologies,Inc

ATI I.D. # 410101-5

VOLATILE ORGANICS ANALYSIS
DATA SUMMARY

CLIENT	: VAN WATERS & ROGERS, INC.	DATE SAMPLED	: N/A
PROJECT #	: -	DATE RECEIVED	: 10/13/94
PROJECT NAME	: VWR - PORTLAND OR	DATE EXTRACTED	: N/A
CLIENT I.D.	: TRIP BLANK	DATE ANALYZED	: 10/19/94
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
ACETONE	<10
BENZENE	<1
BROMODICHLOROMETHANE	<1
BROMOFORM	<5
BROMOMETHANE	<10
2-BUTANONE (MEK)	<10
CARBON DISULFIDE	<1
CARBON TETRACHLORIDE	<1
CHLOROBENZENE	<1
CHLOROETHANE	<1
CHLOROFORM	<1
CHLOROMETHANE	<10
DIBROMOCHLOROMETHANE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHANE	<1
1,1-DICHLOROETHENE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
1,2-DICHLOROPROPANE	<1
CIS-1,3-DICHLOROPROPENE	<1
TRANS-1,3-DICHLOROPROPENE	<1
ETHYLBENZENE	<1
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
METHYLENE CHLORIDE	<5
STYRENE	<1
1,1,2,2-TETRACHLOROETHANE	<1
TETRACHLOROETHENE	<1
TOLUENE	<1
1,1,1-TRICHLOROETHANE	<1
1,1,2-TRICHLOROETHANE	<1
TRICHLOROETHENE	<1
VINYL ACETATE	<10
VINYL CHLORIDE	<1
TOTAL XYLENES	<1

SURROGATE PERCENT RECOVERY		LIMITS
1,2-DICHLOROETHANE-D4	93	86 - 120
TOLUENE-D8	108	85 - 111
BROMOFLUOROBENZENE	85	81 - 114

Analytical Technologies, Inc.

ATI I.D. # 410101-5

TENTATIVELY IDENTIFIED COMPOUNDS
DATA SUMMARY

CLIENT	: VAN WATERS & ROGERS, INC.	DATE SAMPLED	: N/A
PROJECT #	: -	DATE RECEIVED	: 10/13/94
PROJECT NAME	: VWR - PORTLAND OR	DATE EXTRACTED	: N/A
CLIENT I.D.	: TRIP BLANK	DATE ANALYZED	: 10/19/94
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8240	DILUTION FACTOR	: 1

COMPOUNDS	ESTIMATED CONC.	FLAG	R.T.

NO NON-HSL COMPOUNDS FOUND > 10% OF NEAREST INTERNAL STANDARD

AnalyticalTechnologies,Inc.

ATI I.D. # 410101

VOLATILE ORGANICS ANALYSIS
QUALITY CONTROL DATA

CLIENT : VAN WATERS & ROGERS, INC.
PROJECT # : -
PROJECT NAME : VWR - PORTLAND OR
SAMPLE MATRIX : WATER
EPA METHOD : 8240

SAMPLE I.D. # : BLANK
DATE EXTRACTED : N/A
DATE ANALYZED : 10/19/94
UNITS : ug/L

COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
BENZENE	<1.00	50.0	52.9	106	N/A	N/A	N/A
CHLOROBENZENE	<1.00	50.0	52.2	104	N/A	N/A	N/A
1,1-DICHLOROETHENE	<1.00	50.0	49.7	99	N/A	N/A	N/A
TOLUENE	<1.00	50.0	51.4	103	N/A	N/A	N/A
TRICHLOROETHENE	<1.00	50.0	49.2	98	N/A	N/A	N/A

CONTROL LIMITS	% REC.	RPD
BENZENE	83 - 134	20
CHLOROBENZENE	86 - 133	20
1,1-DICHLOROETHENE	73 - 135	20
TOLUENE	84 - 129	20
TRICHLOROETHENE	84 - 129	20

SURROGATE RECOVERIES	SPIKE	DUP. SPIKE	LIMITS
1,2-DICHLOROETHANE-D4	95	N/A	86 - 120
TOLUENE-D8	100	N/A	85 - 111
BROMOFLUOROBENZENE	92	N/A	81 - 114

AnalyticalTechnologies,inc

ATI I.D. # 410101

VOLATILE ORGANICS ANALYSIS
QUALITY CONTROL DATA

CLIENT : VAN WATERS & ROGERS, INC.
PROJECT # : -
PROJECT NAME : VWR - PORTLAND OR
SAMPLE MATRIX : WATER
EPA METHOD : 8240

SAMPLE I.D. # : 410101-1
DATE EXTRACTED : N/A
DATE ANALYZED : 10/19/94
UNITS : ug/L

COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
BENZENE	1.63	50.0	55.8	108	55.0	107	1
CHLOROBENZENE	<1.00	50.0	51.0	102	53.0	106	4
1,1-DICHLOROETHENE	<1.00	50.0	51.8	104	52.4	105	1
TOLUENE	2.04	50.0	55.7	107	55.7	107	0
TRICHLOROETHENE	<1.00	50.0	48.7	97	49.3	99	1

CONTROL LIMITS	% REC.	RPD
BENZENE	74 - 139	20
CHLOROBENZENE	90 - 126	20
1,1-DICHLOROETHENE	74 - 128	20
TOLUENE	69 - 138	20
TRICHLOROETHENE	84 - 126	20

SURROGATE RECOVERIES	SPIKE	DUP. SPIKE	LIMITS
1,2-DICHLOROETHANE-D4	100	100	86 - 120
TOLUENE-D8	104	105	85 - 111
BROMOFLUOROBENZENE	87	92	81 - 114

AnalyticalTechnologies, Inc.

ATI I.D. # 410101

OIL & GREASE
DATA SUMMARY

CLIENT	: VAN WATERS & ROGERS, INC.	DATE EXTRACTED	: 10/18/94
PROJECT #	: -	DATE ANALYZED	: 10/19/94
PROJECT NAME	: VWR - PORTLAND OR	UNITS	: mg/L
EPA METHOD	: 413.2	SAMPLE MATRIX	: WATER

ATI I.D. #	CLIENT I.D.	OIL & GREASE
410101-1	GW-TS-EFFL-20	<1
410101-2	GW-TS-EFFL-60	<1
METHOD BLANK	-	<1

AnalyticalTechnologies, Inc.

ATI I.D. # 410101

OIL & GREASE
QUALITY CONTROL DATA

CLIENT : VAN WATERS & ROGERS, INC.
PROJECT # : -
PROJECT NAME : VWR - PORTLAND OR
EPA METHOD : 413.2
SAMPLE MATRIX : WATER

SAMPLE I.D. # : BLANK
DATE EXTRACTED : 10/18/94
DATE ANALYZED : 10/19/94
UNITS : mg/L

COMPOUND	SAMPLE RESULT	SAMPLE DUP. RESULT	RPD	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
OIL & GREASE	<1.00	N/A	N/A	10.0	7.74	77	7.93	79	2

$$\% \text{ Recovery} = \frac{(\text{Spiked Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{|(\text{Spike Result} - \text{Dup. Spike Result})|}{\text{Average Result}} \times 100$$

AnalyticalTechnologies,inc.

ATI I.D. # 410101

OIL & GREASE
QUALITY CONTROL DATA

CLIENT : VAN WATERS & ROGERS, INC.
PROJECT # : -
PROJECT NAME : VWR - PORTLAND OR
EPA METHOD : 413.2
SAMPLE MATRIX : WATER

SAMPLE I.D. # : 410090-1
DATE EXTRACTED : 10/18/94
DATE ANALYZED : 10/19/94
UNITS : mg/L

COMPOUND	SAMPLE RESULT	SAMPLE DUP. RESULT	RPD	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
OIL & GREASE	6.00	7.80	26H	N/A	N/A	N/A	N/A	N/A	N/A

H = Out of limits.

$$\% \text{ Recovery} = \frac{(\text{Spiked Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{|(\text{Spike Result} - \text{Dup. Spike Result})|}{\text{Average Result}} \times 100$$

AnalyticalTechnologies,Inc

ATI I.D. # 410101

OIL & GREASE
QUALITY CONTROL DATA

CLIENT	: VAN WATERS & ROGERS, INC.	SAMPLE I.D. #	: 410101-2
PROJECT #	: -	DATE EXTRACTED	: 10/18/94
PROJECT NAME	: VWR - PORTLAND OR	DATE ANALYZED	: 10/19/94
EPA METHOD	: 413.2	UNITS	: mg/L
SAMPLE MATRIX	: WATER		

COMPOUND	SAMPLE RESULT	SAMPLE DUP. RESULT	RPD	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED RESULT	DUP. % REC.	RPD
OIL & GREASE	<1.00	<1.00	NC	10.0	7.24	72	N/A	N/A	N/A

NC = Not calculable.

$$\% \text{ Recovery} = \frac{(\text{Spiked Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{|(\text{Spike Result} - \text{Dup. Spike Result})|}{\text{Average Result}} \times 100$$

AnalyticalTechnologies,Inc.

ATI I.D. # 410101

METALS ANALYSIS

CLIENT : VAN WATERS & ROGERS, INC. MATRIX : WATER
PROJECT # : -
PROJECT NAME : VWR - PORTLAND OR

ELEMENT	DATE PREPARED	DATE ANALYZED
IRON	10/19/94	10/21/94

AnalyticalTechnologies,inc.

ATI I.D. # 410101

METALS ANALYSIS
DATA SUMMARY

CLIENT : VAN WATERS & ROGERS, INC. MATRIX : WATER
PROJECT # : -
PROJECT NAME : VWR - PORTLAND OR UNITS : mg/L

ATI I.D. #	CLIENT I.D.	IRON
410101-1	GW-TS-EFFL-20	17
410101-2	GW-TS-EFFL-60	19
METHOD BLANK	-	<0.050

AnalyticalTechnologies, inc.

ATI I.D. # 410101

METALS ANALYSIS
QUALITY CONTROL DATA

CLIENT : VAN WATERS & ROGERS, INC. MATRIX : WATER
PROJECT # : -
PROJECT NAME : VWR - PORTLAND OR UNITS : mg/L

ELEMENT	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC.
IRON	BLANK	<0.0500	N/A	N/A	0.982	1.00	98
IRON	410138-32	<0.0500	<0.0500	NC	0.948	1.00	95

NC = Not Calculable.

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{|(\text{Sample Result} - \text{Duplicate Result})|}{\text{Average Result}} \times 100$$

AnalyticalTechnologies,Inc.

ATI I.D. # 410101

GENERAL CHEMISTRY ANALYSIS

CLIENT : VAN WATERS & ROGERS, INC. MATRIX : WATER
PROJECT # : -
PROJECT NAME : VWR - PORTLAND OR

PARAMETER	DATE PREPARED	DATE ANALYZED
PH	-	10/13/94
TOTAL SUSPENDED SOLIDS	10/17/94	10/18/94

AnalyticalTechnologies, Inc.

ATI I.D. # 410101

GENERAL CHEMISTRY ANALYSIS
DATA SUMMARY

CLIENT : VAN WATERS & ROGERS, INC. MATRIX : WATER
PROJECT # : -
PROJECT NAME : VWR - PORTLAND OR UNITS : -

ATI I.D. #	CLIENT I.D.	PH
410101-1	GW-TS-EFFL-20	7.5
410101-2	GW-TS-EFFL-60	7.2

AnalyticalTechnologies, Inc.

ATI I.D. # 410101

GENERAL CHEMISTRY ANALYSIS
QUALITY CONTROL DATA

CLIENT : VAN WATERS & ROGERS, INC. MATRIX : WATER
PROJECT # : -
PROJECT NAME : VWR - PORTLAND OR UNITS : -

PARAMETER	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC.
PH	410102-3	6.75	6.72	0	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

AnalyticalTechnologies, Inc.

ATI I.D. # 410101

GENERAL CHEMISTRY ANALYSIS
DATA SUMMARY

CLIENT : VAN WATERS & ROGERS, INC. MATRIX : WATER
PROJECT # : -
PROJECT NAME : VWR - PORTLAND OR UNITS : mg/L

ATI I.D. #	CLIENT I.D.	TOTAL SUSPENDED SOLIDS
410101-1	GW-TS-EFFL-20	41
410101-2	GW-TS-EFFL-60	52
METHOD BLANK	-	<10

AnalyticalTechnologies, Inc.

ATI I.D. # 410101

GENERAL CHEMISTRY ANALYSIS
QUALITY CONTROL DATA

CLIENT : VAN WATERS & ROGERS, INC. MATRIX : WATER
PROJECT # : -
PROJECT NAME : VWR - PORTLAND OR UNITS : mg/L

PARAMETER	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC.
TOTAL SUSPENDED SOLIDS	LCS	<10.0	N/A	N/A	303	305	99
TOTAL SUSPENDED SOLIDS	410141-1	<10.0	<10.0	NC	N/A	N/A	N/A

NC = Not calculable.

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Analytical Technologies, Inc.
560 Hughes Avenue, S.W., Suite 101, Renton, WA 98055 (206) 228-8335

DATE: 10-12-94 Page 1 of 1 ATI ACCESSION # 410101

COMPANY: UNIVAR CORP./VW&R
REPORT TO: George Sylvester
ADDRESS: 32131 Steven Way
Conifer Co. 80433
PHONE: (303) 838 5898 FAX: (303) 838 8059
PROJECT MANAGER: George Sylvester
PROJECT NUMBER:
PROJECT NAME: VW&R Portland OR.
ATI will DISPOSE / RETURN samples (circle one)

Sample ID	Date	Time	Matrix	LabID	FUELS: TPH-HCID (WA/OR)	BETX/TPH-G combo (WA/OR)	BETX (by 8020)	TPH-G (WA/OR)	TPH-D (WA/OR)	8015 modified	418.1 (WA/OR)	413.2	AK-GRO	AK-DRO	ORGANIC COMPOUNDS: 8240 GCMS Volatiles	8270 GCMS Semivolatiles	8080 Pesticides/PCBs	PCB only (by 8080) STD/lo level	8010 Halogenated VOCs	8020 Aromatic VOCs	8310 HPLC PAHs	8040 Phenols	8140 OP Pesticides	8150 OC Herbicides	METALS: Metals (Indicate below *)	Total Lead	Priority Pollutant Metals (13)	TAL Metals (23)	TCLP: TCLP-Volatiles (ZHE-8240)	TCLP-Semivolatiles (8270)	TCLP-Pesticides (8080)	TCLP-Herbicides (8150)	TCLP-Metals (8 metals)	OTHER: % Moisture (please indicate)	Color				Total # of Containers/sample
GW-TS-EFFL-20	10-12-94			1	SEE ATTACHED ANALYTICAL LIST																																		
GW-TS-EFFL-60	10-12-94			2																																			
GW-TS-EFFL-Sur	10-13-94			3											X																				X				
GW-TS-Color	10-12-94			4																															X				
TRIP BLANK				5											X																								

Turnaround Time	
STANDARD TAT	✓
1 WEEK TAT	
4 WORK DAY TAT	
3 WORK DAY TAT	
2 WORK DAY TAT	
24 HOUR TAT	

Sample Receipt	
TOTAL # CONTAINERS RECVD	
COC SEALS PRESENT?	
COC SEALS INTACT?	
RECEIVED COLD?	
RECEIVED INTACT?	
RECEIVED VIA:	

Special Instructions:

* Metals needed:

Relinquished By:	Relinquished By:	Relinquished By:
Date: 10/13/94	Date:	Date:
Time: 12:47	Time:	Time:
Received By:	**Received By:**	**Received By:**
Date: 10-12-94	Date:	Date:
Time: ~~12:40~~ 12:47	Time:	Time:

APPENDIX

AMTEST

ANALYSIS REPORT

Analytical Technologies, Inc.
560 Naches Avenue SW
Suite 101
Renton, WA 98055
Attention: Victoria Bayly

Date Received: 10/13/94
Date Reported: 10/27/94

Project #: 410101
PO Number: 44642
Date Sampled: 10/12/94

Water Samples

PARAMETER	UNITS	RESULT
94-A019380		
Client ID: 410101-1		
Biochemical Oxygen Demand	mg/l	36.
Total Organic Carbon	mg/l	37.
Chemical Oxygen Demand	mg/l	86.
Color	unit	60.
Total Cyanide	mg/l	< 0.005
Ammonia Nitrogen	mg/l	0.66
Nitrate + Nitrite	mg/l	2.9
Total Phenol	mg/l	0.075
Sulfide	mg/l	1.0
Sulfate	mg/l	12.
Surfactants	mg/l	0.1
94-A019381		
Client ID: 410101-2		
Biochemical Oxygen Demand	mg/l	39.
Total Organic Carbon	mg/l	36.
Chemical Oxygen Demand	mg/l	110
Color	unit	70.
Total Cyanide	mg/l	0.007
Ammonia Nitrogen	mg/l	0.63
Nitrate + Nitrite	mg/l	2.9
Total Phenol	mg/l	0.041
Sulfide	mg/l	1.4
Sulfate	mg/l	14.
Surfactants	mg/l	0.1
94-A019382		
Client ID: 410101-4		
Color	unit	< 5

Reported by: Kathy Fugiel

AMTEST

METHODOLOGY REPORT

AM TEST ID 94-A019380
CLIENT ID 410101-1

MATRIX : Water
SAMPLED: 10/12/94

ANALYTE	UNITS	METHOD NUMBER	METHOD REFERENCE	DETECTION LIMIT *	DATE OF ANALYSIS
Biochemical Oxygen Demand	mg/l	405.1	EPA	10	10/13/94
Total Organic Carbon	mg/l	415.1	EPA	1.0	10/26/94
Chemical Oxygen Demand	mg/l	410.4	EPA	10	10/26/94
Color	unit	110.2	EPA		10/13/94
Total Cyanide	mg/l	335.2	EPA	0.005	10/25/94
Ammonia Nitrogen	mg/l	350.1	EPA	0.005	10/19/94
Nitrate + Nitrite	mg/l	353.2	EPA	0.010	10/21/94
Total Phenol	mg/l	420.2	EPA	0.005	10/14/94
Sulfide	mg/l	376.1	EPA	1.0	10/18/94
Sulfate	mg/l	375.4	EPA	1.0	10/24/94
Surfactants	mg/l	425.1	EPA	0.1	10/14/94

SM = Standard Methods for the Examination of Water and Wastewater 18th ed.
SW-846 = Test Methods for Evaluating Solid Waste Physical/Chemical Methods
EPA = Methods for Chemical Analysis of Water and Wastes 1983
* Instrument Detection Limit

ANALYSIS REPORT AMTEST

Analytical Technologies, Inc.
Victoria Bayly

Date Received: 10/13/94
Date Reported: 10/27/94
P.O. No.: 44642
Project No.: 410101

QUALITY CONTROL - CONVENTIONALS - BLANK

AM TEST Sample Number	BLANK
Client Identification	-----

ANALYTES	UNITS	RESULTS
Total Phenol	mg/l	ND
Sulfide	mg/l	ND
Surfactants	mg/l	ND
Total Cyanide	mg/l	ND
Ammonia Nitrogen	mg/l	ND
Nitrate + Nitrite Nitrogen	mg/l	ND
Total Organic Carbon	mg/l	ND
Biochemical Oxygen Demand	mg/l	ND
Chemical Oxygen Demand	mg/l	ND
Color	units	ND

ND = Not Detected

ANALYSIS REPORT AMTEST

Analytical Technologies, Inc.
Victoria Bayly

Date Received: 10/13/94
Date Reported: 10/27/94
P.O. No.: 44642
Project No.: 410101

QUALITY CONTROL - CONVENTIONALS - DUPLICATES

ANALYTES/UNITS/SAMPLE NOS.	SAMPLE VALUE	DUPLICATE VALUE	RELATIVE PERCENT DIFFERENCE (%)
Total Phenol (mg/l)			
94-A019380	0.075	0.072	4.1
Sulfide (mg/l)			
94-A019380	1.0	1.0	0.
Surfactants (mg/l)			
94-A019380	30.	30.	0.
Nitrate + Nitrite Nitrogen (mg/l)			
94-A019646	7.4	7.6	2.7
Total Cyanide (mg/l)			
94-A019380	<0.005	<0.005	-
Total Organic Carbon (mg/l)			
94-A019380	37.	38.	2.7
Biochemical Oxygen Demand (mg/l)			
94-A019380	39.	38.	2.7
Chemical Oxygen Demand (mg/l)			
94-A019265	<10.	<10.	-
Color (units)			
94-A019380	60.	60.	0.

< = less than

ANALYSIS REPORT AMTEST

Analytical Technologies, Inc.
Victoria Bayly

Date Received: 10/13/94
Date Reported: 10/27/94
P.O. No.: 44642
Project No.: 410101

QUALITY CONTROL - CONVENTIONALS - MATRIX SPIKES

ANALYTES/SAMPLE NOS.	SAMPLE VALUE (mg/l)	SAMPLE + SPIKE (mg/l)	SPIKE CONCENTRATION (mg/l)	RECOVERY (%)
Total Phenol				
94-A019381	0.041	0.24	0.20	99.
Sulfide 94-A019381	1.4	51.	48.1	103.
Nitrate + Nitrite Nitrogen				
94-A019647	46.	72.	25.	104.
Total Cyanide				
94-A019381	0.007	0.19	0.20	91.
Total Organic Carbon				
94-A019381	36.	84.	50.	96.

ANALYSIS REPORT AMTEST

Analytical Technologies, Inc.
Victoria Bayly

Date Received: 10/13/94
Date Reported: 10/27/94
P.O. No.: 44642
Project No.: 410101

QUALITY CONTROL - CONVENTIONALS - STANDARD REFERENCE MATERIALS

ANALYTES/SRM NOS.	SRM VALUE (mg/l)	TRUE VALUE (mg/l)	RECOVERY (%)
Total Phenol			
WS 32-1	0.16	0.17	94.
Sulfide CK STD	12.02	12.02	100.
Surfactants*			
50 CK STD	48.4	50.0	97.
Total Cyanide			
WS 31	0.337	0.340	99.
WP 30	0.24	0.25	96.
Ammonia Nitrogen			
WP 31	7.43	7.70	96.
Nitrate + Nitrite Nitrogen			
WP 30	6.41	5.90	109.
Total Organic Carbon			
WP 32.2	42.3	44.0	96.
Biochemical Oxygen Demand			
GLUCOSE	190.	200.	95.
Chemical Oxygen Demand			
WP 31	77.2	70.9	109.

*Reported in micrograms (ug).

REPORTED BY Kathy Fugiel

KF/pb

AnalyticalTechnologies, Inc.

560 Naches Ave SW, Suite 101, Renton, WA 98055 (206) 228-8335

SEND-OUT LAB: Amtest Date: 10/13/94 Page: 1 of 1

Chain of Custody

LABORATORY NUMBER:

Project Manager: Victoria Bayley

ANALYTICAL TECHNOLOGIES, INC.
560 Naches Ave SW, Suite 101
Renton, WA 98055
(206) 228-8335

SAMPLE DISPOSAL INSTRUCTIONS

☐ ATI Disposal ☐ Return

ANALYSIS REQUEST

	SAMPLE ID	DATE	TIME	MATRIX	LAB ID	8240 GC/MS Volatiles	8270 GC/MS BNA's	8310 HPLC PNA's	8080 Pest/PCB's	PCB's only	8150 Herbicides	TOC 9060	~~TOX 9020~~ Color	BOD	COD	CYANIDE	MBAS	NITRATE/NITRITE, NH3-N	~~PP METALS~~ Sulfate	EPTOX METALS	TCLP METALS	TCLP 8240 (ZHE)	TCLP 8270	TCLP 8150	TCLP 8080	PHENOLS, total	% MOISTURE	Sulfide				NUMBER OF CONTAINERS
19380	410101 -1	10/12/94		H_2O								X	X	X	X	X	X	X	X							X		X				7
81	-2											X	X	X	X	X	X	X	X							X		X				7
82	-4												X																			1

PROJECT INFORMATION	SAMPLE RECEIPT
ATI PROJ. #: 410101	TOTAL NUMBER OF CONTAINERS
ATI PROJ NAME:	COC SEALS/INTACT? Y/N/NA
CLIENT PROJ.:	RECEIVED GOOD COND./COLD
TOC 414642	RECEIVED VIA:

SPECIAL INSTRUCTIONS: WATCH HOLD TIMES! Thx! :)

VERBALS DUE: FAX by 10/27

HARDCOPY DUE: by 11/3

PRICE: _____ DISC: _____%

DIGESTION NEEDED?

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: V. Bayley Time: 1:30p	Signature: Time:	Signature: Time:
Printed Name: V. BAYLEY Date: 10/13/94	Printed Name: Date:	Printed Name: Date:
Company: ATI-WA	Company:	Company:
RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY: 3.**
Signature: Time:	Signature: Time:	Signature: Time: 1607
Printed Name: Date:	Printed Name: Date:	Printed Name: James A LaFave Jr Date: 10/13/94
Company:	Company:	Company: ANALYTICAL TECHNOLOGIES, INC. Amtest

ATI Labs: San Diego (619) 458-9141 • Phoenix (602) 496-4400 • Seattle (206) 228-8335 • Pensacola (904) 474-1001
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