Golder Associates Inc.

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August 1, 2000

Our ref: 923-1000.R271

Palmer Coking Coal Company
31407 Highway 169
P.O. Box 10
Black Diamond, Washington 98010

ATTENTION: Mr. Bill Kombol

RE: LANDSBURG MINE SITE INTERIM GROUNDWATER MONITORING RESULTS – MAY, 2000

Dear Mr. Kombol:

Golder Associates Inc. (Golder) completed the first interim groundwater monitoring event at the Landsburg Mine Site on May 18, 2000. Groundwater samples were collected from monitoring wells LMW-2, LMW-4, LMW-3, and LMW-5 (see Figure 1). Monitoring wells LMW-2 and LMW-4 are completed to monitor shallow and deeper zones within the Rogers seam north of the subsidence trench, and LMW-3 and LMW-5 are completed to monitor shallow and deeper zones within the Rogers seam south of the subsidence trench. These wells lay along the primary pathways for detection of a chemical release from the mine, were one to occur. Samples were also collected of the groundwater emanating from Rogers Portal #3, located south of wells LMW-3 and LMW-5.

Groundwater sampling was conducted in accordance with the *Draft Interim Groundwater Monitoring Plan, Landsburg Mine Site* (Golder, 1997), and included the following activities:

- Measurement of static water levels at monitoring wells,
- Well purging to insure sample representativeness with the currently installed dedicated pumping systems,
- Measurement of field parameters pH, specific conductance, temperature, dissolved oxygen, and turbidity,
- Collection of all purge water in appropriate containers for temporary on-site storage prior to disposal, and
- Collection of representative samples in appropriate containers; metals samples were field filtered using an inline 0.45 μm filter.

Sampling activities were documented on Sample Integrity Data Sheets (SIDS). Copies of the completed SIDS are attached to this letter.

The monitoring well scheduled to be installed in Portal #3 area was not installed as of the May 2000 sampling; therefore, samples were collected from a small sump dug into the Portal #3 seep area.

Following sample collection, all bottles were sealed, labeled and placed in a cooler maintained at approximately 4° C. Samples were transported under chain of custody procedures to North Creek Analytical, located in Bothell, Washington. Analysis included full GC/MS analysis (volatiles by EPA Method 8260, semivolatiles by EPA Method 8270, and pesticides/PCBs by EPA Method 8081), priority metals, fuel hydrocarbon scan, and selected general wet chemistry parameters.

The attached Table 1 presents analytical results for all analyses. Table 2 presents only those analytes that were detected in at least one of the samples. Table 2 also provides a comparison of detected concentrations to screening levels. Screening levels are based on maximum contaminant levels (MCLs) if the MCL represents a risk of less than 10^{-5} for carcinogens or hazard quotient of one (1) for systemic toxins. When the MCLs represent a greater risk or have not been promulgated for a particular hazardous substance, the MTCA Method B level shall be used for screening.

The analytical results indicate no significant changes in groundwater conditions from those observed during the remedial investigation (RI). There were no volatile organic, semivolatile organic, pesticides, PCBs or fuel hydrocarbons detected in any of the samples.

Total dissolved solids (TDS), iron and manganese are the only compounds that were detected at concentrations in excess of the screening levels. For these compounds the only screening levels are secondary maximum contaminant levels (SMCLs) which are not health-based standards, but are protective of aesthetic qualities of water only. The concentrations of TDS, iron and manganese detected during the May 2000 sampling are similar to concentrations detected during the RI (Golder, 1996)[1].

If you have any questions or require any additional information, please contact Douglas Morell at (425) 883-0777.

Sincerely,

GOLDER ASSOCIATES INC.

Gary L. Zimmerman
Senior Environmental Scientist

Douglas J. Morell
Principal

Attachments

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[1] Golder Associates, 1996. *Remedial Investigation and Feasibility Study for the Landsburg Mine Site.* Landsburg PLP Steering Committee.

TABLES

MAY 2000 GROUNDWATER ANALYTICAL RESULTS

Landsburg Mine Site
Interim Groundwater Monitoring
Groundwater Quality Data

Well No:		LMW-2	LMW-4	LMW-3	LMW-5	Portal #3
Sampling Date:		5/18/00	5/18/00	5/18/00	5/18/00	5/18/00
Parameter	Units	Conc. Q	Conc. Q	Conc. Q	Conc. Q	Conc. Q
Field Parameters						
GW Elevation, ft	feet amsl	606.87	606.35	641.36	641.07	na
pH	units	6.77	6.76	7.52	6.77	na
Temperature	°C	10.9	10.8	11.1	11.4	na
Dissolved Oxygen	mg/L	0.8	0.9	0.7	0.9	na
Sp. Conductance	mS/cm	0.234	0.229	0.171	0.223	na
Turbidity	NTU	0.43	0.9	0.53	0.58	na
General Chemistry						
Bicarbonate Alkalinity	mg/L as CaCO3	644	657	155	476	395
Carbonate Alkalinity	mg/L as CaCO3	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Chloride	mg/l	6.74	6.39	2.02	2.25	2.47
Cyanide (total)	mg/l	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Fluoride	mg/l	0.100 U	0.100 U	0.100 U	0.125	0.100 U
Hardness	mg eq. CaCO3/L	646	693	159	509	435
Hydroxide Alkalinity	mg/L as CaCO3	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Nitrate/Nitrite-Nitrogen	ug/l as N	10.0 U	24.9	10.0 U	10.0 U	10.0 U
Sulfate	mg/l	6.47	9.01	7.51	32.6	20.0
Total Alkalinity	mg/L as CaCO3	644	657	155	476	395
Total Dissolved Solids	mg/l	610	650	180	490	630
Inorganics						
Aluminum	mg/L	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
Antimony	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Arsenic	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00355
Barium	mg/L	0.290	0.357	0.0751	0.267	0.237
Beryllium	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Cadmium	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Calcium	mg/L	126	128	36.0	102	88.9
Chromium	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Cobalt	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00587
Copper	mg/L	0.00117	0.00114	0.00100 U	0.00100 U	0.00100 U
Iron	mg/L	0.150 U	0.896	0.150 U	0.150 U	4.20
Lead	mg/L	0.0100 U	0.0100 U	0.00100 U	0.00100 U	0.0100 U
Magnesium	mg/L	76.7	77.4	15.9	59.1	48.9
Manganese	mg/L	0.196	0.182	0.0421	0.246	0.514
Mercury	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Nickel	mg/L	0.0300 U	0.0300 U	0.0300 U	0.0300 U	0.0300 U
Nickel	mg/L	0.00138	0.00127	0.00107	0.00100 U	0.00712
Potassium	mg/L	4.76	4.52	1.47	3.09	2.89
Selenium	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Silicon	mg/L	9.74	9.74	10.6	9.88	9.50
Silver	mg/L	0.0100 U	0.0100 U	0.00100 U	0.00100 U	0.0100 U
Sodium	mg/L	28.3	31.1	10.7	20.6	18.3
Thallium	mg/L	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Vanadium	mg/L	0.00124	0.00158	0.00100 U	0.00120	0.00100 U
Zinc	mg/L	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.877
Volatile Organics						
1,1,1,2-Tetrachloroethane	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,1,1-Trichloroethane	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,1,2,2-Tetrachloroethane	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,1,2-Trichloroethane	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,1-Dichloroethane	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U

MAY 2000 GROUNDWATER ANALYTICAL RESULTS

Landsburg Mine Site Interim Groundwater Monitoring Groundwater Quality Data						
Well No:		LMW-2	LMW-4	LMW-3	LMW-5	Portal #3
Sampling Date:		5/18/00	5/18/00	5/18/00	5/18/00	5/18/00
Parameter	Units	Conc. Q	Conc. Q	Conc. Q	Conc. Q	Conc. Q
1,1-Dichloroethene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,1-Dichloropropene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2,3-Trichlorobenzene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2,3-Trichloropropane	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2,4-Trichlorobenzene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2,4-Trimethylbenzene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2-Dibromo-3-chloropropane	ug/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
1,2-Dibromoethane	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2-Dichlorobenzene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2-Dichloroethane	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2-Dichloropropane	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,3,5-Trimethylbenzene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,3-Dichlorobenzene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,3-Dichloropropane	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,4-Dichlorobenzene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
2,2-Dichloropropane	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
2-Butanone	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2-Chlorotoluene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
2-Hexanone	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
4-Chlorotoluene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
4-Methyl-2-pentanone	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Acetone	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Benzene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Bromobenzene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Bromochloromethane	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Bromodichloromethane	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Bromoform	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Bromomethane	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Carbon disulfide	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Carbon tetrachloride	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Chlorobenzene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Chloroethane	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Chloroform	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Chloromethane	ug/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
cis-1,2-Dichloroethene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
cis-1,3-Dichloropropene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Dibromochloromethane	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Dibromomethane	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Dichlorodifluoromethane	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Ethylbenzene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Hexachlorobutadiene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Isopropylbenzene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
m,p-Xylene	ug/L	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U
Methylene chloride	ug/L	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Naphthalene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
n-Butylbenzene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
n-Propylbenzene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
o-Xylene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
p-Isopropyltoluene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
sec-Butylbenzene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Styrene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U

MAY 2000 GROUNDWATER ANALYTICAL RESULTS

Landsburg Mine Site
Interim Groundwater Monitoring
Groundwater Quality Data

Well No:		LMW-2	LMW-4	LMW-3	LMW-5	Portal #3
Sampling Date:		5/18/00	5/18/00	5/18/00	5/18/00	5/18/00
Parameter	Units	Conc. Q	Conc. Q	Conc. Q	Conc. Q	Conc. Q
tert-Butylbenzene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Tetrachloroethene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Toluene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
trans-1,2-Dichloroethene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
trans-1,3-Dichloropropene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Trichloroethene	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Trichlorofluoromethane	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Vinyl chloride	ug/L	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Semivolatile Organics						
1,2,4-Trichlorobenzene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,2-Dichlorobenzene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,3-Dichlorobenzene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
1,4-Dichlorobenzene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2,4,5-Trichlorophenol	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2,4,6-Trichlorophenol	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2,4-Dichlorophenol	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2,4-Dimethylphenol	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2,4-Dinitrophenol	ug/L	20.0 U	20.0 U	20.0 U	20.0 U	20.0 U
2,4-Dinitrotoluene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2,6-Dinitrotoluene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2-Chloronaphthalene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2-Chlorophenol	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2-Methylnaphthalene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2-Methylphenol	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2-Nitroaniline	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
2-Nitrophenol	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
3 & 4-Methylphenol	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
3,3´-Dichlorobenzidine	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
3-Nitroaniline	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
4,6-Dinitro-2-methylphenol	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
4-Bromophenyl phenyl ether	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
4-Chloro-3-methylphenol	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
4-Chloroaniline	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
4-Chlorophenyl phenyl ether	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
4-Nitroaniline	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
4-Nitrophenol	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Acenaphthene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Acenaphthylene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Aniline	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Anthracene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Benzo (a) anthracene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Benzo (a) pyrene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Benzo (b) fluoranthene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Benzo (ghi) perylene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Benzo (k) fluoranthene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Benzoic Acid	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Benzyl alcohol	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Bis(2-chloroethoxy)methane	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Bis(2-chloroethyl)ether	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Bis(2-chloroisopropyl)ether	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Bis(2-ethylhexyl)phthalate	ug/L	50.0 U	50.0 U	50.0 U	50.0 U	50.0 U

MAY 2000 GROUNDWATER ANALYTICAL RESULTS

Landsburg Mine Site Interim Groundwater Monitoring Groundwater Quality Data						
Well No:		LMW-2	LMW-4	LMW-3	LMW-5	Portal #3
Sampling Date:		5/18/00	5/18/00	5/18/00	5/18/00	5/18/00
Parameter	Units	Conc. Q	Conc. Q	Conc. Q	Conc. Q	Conc. Q
Butyl benzyl phthalate	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Carbazole	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Chrysene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Dibenz (a,h) anthracene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Dibenzofuran	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Diethyl phthalate	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Dimethyl phthalate	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Di-n-butyl phthalate	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Di-n-octyl phthalate	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Fluoranthene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Fluorene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Hexachlorobenzene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Hexachlorobutadiene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Hexachlorocyclopentadiene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Hexachloroethane	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Indeno (1,2,3-cd) pyrene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Isophorone	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Naphthalene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Nitrobenzene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
N-Nitrosodi-n-propylamine	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
N-Nitrosodiphenylamine	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Pentachlorophenol	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Phenanthrene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Phenol	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Pyrene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Organochlorine Pesticides and PCBs						
4,4´-DDD	ug/L	0.0400 U	0.0400 U	0.0400 U	0.0400 U	0.0400 U
4,4´-DDE	ug/L	0.0300 U	0.0300 U	0.0300 U	0.0300 U	0.0300 U
4,4´-DDT	ug/L	0.0900 U	0.0900 U	0.0900 U	0.0900 U	0.0900 U
Aldrin	ug/L	0.0400 U	0.0400 U	0.0400 U	0.0400 U	0.0400 U
alpha-BHC	ug/L	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U
alpha-Chlordane	ug/L	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U
Aroclor 1016	ug/L	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Aroclor 1221	ug/L	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Aroclor 1232	ug/L	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Aroclor 1242	ug/L	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Aroclor 1248	ug/L	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Aroclor 1254	ug/L	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Aroclor 1260	ug/L	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Aroclor 1262	ug/L	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Aroclor 1268	ug/L	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
beta-BHC	ug/L	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Chlordane (tech)	ug/L	0.150 U	0.150 U	0.150 U	0.150 U	0.150 U
delta-BHC	ug/L	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U
Dieldrin	ug/L	0.0700 U	0.0700 U	0.0700 U	0.0700 U	0.0700 U
Endosulfan I	ug/L	0.0300 U	0.0300 U	0.0300 U	0.0300 U	0.0300 U
Endosulfan II	ug/L	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U
Endosulfan sulfate	ug/L	0.0700 U	0.0700 U	0.0700 U	0.0700 U	0.0700 U
Endrin	ug/L	0.0800 U	0.0800 U	0.0800 U	0.0800 U	0.0800 U
Endrin aldehyde	ug/L	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
gamma-BHC (Lindane)	ug/L	0.0300 U	0.0300 U	0.0300 U	0.0300 U	0.0300 U

MAY 2000 GROUNDWATER ANALYTICAL RESULTS

Landsburg Mine Site Interim Groundwater Monitoring Groundwater Quality Data						
Well No:		LMW-2	LMW-4	LMW-3	LMW-5	Portal #3
Sampling Date:		5/18/00	5/18/00	5/18/00	5/18/00	5/18/00
Parameter	Units	Conc. Q	Conc. Q	Conc. Q	Conc. Q	Conc. Q
gamma-Chlordane	ug/L	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U
Heptachlor	ug/L	0.0300 U	0.0300 U	0.0300 U	0.0300 U	0.0300 U
Heptachlor epoxide	ug/L	0.0300 U	0.0300 U	0.0300 U	0.0300 U	0.0300 U
Methoxychlor	ug/L	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Toxaphene	ug/L	1.50 U	1.50 U	1.50 U	1.50 U	1.50 U
Hydrocarbon Identification						
Diesel Range	mg/L	0.630 U	0.630 U	0.630 U	0.630 U	0.630 U
Gx Range	mg/L	0.250 U	0.250 U	0.250 U	0.250 U	0.250 U
Heavy Fuel Oil Range	mg/L	0.630 U	0.630 U	0.630 U	0.630 U	0.630 U
Insulating Oil Range	mg/L	0.630 U	0.630 U	0.630 U	0.630 U	0.630 U
Kerosene Range	mg/L	0.630 U	0.630 U	0.630 U	0.630 U	0.630 U
Lube Oil Range	mg/L	0.630 U	0.630 U	0.630 U	0.630 U	0.630 U

U - The analyte was analyzed for but was not detected above the reported sample quantitation limit.
J - The associated value is an estimated quantity.
na - Not Analyzed

ANALYTES DETECTED DURING THE MAY 2000 GROUNDWATER ANALYTICAL RESULTS

Landsburg Mine Site Interim Groundwater Monitoring Groundwater Quality Data							
Well No:			LMW-2	LMW-4	LMW-3	LMW-5	Portal #3
Sampling Date:			5/18/00	5/18/00	5/18/00	5/18/00	5/18/00
Parameter	Screening Value	Units	Conc. Q	Conc. Q	Conc. Q	Conc. Q	Conc. Q
General Chemistry							
Bicarbonate Alkalinity	NSA	mg/L as CaCO3	644	657	155	476	395
Chloride	250[b]	mg/l	6.74	6.39	2.02	2.25	2.47
Hardness	NSA	mg eq. CaCO3/L	646	693	159	509	435
Nitrate/Nitrite-Nitrogen	10,000[a]	ug/l as N	10.0 U	24.9	10.0 U	10.0 U	10.0 U
Sulfate	250[b]	mg/l	6.47	9.01	7.51	32.6	20.0
Total Alkalinity	NSA	mg/L as CaCO3	644	657	155	476	395
Total Dissolved Solids	500[b]	mg/l	610	650	180	490	630
Inorganics							
Barium	1.12[c]	mg/L	0.290	0.357	0.0751	0.267	0.237
Calcium	NSA	mg/L	126	128	36.0	102	88.9
Cobalt	0.96[c]	mg/L	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00587
Copper	0.592[c]	mg/L	0.00117	0.00114	0.00100 U	0.00100 U	0.00100 U
Iron	0.3[b]	mg/L	0.150 U	0.896	0.150 U	0.150 U	4.20
Magnesium	NSA	mg/L	76.7	77.4	15.9	59.1	48.9
Manganese	0.05[b]	mg/L	0.196	0.182	0.0421	0.246	0.514
Nickel	0.32[c]	mg/L	0.00138	0.00127	0.00107	0.00100 U	0.00712
Potassium	NSA	mg/L	4.76	4.52	1.47	3.09	2.89
Silicon	NSA	mg/L	9.74	9.74	10.6	9.88	9.50
Sodium	NSA	mg/L	28.3	31.1	10.7	20.6	18.3
Vanadium	0.112[c]	mg/L	0.00124	0.00158	0.00100 U	0.00120	0.00100 U
Zinc	4.8[c]	mg/L	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.877

[a]Primary Drinking Water Standards 40 CFR 141

[b]Secondary Drinking Water Standards 40 CFR 143

[c]MTCA Method B

NSA - No Standard Available

Shading indicates exceedance of screening value

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit

FIGURES

E 1713000
N 140000

SE SUMMIT LANDSBURG RD

PIPELINE

CEDAR RIVER ROAD

LMW-4

LMW-2

Portal 2

LMW-6

LMW-1

Fenced Area

LMW-7

E 1713000
N 137000

N

0 400 800
FEET

LMW-5

LMW-3

Portal 3

Power Lines

KENT-KANGLEY RD.

Legend

LMW-5 Landsburg Monitoring Well

Portal 3 Portal Seepage Locations

Fence

Trail

Unpaved Road

Building

NOTES:

1) Interim groundwater monitoring locations are underlined.

FIGURE 1

GROUNDWATER MONITORING LOCATIONS

LANDSBURG MINE SITE/IGMP/WA

Golder Associates

flemos|K:\Projects\1992\9231000\R270\94176.dwg|6-28-0 14:01|x:-|i:-

FIELD REPORT FORMS

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Project No. 923-1000

Site Location Landsburg WA Sample ID LMW2-051800

Sampling Location End of dedicated Teflon sampling tube

Technical Procedure Reference(s) TP-1.4-6, TP-1.2-20, TP-1.2-23

Type of Sampler Dedicated Grundfos pump

Date 5-18-00 Time 1542

Media Water Station LMW-2

Sample Type: [grab] time composite space composite

Sample Acquisition Measurements (depth, volume of statistic well water and purged water, etc.)

SWL - 7.28' 38.1 - 7.28 = 30.8 x 0.66 = 20.3 > 29 gal/1 well

Sand Pack - 38.9 - 27.8 = 14.1 x 4 x 0.6 = 8.5

~~Packer Depth~~ 87 gl total

Sample Description Clear Water, H_2S odor

Field Measurements on Sample (pH, conductivity, etc.) See Attached Sheet

Aliquot Amount	Analysis	Container	Preservation/Amount
2-40ml	VOA's	VOA vial	HCl
2-(1)Liter	Semi-VOA's	Glass Amber	—
1 (1)Liter	Pest/PCB's	Glass Amber	—
1-500ml	Metals	HDPE	HNO_3
1-1Liter	Cyanide, total	HDPE	NaOH
1-500ml	NH3 as N	HDPE	H_2SO_4
1-(1)Liter	SO_4, Cl, F, CO_3, HCO_3, TDS	HDPE	—
1-(1)Liter	NWTPH-HCID	Glass Amber	HCl
2-40ml	NWTPH-G	VOA vial	HCl
1-(1)Liter	NWTPH-Dx	Glass Amber	HCl

Extra for w/mrd

Sampler (signature) [signature] Date 5-18-00

Supervisor (signature) _____ Date _____

OH/60652/7-11-95

Golder Associates

LANDSBURG
FIELD PARAMETERS

923-1000.

LOCATION: LMW-2
DATE: 5-18-00
SAMPLE TIME: 1542

TIME	TEMP (C)	TURBIDITY (NTUS)	pH	DO (mg/L)	SP COND (uS)	SWL PUMP ON, ~~GPM/OFF~~	COMMENTS
1442							Purge 2 gpm
1452	10.9	1.34	6.65	1.15	241	7.28 ft	
1502	10.9	5.40	6.74	0.87	239	7.28 ft	
1514	10.9	0.88	6.77	1.60	236		Purge 1 gpm
1520	10.9	0.10	6.76	0.96	236	7.28 ft	
1530	10.9	0.16	6.77	0.81	235		
1540	10.9	0.43	6.77	0.77	234		

SIGNATURE

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine — Project No. 923-1000

Site Location Landsburg WA — Sample ID LMW4-051800 + Dupl. → LMW8-051800

Sampling Location End of dedicated Teflon sampling tube

Technical Procedure Reference(s) TP-1.4-6, TP-1.2-20, TP-1.2-23

Type of Sampler Dedicated Grundfos pump

Date 5-18-00 — Time 1712

Media Water — Station LMW-4

Sample Type: [grab] time composite space composite

Sample Acquisition Measurements (depth, volume of statistic well water and purged water, etc.)

SWL - 9.35ft

Sand Pack - 23ft x 0.6 = 13.8 gal > 30 gal/1 well vol. x 3 = 90

Packer Depth - 24ft x 0.66 = 15.84

Sample Description Clear Water, H_2S odor

Field Measurements on Sample (pH, conductivity, etc.) See Attached Sheet

Aliquot Amount	Analysis	Container	Preservation/Amount
2-40ml	VOA's	VOA vial	HCl
2-(1)Liter	Semi-VOA's	Glass Amber	—
1 (1)Liter	Pest/PCB's	Glass Amber	—
1-500ml	Metals	HDPE	HNO_3
1-1Liter	Cyanide, total	HDPE	NaOH
1-500ml	NH3 as N	HDPE	H_2SO_4
1-(1)Liter	SO_4, Cl, F, CO_3, HCO_3, TDS	HDPE	—
1-(1)Liter	NWTPH-HCID	Glass Amber	HCl
2-40ml	NWTPH-G	VOA vial	HCl
1-(1)Liter	NWTPH-Dx	Glass Amber	HCl

Sampler (signature) _____ Date 5-18-00

Supervisor (signature) _____ Date _____

OH/60652/7-11-95

Golder Associates

LANDSBURG
FIELD PARAMETERS

923-1000.

LOCATION: LMW-4
DATE: 5-18-00
SAMPLE TIME: 1712

SWL

TIME	TEMP (C)	TURBIDITY (NTUS)	pH	DO (mg/L)	SP COND (uS)	~~PUMP ON, GPM/OFF~~	COMMENTS
1630							Begin Purge 3 gpm
1635	10.9		6.53	1.70	246	9.35	
1640	10.8		6.58	1.40	246		Reduce flow to 2 gpm 30 gal purged
1645	10.8	1.62	6.67	0.93	241	9.35	
1650	10.8	0.31	6.71	0.78	238	9.35	—
1700	10.8	0.74	6.76	0.9	233	—	"
1705	10.8	0.86	6.76	0.9	230	—	"
1710	10.8		6.76	0.9	229	9.35	

SIGNATURE

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Project No. 923-1000

Site Location Landsburg WA Sample ID LMW3-051800

Sampling Location End of dedicated Teflon sampling tube

Technical Procedure Reference(s) TP-1.4-6, TP-1.2-20, TP-1.2-23

Type of Sampler Dedicated Grundfos pump

Date 5-18-00 Time 1015

Media Water Station LMW-3

Sample Type: [grab] time composite space composite

Sample Acquisition Measurements (depth, volume of statistic well water and purged water, etc.)

SWL - 12.15

Sand Pack - 22' x 0.16 gl/ft = 13.2 gl > 28.2 gal/well volume

Packer Depth - 22.8' x 0.16 = 15.9 l

Sample Description Clear Water

Field Measurements on Sample (pH, conductivity, etc.) See Attached Sheet

Aliquot Amount	Analysis	Container	Preservation/Amount
2-40ml	VOA's	VOA vial	HCl
2-(1)Liter	Semi-VOA's	Glass Amber	—
1 (1)Liter	Pest/PCB's	Glass Amber	—
1-500ml	Metals	HDPE	HNO_3
1-1 Liter	Cyanide, Total	HDPE	NaOH
1-500ml	NH3 as N	HDPE	H_2SO_4
1-(1)Liter	SO_4, Cl, F, CO_3, HCO_3, TDS	HDPE	—
1-(1)Liter	NWTPH-HCID	Glass Amber	HCl
2-40ml	NWTPH-G	VOA vial	HCl
1-(1)Liter	NWTPH-Dx	Glass Amber	HCl

Sampler (signature) [signature] Date 5-18-00

Supervisor (signature) _____ Date _____

OH/60652/7-11-95

Golder Associates

LANDSBURG
FIELD PARAMETERS

923-1000..

LOCATION: LMW-3
DATE: 5-18-00
SAMPLE TIME: 1015

Water level

TIME	TEMP (C)	TURBIDITY (NTUS)	pH	DO (mg/L)	SP COND (uS)	~~PUMP ON, GPM/OFF~~	COMMENTS
0935	11.0	0.53	7.43	0.95	196	11.71	0920 Begin purge @ 2 gpm
0945	11.0		7.51	0.80	175	11.71	
0955	11.0	0.67	7.55	0.80	173	11.71	50 psi
1000	11.1		7.54	0.70	171		70 psi reduce flow to 1 gpm
1005	11.1	0.98	7.52	0.70	171	11.71	75
1010	11.1	0.53	7.52	0.67	171		80
							85

SIGNATURE

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Project No. 923-1000

Site Location Landsburg WA Sample ID LMW5-051800

Sampling Location End of dedicated Teflon sampling tube

Technical Procedure Reference(s) TP-1.4-6, TP-1.2-20, TP-1.2-23

Type of Sampler Dedicated Grundfos pump

Date 5-18-00 Time 1230

Media Water Station LMW5

Sample Type: [grab] time composite space composite

Sample Acquisition Measurements (depth, volume of statistic well water and purged water, etc.)

SWL- 13.71

Sand Pack -

Packer Depth- 2.6 gal x 16.8 ft = 44 gal / 1 well volume x 3 = 132

Sample Description Clear Water, H_2S Odor

Field Measurements on Sample (pH, conductivity, etc.) See Attached Sheet

Aliquot Amount	Analysis	Container	Preservation/Amount
2-40ml	VOA's	VOA vial	HCl
2-(1)Liter	Semi-VOA's	Glass Amber	—
1 (1)Liter	Pest/PCB's	Glass Amber	—
1-500ml	metals	HDPE	HNO_3
1-1Liter	Cyanide, total	HDPE	NaOH
1-500ml	NTN as N	HDPE	H_2SO_4
1-(1)Liter	SO_4, Cl, F, CO_3, HCO_3, TDS	HDPE	—
1-(1)Liter	NWTPH-HCID	Glass Amber	HCl
2-40ml	NWTPH-G	VOA vial	HCl
1-(1)Liter	NWTPH-Dx	Glass Amber	HCl

Sampler (signature) [signature] Date 5-18-00

Supervisor (signature) _____ Date _____

OH/60652/7-11-95

Golder Associates

LANDSBURG
FIELD PARAMETERS

923-1000..

LOCATION: LMW-5
DATE: 05-18-00
SAMPLE TIME: 1230

SWL

TIME	TEMP (C)	TURBIDITY (NTUS)	pH	DO (mg/L)	SP COND (uS)	~~PUMP ON, GPM/OFF~~	COMMENTS
1108			~~6.60~~			3.70	Start Purge at 2gpm
1118	11.2	0.38	6.60	1.37	235	3.70	
1137	11.3	0.27	6.74	1.53	229	3.70	
1145	11.3		6.72	0.90	228		
1200	11.3	0.58	6.75	1.04	226	3.70	Reduce flow to 1gpm 104 gal
1213	11.4	0.51	6.77	0.91	225	13.7	
1218	11.4		6.77	0.90	224		
1228	11.4	0.58	6.77	0.87	225	13.7	Purged 132 gal

SIGNATURE

Portal 3

SAMPLE INTEGRITY DATA SHEET

Plant/Site Landsburg Mine Project No. 923-1000

Site Location Landsburg WA Sample ID Portal

Sampling Location Portal 3, Peristaltic Pump, Except VOA's direct grab. ~~End of dedicated Teflon sampling tube~~ NA3

Technical Procedure Reference(s) TP-1.4-6, TP-1.2-20, TP-1.2-23

Type of Sampler Dedicated Grundfos pump

Date 5-18-00 Time 1830

Media Water Station Portal 3

Sample Type: [grab] time composite space composite

Sample Acquisition Measurements (depth, volume of statistic well water and purged water, etc.)

~~Stat~~ Dug a small collection sump into Portal 3 seep
~~Sand Pack~~ area. Used peristaltic to collect samples, except
~~Packer Depth~~ VOA's were collected directly from the sump.

Sample Description Clear Water

Field Measurements on Sample (pH, conductivity, etc.) ~~See Attached Sheet~~ NA3 None

Aliquot Amount	Analysis	Container	Preservation/Amount
2-40ml	VOA's	VOA vial	HCl
2-(1)Liter	Semi-VOA's	Glass Amber	—
1 (1)Liter	Pest/PCB's	Glass Amber	—
1-500ml	Metals	HDPE	HNO_3
1-1Liter	Cyanide, total	HDPE	NaOH
1-500ml	NH4N as N	HDPE	H_2SO_4
1-(1)Liter	SO_4, Cl, F, CO_3, HCO_3, TDS	HDPE	—
1-(1)Liter	NWTPH-HCID	Glass Amber	HCl
2-40ml	NWTPH-G	VOA vial	HCl
1-(1)Liter	NWTPH-Dx	Glass Amber	HCl

Sampler (signature) [signature] Date 5-18-00

Supervisor (signature) _____ Date _____

OH/60652/7-11-95

Golder Associates

North Creek Analytical, Inc.
Environmental Laboratory Network
www.ncalabs.com

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508 (425) 420-9200 FAX 420-9210
11115 Mineral Switch, Suite B, Spokane, WA 99206-4776 (509) 924-9200 FAX 924-9290
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 906-9200 FAX 906-9210
20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711 (541) 383-9310 FAX 382-7588

CHAIN OF CUSTODY REPORT

Work Order #: BOE0354

CLIENT: Golder Associates
REPORT TO: Gary Zimmerman
ADDRESS: 18300 NE Union Hill Road, Suite 200, Redmond, WA 98052
PHONE: 425 883-0777 FAX: 425 882-5498

INVOICE TO: Golder
P.O. NUMBER:

PROJECT NAME: Palmer / Landsburg
PROJECT NUMBER: 923-1000
SAMPLED BY: Gary Zimmerman

TURNAROUND REQUEST in Business Days*
Organic & Inorganic Analyses: [10] 7 5 4 3 2 1 <1
STD.
Petroleum Hydrocarbon Analyses: [5] 4 3 2 1 <1
STD.
Please Specify
OTHER
*Turnaround Requests less than standard may incur Rush Charges.

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	VOA's 8260	Semi-VOA 8270	Fluoride	Dissolved Metals (7)	Total Cyanide	Nitrate+Nitrite	SO_4, Cl, F, CO_3, HCO3, TDS	Total Phosphorus	NWTPH-Gx/BTEX	NWTPH-Dx (with silica gel cleanup)	MATRIX (W, S, O)	# OF CONT.	COMMENTS	NCA WO ID
1. LMW3-051800	5-18-00 / 1015	✓	✓	✓	✓	✓	✓	✓	✓	*	*	W	13		-01
2. LMW5-051800	/ 1230	✓	✓	✓	✓	✓	✓	✓	✓	*	*		13		-02
3. LMW2-051800	/ 1542	✓	✓	✓	✓	✓	✓	✓	✓	*	*		29	Extra Volume for MS/MSD	-03
4. LMW4-051800	/ 1712	✓	✓	✓	✓	✓	✓	✓	✓	*	*		13		-04
5. LMW8-051800	/ 1730	✓			✓					*	*		3		-05
6. Portal	5-18-00 / 1830	✓	✓	✓	✓	✓	✓	✓	✓	*	*	V	13		-06
7.															
8.															
9.															
10.															
11.															
12.															
13.															
14.															
15.															

RELINQUISHED BY: Gary L. Zimmerman — FIRM: Golder — DATE: 5-19-00 — TIME: 1225
RECEIVED BY: Bill K — FIRM: NCA — DATE: 5-19-00 — TIME: 1225
RELINQUISHED BY: Bill K — FIRM: NCA — DATE: 5-19-00 — TIME: 13:00
RECEIVED BY: Gary Tonty — PRINT NAME: GARY TONTY — FIRM: NCA — DATE: 5/19/00 — TIME: 1300

ADDITIONAL REMARKS: Metals were field filtered 0.45 µm
Reference Landsburg quote from NCA dated 5-15-2000 (Lee Canfield)
W/O
TEMP: 3.8

COC REV 3/99 — PAGE OF

LABORATORY DATA

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8223
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Golder Associates Inc. 18300 NE Union Hill Road, Suite 200 Redmond WA, 98052-3333	Project: Palmer/Landsburg Project Project Number: 923-100 Project Manager: Gary Zimmerman	**Reported:** 06/22/00 11:31

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
LMW3-051800	B0E0354-01	Water	05/18/00 10:15	05/19/00 13:00
LMW5-051800	B0E0354-02	Water	05/18/00 12:30	05/19/00 13:00
LMW2-051800	B0E0354-03	Water	05/18/00 15:42	05/19/00 13:00
LMW4-051800	B0E0354-04	Water	05/18/00 17:12	05/19/00 13:00
LMW8-051800	B0E0354-05	Water	05/18/00 17:30	05/19/00 13:00
Portal	B0E0354-06	Water	05/18/00 18:30	05/19/00 13:00

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Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8223
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Hydrocarbon Identification by Washington DOE Method NWTPH-HCID
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW3-051800 (B0E0354-01) Water	**Sampled: 05/18/00 10:15**		**Received: 05/19/00 13:00**						
Gx Range Hydrocarbons	ND	0.250	mg/l	1	0E21002	05/21/00	05/22/00	NWTPH-HCID	
Kerosene Range Hydrocarbons	ND	0.630	"	"	"	"	"	"	
Diesel Range Hydrocarbons	ND	0.630	"	"	"	"	"	"	
Insulating Oil Range Hydrocarbons	ND	0.630	"	"	"	"	"	"	
Heavy Fuel Oil Range Hydrocarbons	ND	0.630	"	"	"	"	"	"	
Lube Oil Range Hydrocarbons	ND	0.630	"	"	"	"	"	"	
Surrogate: 2-FBP	*63.3 %*	*50-150*			"	"	"	"	
LMW5-051800 (B0E0354-02) Water	**Sampled: 05/18/00 12:30**		**Received: 05/19/00 13:00**						
Gx Range Hydrocarbons	ND	0.250	mg/l	1	0E21002	05/21/00	05/22/00	NWTPH-HCID	
Kerosene Range Hydrocarbons	ND	0.630	"	"	"	"	"	"	
Diesel Range Hydrocarbons	ND	0.630	"	"	"	"	"	"	
Insulating Oil Range Hydrocarbons	ND	0.630	"	"	"	"	"	"	
Heavy Fuel Oil Range Hydrocarbons	ND	0.630	"	"	"	"	"	"	
Lube Oil Range Hydrocarbons	ND	0.630	"	"	"	"	"	"	
Surrogate: 2-FBP	*66.3 %*	*50-150*			"	"	"	"	
LMW2-051800 (B0E0354-03) Water	**Sampled: 05/18/00 15:42**		**Received: 05/19/00 13:00**						
Gx Range Hydrocarbons	ND	0.250	mg/l	1	0E21002	05/21/00	05/22/00	NWTPH-HCID	
Kerosene Range Hydrocarbons	ND	0.630	"	"	"	"	"	"	
Diesel Range Hydrocarbons	ND	0.630	"	"	"	"	"	"	
Insulating Oil Range Hydrocarbons	ND	0.630	"	"	"	"	"	"	
Heavy Fuel Oil Range Hydrocarbons	ND	0.630	"	"	"	"	"	"	
Lube Oil Range Hydrocarbons	ND	0.630	"	"	"	"	"	"	
Surrogate: 2-FBP	*58.5 %*	*50-150*			"	"	"	"	

Laura Cook for
Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Hydrocarbon Identification by Washington DOE Method NWTPH-HCID
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW4-051800 (B0E0354-04) Water Sampled: 05/18/00 17:12 Received: 05/19/00 13:00									
Gx Range Hydrocarbons	ND	0.250	mg/l	1	0E21002	05/21/00	05/22/00	NWTPH-HCID	
Kerosene Range Hydrocarbons	ND	0.630	"	"	"	"	"	"	
Diesel Range Hydrocarbons	ND	0.630	"	"	"	"	"	"	
Insulating Oil Range Hydrocarbons	ND	0.630	"	"	"	"	"	"	
Heavy Fuel Oil Range Hydrocarbons	ND	0.630	"	"	"	"	"	"	
Lube Oil Range Hydrocarbons	ND	0.630	"	"	"	"	"	"	
Surrogate: 2-FBP	*59.8 %*	*50-150*			"	"	"	"	
Portal (B0E0354-06) Water Sampled: 05/18/00 18:30 Received: 05/19/00 13:00									
Gx Range Hydrocarbons	ND	0.250	mg/l	1	0E21002	05/21/00	05/22/00	NWTPH-HCID	
Kerosene Range Hydrocarbons	ND	0.630	"	"	"	"	"	"	
Diesel Range Hydrocarbons	ND	0.630	"	"	"	"	"	"	
Insulating Oil Range Hydrocarbons	ND	0.630	"	"	"	"	"	"	
Heavy Fuel Oil Range Hydrocarbons	ND	0.630	"	"	"	"	"	"	
Lube Oil Range Hydrocarbons	ND	0.630	"	"	"	"	"	"	
Surrogate: 2-FBP	*66.0 %*	*50-150*			"	"	"	"	

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Dissolved Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW3-051800 (B0E0354-01) Water	**Sampled: 05/18/00 10:15**		**Received: 05/19/00 13:00**						
Silver	ND	0.00100	mg/l	1	0E23031	05/23/00	06/08/00	EPA 6020	
Aluminum	ND	0.250	"	"	0E22009	05/22/00	06/11/00	EPA 6010B	
Arsenic	ND	0.00100	"	"	0E23031	05/23/00	05/31/00	EPA 6020	
Barium	**0.0751**	0.00100	"	"	"	"	"	"	
Beryllium	ND	0.00100	"	"	"	"	06/05/00	"	
Calcium	**36.0**	0.250	"	"	0E22009	05/22/00	06/11/00	EPA 6010B	
Cadmium	ND	0.00100	"	"	0E23031	05/23/00	05/31/00	EPA 6020	
Cobalt	ND	0.00100	"	"	"	"	"	"	
Chromium	ND	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	
Iron	ND	0.150	"	"	0E22009	05/22/00	06/11/00	EPA 6010B	
Mercury	ND	0.00100	"	"	0E31014	05/31/00	06/05/00	EPA 7470A	
Potassium	**1.47**	1.00	"	"	0E22009	05/22/00	06/12/00	EPA 6010B	
Magnesium	**15.9**	0.100	"	"	"	"	06/11/00	"	
Manganese	**0.0421**	0.0100	"	"	0E23031	05/23/00	05/31/00	EPA 6020	
Sodium	**10.7**	0.500	"	"	0E22009	05/22/00	06/11/00	EPA 6010B	
Nickel	ND	0.0300	"	"	"	"	06/11/00	"	
Nickel	**0.00107**	0.00100	"	"	0E23031	05/23/00	06/05/00	EPA 6020	
Lead	ND	0.00100	"	"	"	"	06/08/00	"	
Antimony	ND	0.00100	"	"	"	"	05/31/00	"	
Selenium	ND	0.00100	"	"	"	"	"	"	
Silicon	**10.6**	0.500	"	"	0E22009	05/22/00	06/20/00	EPA 6010B	
Thallium	ND	0.0100	"	10	0E23031	05/23/00	06/10/00	EPA 6020	
Vanadium	ND	0.00100	"	1	"	"	06/02/00	"	
Zinc	ND	0.0100	"	"	"	"	05/31/00	"	

Laura Cackler

Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Dissolved Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW5-051800 (B0E0354-02) Water	**Sampled: 05/18/00 12:30**		**Received: 05/19/00 13:00**						
Silver	ND	0.00100	mg/l	1	0E23031	05/23/00	06/08/00	EPA 6020	
Aluminum	ND	0.250	"	"	0E22009	05/22/00	06/11/00	EPA 6010B	
Arsenic	ND	0.00100	"	"	0E23031	05/23/00	05/31/00	EPA 6020	
Barium	**0.267**	0.00100	"	"	"	"	"	"	
Beryllium	ND	0.00100	"	"	"	"	06/05/00	"	
Calcium	**102**	0.250	"	"	0E22009	05/22/00	06/11/00	EPA 6010B	
Cadmium	ND	0.00100	"	"	0E23031	05/23/00	05/31/00	EPA 6020	
Cobalt	ND	0.00100	"	"	"	"	"	"	
Chromium	ND	0.00100	"	"	"	"	"	"	
Copper	ND	0.00100	"	"	"	"	"	"	
Iron	ND	0.150	"	"	0E22009	05/22/00	06/11/00	EPA 6010B	
Mercury	ND	0.00100	"	"	0E31014	05/31/00	06/05/00	EPA 7470A	
Potassium	**3.09**	1.00	"	"	0E22009	05/22/00	06/12/00	EPA 6010B	
Magnesium	**59.1**	0.100	"	"	"	"	06/11/00	"	
Manganese	**0.246**	0.0100	"	"	0E23031	05/23/00	05/31/00	EPA 6020	
Sodium	**20.6**	0.500	"	"	0E22009	05/22/00	06/11/00	EPA 6010B	
Nickel	ND	0.0300	"	"	"	"	06/11/00	"	
Nickel	ND	0.00100	"	"	0E23031	05/23/00	06/05/00	EPA 6020	
Lead	ND	0.00100	"	"	"	"	06/08/00	"	
Antimony	ND	0.00100	"	"	"	"	05/31/00	"	
Selenium	ND	0.00100	"	"	"	"	"	"	
Silicon	**9.88**	0.500	"	"	0E22009	05/22/00	06/20/00	EPA 6010B	
Thallium	ND	0.0100	"	10	0E23031	05/23/00	06/10/00	EPA 6020	
Vanadium	**0.00120**	0.00100	"	1	"	"	06/02/00	"	
Zinc	ND	0.0100	"	"	"	"	05/31/00	"	

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Dissolved Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW2-051800 (B0E0354-03) Water	**Sampled: 05/18/00 15:42**		**Received: 05/19/00 13:00**						
Silver	ND	0.0100	mg/l	10	0E23031	05/23/00	06/09/00	EPA 6020	
Aluminum	ND	0.250	"	1	0E22009	05/22/00	06/11/00	EPA 6010B	
Arsenic	ND	0.00100	"	"	0E23031	05/23/00	05/31/00	EPA 6020	
Barium	**0.290**	0.00100	"	"	"	"	"	"	
Beryllium	ND	0.00100	"	"	"	"	06/05/00	"	
Calcium	**126**	0.250	"	"	0E22009	05/22/00	06/11/00	EPA 6010B	
Cadmium	ND	0.00100	"	"	0E23031	05/23/00	05/31/00	EPA 6020	
Cobalt	ND	0.00100	"	"	"	"	"	"	
Chromium	ND	0.00100	"	"	"	"	"	"	
Copper	**0.00117**	0.00100	"	"	"	"	"	"	
Iron	ND	0.150	"	"	0E22009	05/22/00	06/11/00	EPA 6010B	
Mercury	ND	0.00100	"	"	0E31014	05/31/00	06/05/00	EPA 7470A	
Potassium	**4.76**	1.00	"	"	0E22009	05/22/00	06/13/00	EPA 6010B	
Magnesium	**76.7**	0.100	"	"	"	"	06/11/00	"	
Manganese	**0.196**	0.0100	"	"	0E23031	05/23/00	05/31/00	EPA 6020	
Sodium	**28.3**	0.500	"	"	0E22009	05/22/00	06/13/00	EPA 6010B	
Nickel	ND	0.0300	"	"	"	"	06/11/00	"	
Nickel	**0.00138**	0.00100	"	"	0E23031	05/23/00	06/05/00	EPA 6020	
Lead	ND	0.0100	"	10	"	"	06/09/00	"	
Antimony	ND	0.00100	"	1	"	"	05/31/00	"	
Selenium	ND	0.00100	"	"	"	"	"	"	
Silicon	**9.74**	0.500	"	"	0E22009	05/22/00	06/20/00	EPA 6010B	
Thallium	ND	0.0100	"	10	0E23031	05/23/00	06/10/00	EPA 6020	
Vanadium	**0.00124**	0.00100	"	1	"	"	06/02/00	"	
Zinc	ND	0.0100	"	"	"	"	05/31/00	"	

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Dissolved Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW4-051800 (B0E0354-04) Water	**Sampled: 05/18/00 17:12**		**Received: 05/19/00 13:00**						
Silver	ND	0.0100	mg/l	10	0E23031	05/23/00	06/09/00	EPA 6020	
Aluminum	ND	0.250	"	1	0E22009	05/22/00	06/11/00	EPA 6010B	
Arsenic	ND	0.00100	"	"	0E23031	05/23/00	05/31/00	EPA 6020	
Barium	**0.357**	0.00100	"	"	"	"	"	"	
Beryllium	ND	0.00100	"	"	"	"	06/05/00	"	
Calcium	**128**	0.250	"	"	0E22009	05/22/00	06/11/00	EPA 6010B	
Cadmium	ND	0.00100	"	"	0E23031	05/23/00	05/31/00	EPA 6020	
Cobalt	ND	0.00100	"	"	"	"	"	"	
Chromium	ND	0.00100	"	"	"	"	"	"	
Copper	**0.00114**	0.00100	"	"	"	"	"	"	
Iron	**0.896**	0.150	"	"	0E22009	05/22/00	06/11/00	EPA 6010B	
Mercury	ND	0.00100	"	"	0E31014	05/31/00	06/05/00	EPA 7470A	
Potassium	**4.52**	1.00	"	"	0E22009	05/22/00	06/12/00	EPA 6010B	
Magnesium	**77.4**	0.100	"	"	"	"	06/11/00	"	
Manganese	**0.182**	0.0100	"	"	0E23031	05/23/00	05/31/00	EPA 6020	
Sodium	**31.1**	0.500	"	"	0E22009	05/22/00	06/11/00	EPA 6010B	
Nickel	ND	0.0300	"	"	"	"	06/11/00	"	
Nickel	**0.00127**	0.00100	"	"	0E23031	05/23/00	06/05/00	EPA 6020	
Lead	ND	0.0100	"	10	"	"	06/09/00	"	
Antimony	ND	0.00100	"	1	"	"	05/31/00	"	
Selenium	ND	0.00100	"	"	"	"	"	"	
Silicon	**9.74**	0.500	"	"	0E22009	05/22/00	06/20/00	EPA 6010B	
Thallium	ND	0.0100	"	10	0E23031	05/23/00	06/10/00	EPA 6020	
Vanadium	**0.00158**	0.00100	"	1	"	"	06/02/00	"	
Zinc	ND	0.0100	"	"	"	"	05/31/00	"	

Laura Cacek for

Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Dissolved Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW8-051800 (B0E0354-05) Water	**Sampled: 05/18/00 17:30**		**Received: 05/19/00 13:00**						
Silver	ND	0.0100	mg/l	10	0E23031	05/23/00	06/09/00	EPA 6020	
Aluminum	ND	0.250	"	1	0E22009	05/22/00	06/11/00	EPA 6010B	
Arsenic	ND	0.00100	"	"	0E23031	05/23/00	05/31/00	EPA 6020	
Barium	**0.336**	0.00100	"	"	"	"	"	"	
Beryllium	ND	0.00100	"	"	"	"	06/05/00	"	
Calcium	**128**	0.250	"	"	0E22009	05/22/00	06/11/00	EPA 6010B	
Cadmium	ND	0.00100	"	"	0E23031	05/23/00	05/31/00	EPA 6020	
Cobalt	ND	0.00100	"	"	"	"	06/05/00	"	
Chromium	ND	0.00100	"	"	"	"	05/31/00	"	
Copper	**0.00123**	0.00100	"	"	"	"	"	"	
Iron	**0.876**	0.150	"	"	0E22009	05/22/00	06/11/00	EPA 6010B	
Mercury	ND	0.00100	"	"	0E31014	05/31/00	06/05/00	EPA 7470A	
Potassium	**4.55**	1.00	"	"	0E22009	05/22/00	06/12/00	EPA 6010B	
Magnesium	**78.2**	0.100	"	"	"	"	06/11/00	"	
Manganese	**0.178**	0.0100	"	"	0E23031	05/23/00	05/31/00	EPA 6020	
Sodium	**30.8**	0.500	"	"	0E22009	05/22/00	06/11/00	EPA 6010B	
Nickel	ND	0.0300	"	"	"	"	06/11/00	"	
Nickel	**0.00134**	0.00100	"	"	0E23031	05/23/00	06/05/00	EPA 6020	
Lead	ND	0.0100	"	10	"	"	06/09/00	"	
Antimony	ND	0.00100	"	1	"	"	05/31/00	"	
Selenium	**0.00103**	0.00100	"	"	"	"	"	"	
Thallium	ND	0.0100	"	10	"	"	06/10/00	"	
Vanadium	**0.00179**	0.00100	"	1	"	"	06/02/00	"	
Zinc	ND	0.0100	"	"	"	"	05/31/00	"	

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Dissolved Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Portal (B0E0354-06) Water Sampled: 05/18/00 18:30 Received: 05/19/00 13:00									
Silver	ND	0.0100	mg/l	10	0E23031	05/23/00	06/09/00	EPA 6020	
Aluminum	ND	0.250	"	1	0E22009	05/22/00	06/11/00	EPA 6010B	
Arsenic	**0.00355**	0.00100	"	"	0E23031	05/23/00	05/31/00	EPA 6020	
Barium	**0.237**	0.00100	"	"	"	"	"	"	
Beryllium	ND	0.00100	"	"	"	"	06/05/00	"	
Calcium	**88.9**	0.250	"	"	0E22009	05/22/00	06/11/00	EPA 6010B	
Cadmium	ND	0.00100	"	"	0E23031	05/23/00	05/31/00	EPA 6020	
Cobalt	**0.00587**	0.00100	"	"	"	"	06/05/00	"	
Chromium	ND	0.00100	"	"	"	"	05/31/00	"	
Copper	ND	0.00100	"	"	"	"	"	"	
Iron	**4.20**	0.150	"	"	0E22009	05/22/00	06/11/00	EPA 6010B	
Mercury	ND	0.00100	"	"	0E31014	05/31/00	06/05/00	EPA 7470A	
Potassium	**2.89**	1.00	"	"	0E22009	05/22/00	06/12/00	EPA 6010B	
Magnesium	**48.9**	0.100	"	"	"	"	06/11/00	"	
Manganese	**0.514**	0.0500	"	5	0E23031	05/23/00	06/02/00	EPA 6020	
Sodium	**18.3**	0.500	"	1	0E22009	05/22/00	06/11/00	EPA 6010B	
Nickel	ND	0.0300	"	"	"	"	06/11/00	"	
Nickel	**0.00712**	0.00100	"	"	0E23031	05/23/00	06/05/00	EPA 6020	
Lead	ND	0.0100	"	10	"	"	06/09/00	"	
Antimony	ND	0.00100	"	1	"	"	05/31/00	"	
Selenium	ND	0.00100	"	"	"	"	"	"	
Silicon	**9.50**	0.500	"	"	0E22009	05/22/00	06/20/00	EPA 6010B	
Thallium	ND	0.0100	"	10	0E23031	05/23/00	06/10/00	EPA 6020	
Vanadium	ND	0.00100	"	1	"	"	06/02/00	"	
Zinc	**0.877**	0.0500	"	5	"	"	06/15/00	"	

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Organochlorine Pesticides and PCBs by EPA Method 8081A and 8082

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW3-051800 (B0E0354-01) Water	**Sampled: 05/18/00 10:15**		**Received: 05/19/00 13:00**						
Aldrin	ND	0.0400	ug/l	1	0E20007	05/20/00	05/22/00	EPA 8081A/8082	
alpha-BHC	ND	0.0200	"	"	"	"	"	"	
beta-BHC	ND	0.100	"	"	"	"	"	"	
delta-BHC	ND	0.0500	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	0.0300	"	"	"	"	"	"	
Chlordane (tech)	ND	0.150	"	"	"	"	"	"	
alpha-Chlordane	ND	0.0500	"	"	"	"	"	"	
gamma-Chlordane	ND	0.0200	"	"	"	"	"	"	
4,4'-DDD	ND	0.0400	"	"	"	"	"	"	
4,4'-DDE	ND	0.0300	"	"	"	"	"	"	
4,4'-DDT	ND	0.0900	"	"	"	"	"	"	
Dieldrin	ND	0.0700	"	"	"	"	"	"	
Endosulfan I	ND	0.0300	"	"	"	"	"	"	
Endosulfan II	ND	0.0500	"	"	"	"	"	"	
Endosulfan sulfate	ND	0.0700	"	"	"	"	"	"	
Endrin	ND	0.0800	"	"	"	"	"	"	
Endrin aldehyde	ND	0.100	"	"	"	"	"	"	
Heptachlor	ND	0.0300	"	"	"	"	"	"	
Heptachlor epoxide	ND	0.0300	"	"	"	"	"	"	
Methoxychlor	ND	0.500	"	"	"	"	"	"	
Toxaphene	ND	1.50	"	"	"	"	"	"	
Aroclor 1016	ND	0.100	"	"	"	"	"	"	
Aroclor 1221	ND	0.100	"	"	"	"	"	"	
Aroclor 1232	ND	0.100	"	"	"	"	"	"	
Aroclor 1242	ND	0.100	"	"	"	"	"	"	
Aroclor 1248	ND	0.100	"	"	"	"	"	"	
Aroclor 1254	ND	0.100	"	"	"	"	"	"	
Aroclor 1260	ND	0.100	"	"	"	"	"	"	
Aroclor 1262	ND	0.100	"	"	"	"	"	"	
Aroclor 1268	ND	0.100	"	"	"	"	"	"	
Surrogate: TCX	*72.4 %*	*40-130*			"	"	"	"	
Surrogate: Decachlorobiphenyl	*86.5 %*	*40-130*			"	"	"	"	

North Creek Analytical - Bothell

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Laura Cackler

Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Organochlorine Pesticides and PCBs by EPA Method 8081A and 8082

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW5-051800 (B0E0354-02) Water	**Sampled: 05/18/00 12:30**		**Received: 05/19/00 13:00**						
Aldrin	ND	0.0400	ug/l	1	0E20007	05/20/00	05/22/00	EPA 8081A/8082	
alpha-BHC	ND	0.0200	"	"	"	"	"	"	
beta-BHC	ND	0.100	"	"	"	"	"	"	
delta-BHC	ND	0.0500	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	0.0300	"	"	"	"	"	"	
Chlordane (tech)	ND	0.150	"	"	"	"	"	"	
alpha-Chlordane	ND	0.0500	"	"	"	"	"	"	
gamma-Chlordane	ND	0.0200	"	"	"	"	"	"	
4,4'-DDD	ND	0.0400	"	"	"	"	"	"	
4,4'-DDE	ND	0.0300	"	"	"	"	"	"	
4,4'-DDT	ND	0.0900	"	"	"	"	"	"	
Dieldrin	ND	0.0700	"	"	"	"	"	"	
Endosulfan I	ND	0.0300	"	"	"	"	"	"	
Endosulfan II	ND	0.0500	"	"	"	"	"	"	
Endosulfan sulfate	ND	0.0700	"	"	"	"	"	"	
Endrin	ND	0.0800	"	"	"	"	"	"	
Endrin aldehyde	ND	0.100	"	"	"	"	"	"	
Heptachlor	ND	0.0300	"	"	"	"	"	"	
Heptachlor epoxide	ND	0.0300	"	"	"	"	"	"	
Methoxychlor	ND	0.500	"	"	"	"	"	"	
Toxaphene	ND	1.50	"	"	"	"	"	"	
Aroclor 1016	ND	0.100	"	"	"	"	"	"	
Aroclor 1221	ND	0.100	"	"	"	"	"	"	
Aroclor 1232	ND	0.100	"	"	"	"	"	"	
Aroclor 1242	ND	0.100	"	"	"	"	"	"	
Aroclor 1248	ND	0.100	"	"	"	"	"	"	
Aroclor 1254	ND	0.100	"	"	"	"	"	"	
Aroclor 1260	ND	0.100	"	"	"	"	"	"	
Aroclor 1262	ND	0.100	"	"	"	"	"	"	
Aroclor 1268	ND	0.100	"	"	"	"	"	"	
Surrogate: TCX	*71.7 %*	*40-130*			"	"	"	"	
Surrogate: Decachlorobiphenyl	*68.6 %*	*40-130*			"	"	"	"	

North Creek Analytical - Bothell

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Organochlorine Pesticides and PCBs by EPA Method 8081A and 8082

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW2-051800 (B0E0354-03) Water	**Sampled: 05/18/00 15:42**		**Received: 05/19/00 13:00**						
Aldrin	ND	0.0400	ug/l	1	0E20007	05/20/00	05/22/00	EPA 8081A/8082	
alpha-BHC	ND	0.0200	"	"	"	"	"	"	
beta-BHC	ND	0.100	"	"	"	"	"	"	
delta-BHC	ND	0.0500	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	0.0300	"	"	"	"	"	"	
Chlordane (tech)	ND	0.150	"	"	"	"	"	"	
alpha-Chlordane	ND	0.0500	"	"	"	"	"	"	
gamma-Chlordane	ND	0.0200	"	"	"	"	"	"	
4,4'-DDD	ND	0.0400	"	"	"	"	"	"	
4,4'-DDE	ND	0.0300	"	"	"	"	"	"	
4,4'-DDT	ND	0.0900	"	"	"	"	"	"	
Dieldrin	ND	0.0700	"	"	"	"	"	"	
Endosulfan I	ND	0.0300	"	"	"	"	"	"	
Endosulfan II	ND	0.0500	"	"	"	"	"	"	
Endosulfan sulfate	ND	0.0700	"	"	"	"	"	"	
Endrin	ND	0.0800	"	"	"	"	"	"	
Endrin aldehyde	ND	0.100	"	"	"	"	"	"	
Heptachlor	ND	0.0300	"	"	"	"	"	"	
Heptachlor epoxide	ND	0.0300	"	"	"	"	"	"	
Methoxychlor	ND	0.500	"	"	"	"	"	"	
Toxaphene	ND	1.50	"	"	"	"	"	"	
Aroclor 1016	ND	0.100	"	"	"	"	"	"	
Aroclor 1221	ND	0.100	"	"	"	"	"	"	
Aroclor 1232	ND	0.100	"	"	"	"	"	"	
Aroclor 1242	ND	0.100	"	"	"	"	"	"	
Aroclor 1248	ND	0.100	"	"	"	"	"	"	
Aroclor 1254	ND	0.100	"	"	"	"	"	"	
Aroclor 1260	ND	0.100	"	"	"	"	"	"	
Aroclor 1262	ND	0.100	"	"	"	"	"	"	
Aroclor 1268	ND	0.100	"	"	"	"	"	"	
Surrogate: TCX	*71.2 %*	*40-130*			"	"	"	"	
Surrogate: Decachlorobiphenyl	*72.8 %*	*40-130*			"	"	"	"	

North Creek Analytical - Bothell

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Laura Cackett

Kirk Gendron, Project Manager

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Golder Associates Inc.
18300 NE Union Hill Road, Suite 200
Redmond WA, 98052-3333

Project: Palmer/Landsburg Project
Project Number: 923-100
Project Manager: Gary Zimmerman

Reported:
06/30/00 12:06

Organochlorine Pesticides and PCBs by EPA Method 8081A and 8082

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW4-051800 (B0E0354-04) Water	**Sampled: 05/18/00 17:12**		**Received: 05/19/00 13:00**						
Aldrin	ND	0.0400	ug/l	1	0E20007	05/20/00	05/22/00	EPA 8081A/8082	
alpha-BHC	ND	0.0200	"	"	"	"	"	"	
beta-BHC	ND	0.100	"	"	"	"	"	"	
delta-BHC	ND	0.0500	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	0.0300	"	"	"	"	"	"	
Chlordane (tech)	ND	0.150	"	"	"	"	"	"	
alpha-Chlordane	ND	0.0500	"	"	"	"	"	"	
gamma-Chlordane	ND	0.0200	"	"	"	"	"	"	
4,4'-DDD	ND	0.0400	"	"	"	"	"	"	
4,4'-DDE	ND	0.0300	"	"	"	"	"	"	
4,4'-DDT	ND	0.0900	"	"	"	"	"	"	
Dieldrin	ND	0.0700	"	"	"	"	"	"	
Endosulfan I	ND	0.0300	"	"	"	"	"	"	
Endosulfan II	ND	0.0500	"	"	"	"	"	"	
Endosulfan sulfate	ND	0.0700	"	"	"	"	"	"	
Endrin	ND	0.0800	"	"	"	"	"	"	
Endrin aldehyde	ND	0.100	"	"	"	"	"	"	
Heptachlor	ND	0.0300	"	"	"	"	"	"	
Heptachlor epoxide	ND	0.0300	"	"	"	"	"	"	
Methoxychlor	ND	0.500	"	"	"	"	"	"	
Toxaphene	ND	1.50	"	"	"	"	"	"	
Aroclor 1016	ND	0.100	"	"	"	"	"	"	
Aroclor 1221	ND	0.100	"	"	"	"	"	"	
Aroclor 1232	ND	0.100	"	"	"	"	"	"	
Aroclor 1242	ND	0.100	"	"	"	"	"	"	
Aroclor 1248	ND	0.100	"	"	"	"	"	"	
Aroclor 1254	ND	0.100	"	"	"	"	"	"	
Aroclor 1260	ND	0.100	"	"	"	"	"	"	
Aroclor 1262	ND	0.100	"	"	"	"	"	"	
Aroclor 1268	ND	0.100	"	"	"	"	"	"	
Surrogate: TCX	*94.3 %*	*40-130*			"	"	"	"	
Surrogate: Decachlorobiphenyl	*76.2 %*	*40-130*			"	"	"	"	

North Creek Analytical - Bothell

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Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Organochlorine Pesticides and PCBs by EPA Method 8081A and 8082
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Portal (B0E0354-06) Water Sampled: 05/18/00 18:30 Received: 05/19/00 13:00									
Aldrin	ND	0.0400	ug/l	1	0E20007	05/20/00	05/22/00	EPA 8081A/8082	
alpha-BHC	ND	0.0200	"	"	"	"	"	"	
beta-BHC	ND	0.100	"	"	"	"	"	"	
delta-BHC	ND	0.0500	"	"	"	"	"	"	
gamma-BHC (Lindane)	ND	0.0300	"	"	"	"	"	"	
Chlordane (tech)	ND	0.150	"	"	"	"	"	"	
alpha-Chlordane	ND	0.0500	"	"	"	"	"	"	
gamma-Chlordane	ND	0.0200	"	"	"	"	"	"	
4,4'-DDD	ND	0.0400	"	"	"	"	"	"	
4,4'-DDE	ND	0.0300	"	"	"	"	"	"	
4,4'-DDT	ND	0.0900	"	"	"	"	"	"	
Dieldrin	ND	0.0700	"	"	"	"	"	"	
Endosulfan I	ND	0.0300	"	"	"	"	"	"	
Endosulfan II	ND	0.0500	"	"	"	"	"	"	
Endosulfan sulfate	ND	0.0700	"	"	"	"	"	"	
Endrin	ND	0.0800	"	"	"	"	"	"	
Endrin aldehyde	ND	0.100	"	"	"	"	"	"	
Heptachlor	ND	0.0300	"	"	"	"	"	"	
Heptachlor epoxide	ND	0.0300	"	"	"	"	"	"	
Methoxychlor	ND	0.500	"	"	"	"	"	"	
Toxaphene	ND	1.50	"	"	"	"	"	"	
Aroclor 1016	ND	0.100	"	"	"	"	"	"	
Aroclor 1221	ND	0.100	"	"	"	"	"	"	
Aroclor 1232	ND	0.100	"	"	"	"	"	"	
Aroclor 1242	ND	0.100	"	"	"	"	"	"	
Aroclor 1248	ND	0.100	"	"	"	"	"	"	
Aroclor 1254	ND	0.100	"	"	"	"	"	"	
Aroclor 1260	ND	0.100	"	"	"	"	"	"	
Aroclor 1262	ND	0.100	"	"	"	"	"	"	
Aroclor 1268	ND	0.100	"	"	"	"	"	"	
Surrogate: TCX	*92.6 %*	*40-130*			"	"	"	"	
Surrogate: Decachlorobiphenyl	*68.9 %*	*40-130*			"	"	"	"	

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Volatile Organic Compounds by EPA Method 8260B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW3-051800 (B0E0354-01) Water	**Sampled: 05/18/00 10:15**		**Received: 05/19/00 13:00**						
Acetone	ND	10.0	ug/l	1	0E24010	05/23/00	05/23/00	EPA 8260B	
Benzene	ND	1.00	"	"	"	"	"	"	
Bromobenzene	ND	1.00	"	"	"	"	"	"	
Bromochloromethane	ND	1.00	"	"	"	"	"	"	
Bromodichloromethane	ND	1.00	"	"	"	"	"	"	
Bromoform	ND	1.00	"	"	"	"	"	"	
Bromomethane	ND	1.00	"	"	"	"	"	"	
2-Butanone	ND	10.0	"	"	"	"	"	"	
n-Butylbenzene	ND	1.00	"	"	"	"	"	"	
sec-Butylbenzene	ND	1.00	"	"	"	"	"	"	
tert-Butylbenzene	ND	1.00	"	"	"	"	"	"	
Carbon disulfide	ND	1.00	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.00	"	"	"	"	"	"	
Chlorobenzene	ND	1.00	"	"	"	"	"	"	
Chloroethane	ND	1.00	"	"	"	"	"	"	
Chloroform	ND	1.00	"	"	"	"	"	"	
Chloromethane	ND	5.00	"	"	"	"	"	"	
2-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
4-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
Dibromochloromethane	ND	1.00	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	5.00	"	"	"	"	"	"	
1,2-Dibromoethane	ND	1.00	"	"	"	"	"	"	
Dibromomethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.00	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,3-Dichloropropane	ND	1.00	"	"	"	"	"	"	
2,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloropropene	ND	1.00	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	

North Creek Analytical - Bothell

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.

Laura Cackler

Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Volatile Organic Compounds by EPA Method 8260B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW3-051800 (B0E0354-01) Water	**Sampled: 05/18/00 10:15**		**Received: 05/19/00 13:00**						
Ethylbenzene	ND	1.00	ug/l	1	0E24010	05/23/00	05/23/00	EPA 8260B	
Hexachlorobutadiene	ND	1.00	"	"	"	"	"	"	
2-Hexanone	ND	10.0	"	"	"	"	"	"	
Isopropylbenzene	ND	1.00	"	"	"	"	"	"	
p-Isopropyltoluene	ND	1.00	"	"	"	"	"	"	
Methylene chloride	ND	5.00	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	10.0	"	"	"	"	"	"	
Naphthalene	ND	1.00	"	"	"	"	"	"	
n-Propylbenzene	ND	1.00	"	"	"	"	"	"	
Styrene	ND	1.00	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
Tetrachloroethene	ND	1.00	"	"	"	"	"	"	
Toluene	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1.00	"	"	"	"	"	"	
Trichloroethene	ND	1.00	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	1.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
Vinyl chloride	ND	1.00	"	"	"	"	"	"	
m,p-Xylene	ND	2.00	"	"	"	"	"	"	
o-Xylene	ND	1.00	"	"	"	"	"	"	
Surrogate: 1,2-DCA-d4	*116 %*	*80-120*			"	"	"	"	
Surrogate: Toluene-d8	*102 %*	*80-120*			"	"	"	"	
Surrogate: 4-BFB	*109 %*	*80-120*			"	"	"	"	

Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Volatile Organic Compounds by EPA Method 8260B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW5-051800 (B0E0354-02) Water Sampled: 05/18/00 12:30 Received: 05/19/00 13:00									
Acetone	ND	10.0	ug/l	1	0E24010	05/23/00	05/23/00	EPA 8260B	
Benzene	ND	1.00	"	"	"	"	"	"	
Bromobenzene	ND	1.00	"	"	"	"	"	"	
Bromochloromethane	ND	1.00	"	"	"	"	"	"	
Bromodichloromethane	ND	1.00	"	"	"	"	"	"	
Bromoform	ND	1.00	"	"	"	"	"	"	
Bromomethane	ND	1.00	"	"	"	"	"	"	
2-Butanone	ND	10.0	"	"	"	"	"	"	
n-Butylbenzene	ND	1.00	"	"	"	"	"	"	
sec-Butylbenzene	ND	1.00	"	"	"	"	"	"	
tert-Butylbenzene	ND	1.00	"	"	"	"	"	"	
Carbon disulfide	ND	1.00	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.00	"	"	"	"	"	"	
Chlorobenzene	ND	1.00	"	"	"	"	"	"	
Chloroethane	ND	1.00	"	"	"	"	"	"	
Chloroform	ND	1.00	"	"	"	"	"	"	
Chloromethane	ND	5.00	"	"	"	"	"	"	
2-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
4-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
Dibromochloromethane	ND	1.00	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	5.00	"	"	"	"	"	"	
1,2-Dibromoethane	ND	1.00	"	"	"	"	"	"	
Dibromomethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.00	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,3-Dichloropropane	ND	1.00	"	"	"	"	"	"	
2,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloropropene	ND	1.00	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	

North Creek Analytical - Bothell

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Laura Beck for

Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Volatile Organic Compounds by EPA Method 8260B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW5-051800 (B0E0354-02) Water	**Sampled: 05/18/00 12:30**		**Received: 05/19/00 13:00**						
Ethylbenzene	ND	1.00	ug/l	1	0E24010	05/23/00	05/23/00	EPA 8260B	
Hexachlorobutadiene	ND	1.00	"	"	"	"	"	"	
2-Hexanone	ND	10.0	"	"	"	"	"	"	
Isopropylbenzene	ND	1.00	"	"	"	"	"	"	
p-Isopropyltoluene	ND	1.00	"	"	"	"	"	"	
Methylene chloride	ND	5.00	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	10.0	"	"	"	"	"	"	
Naphthalene	ND	1.00	"	"	"	"	"	"	
n-Propylbenzene	ND	1.00	"	"	"	"	"	"	
Styrene	ND	1.00	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
Tetrachloroethene	ND	1.00	"	"	"	"	"	"	
Toluene	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1.00	"	"	"	"	"	"	
Trichloroethene	ND	1.00	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	1.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
Vinyl chloride	ND	1.00	"	"	"	"	"	"	
m,p-Xylene	ND	2.00	"	"	"	"	"	"	
o-Xylene	ND	1.00	"	"	"	"	"	"	
Surrogate: 1,2-DCA-d4	*116 %*	*80-120*			"	"	"	"	
Surrogate: Toluene-d8	*102 %*	*80-120*			"	"	"	"	
Surrogate: 4-BFB	*110 %*	*80-120*			"	"	"	"	

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Volatile Organic Compounds by EPA Method 8260B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW2-051800 (B0E0354-03) Water	**Sampled: 05/18/00 15:42**		**Received: 05/19/00 13:00**						
Acetone	ND	10.0	ug/l	1	0E22013	05/22/00	05/22/00	EPA 8260B	
Benzene	ND	1.00	"	"	"	"	"	"	
Bromobenzene	ND	1.00	"	"	"	"	"	"	
Bromochloromethane	ND	1.00	"	"	"	"	"	"	
Bromodichloromethane	ND	1.00	"	"	"	"	"	"	
Bromoform	ND	1.00	"	"	"	"	"	"	
Bromomethane	ND	1.00	"	"	"	"	"	"	
2-Butanone	ND	10.0	"	"	"	"	"	"	
n-Butylbenzene	ND	1.00	"	"	"	"	"	"	
sec-Butylbenzene	ND	1.00	"	"	"	"	"	"	
tert-Butylbenzene	ND	1.00	"	"	"	"	"	"	
Carbon disulfide	ND	1.00	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.00	"	"	"	"	"	"	
Chlorobenzene	ND	1.00	"	"	"	"	"	"	
Chloroethane	ND	1.00	"	"	"	"	"	"	
Chloroform	ND	1.00	"	"	"	"	"	"	
Chloromethane	ND	5.00	"	"	"	"	"	"	
2-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
4-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
Dibromochloromethane	ND	1.00	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	5.00	"	"	"	"	"	"	
1,2-Dibromoethane	ND	1.00	"	"	"	"	"	"	
Dibromomethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.00	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,3-Dichloropropane	ND	1.00	"	"	"	"	"	"	
2,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloropropene	ND	1.00	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	

North Creek Analytical - Bothell

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Laura Cacek for

Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Volatile Organic Compounds by EPA Method 8260B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW2-051800 (B0E0354-03) Water	**Sampled: 05/18/00 15:42**		**Received: 05/19/00 13:00**						
Ethylbenzene	ND	1.00	ug/l	1	0E22013	05/22/00	05/22/00	EPA 8260B	
Hexachlorobutadiene	ND	1.00	"	"	"	"	"	"	
2-Hexanone	ND	10.0	"	"	"	"	"	"	
Isopropylbenzene	ND	1.00	"	"	"	"	"	"	
p-Isopropyltoluene	ND	1.00	"	"	"	"	"	"	
Methylene chloride	ND	5.00	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	10.0	"	"	"	"	"	"	
Naphthalene	ND	1.00	"	"	"	"	"	"	
n-Propylbenzene	ND	1.00	"	"	"	"	"	"	
Styrene	ND	1.00	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
Tetrachloroethene	ND	1.00	"	"	"	"	"	"	
Toluene	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1.00	"	"	"	"	"	"	
Trichloroethene	ND	1.00	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	1.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
Vinyl chloride	ND	1.00	"	"	"	"	"	"	
m,p-Xylene	ND	2.00	"	"	"	"	"	"	
o-Xylene	ND	1.00	"	"	"	"	"	"	
Surrogate: 1,2-DCA-d4	*114 %*	*80-120*			"	"	"	"	
Surrogate: Toluene-d8	*99.5 %*	*80-120*			"	"	"	"	
Surrogate: 4-BFB	*104 %*	*80-120*			"	"	"	"	

Laura Cook for

Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Volatile Organic Compounds by EPA Method 8260B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW4-051800 (B0E0354-04) Water	**Sampled: 05/18/00 17:12**		**Received: 05/19/00 13:00**						
Acetone	ND	10.0	ug/l	1	0E22013	05/22/00	05/22/00	EPA 8260B	
Benzene	ND	1.00	"	"	"	"	"	"	
Bromobenzene	ND	1.00	"	"	"	"	"	"	
Bromochloromethane	ND	1.00	"	"	"	"	"	"	
Bromodichloromethane	ND	1.00	"	"	"	"	"	"	
Bromoform	ND	1.00	"	"	"	"	"	"	
Bromomethane	ND	1.00	"	"	"	"	"	"	
2-Butanone	ND	10.0	"	"	"	"	"	"	
n-Butylbenzene	ND	1.00	"	"	"	"	"	"	
sec-Butylbenzene	ND	1.00	"	"	"	"	"	"	
tert-Butylbenzene	ND	1.00	"	"	"	"	"	"	
Carbon disulfide	ND	1.00	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.00	"	"	"	"	"	"	
Chlorobenzene	ND	1.00	"	"	"	"	"	"	
Chloroethane	ND	1.00	"	"	"	"	"	"	
Chloroform	ND	1.00	"	"	"	"	"	"	
Chloromethane	ND	5.00	"	"	"	"	"	"	
2-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
4-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
Dibromochloromethane	ND	1.00	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	5.00	"	"	"	"	"	"	
1,2-Dibromoethane	ND	1.00	"	"	"	"	"	"	
Dibromomethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.00	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,3-Dichloropropane	ND	1.00	"	"	"	"	"	"	
2,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloropropene	ND	1.00	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	

North Creek Analytical - Bothell

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Laura Cacek for
Kirk Gendron, Project Manager

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541.383.9310 fax 541.382.7588

Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Volatile Organic Compounds by EPA Method 8260B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW4-051800 (B0E0354-04) Water	**Sampled: 05/18/00 17:12**		**Received: 05/19/00 13:00**						
Ethylbenzene	ND	1.00	ug/l	1	0E22013	05/22/00	05/22/00	EPA 8260B	
Hexachlorobutadiene	ND	1.00	"	"	"	"	"	"	
2-Hexanone	ND	10.0	"	"	"	"	"	"	
Isopropylbenzene	ND	1.00	"	"	"	"	"	"	
p-Isopropyltoluene	ND	1.00	"	"	"	"	"	"	
Methylene chloride	ND	5.00	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	10.0	"	"	"	"	"	"	
Naphthalene	ND	1.00	"	"	"	"	"	"	
n-Propylbenzene	ND	1.00	"	"	"	"	"	"	
Styrene	ND	1.00	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
Tetrachloroethene	ND	1.00	"	"	"	"	"	"	
Toluene	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1.00	"	"	"	"	"	"	
Trichloroethene	ND	1.00	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	1.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
Vinyl chloride	ND	1.00	"	"	"	"	"	"	
m,p-Xylene	ND	2.00	"	"	"	"	"	"	
o-Xylene	ND	1.00	"	"	"	"	"	"	
Surrogate: 1,2-DCA-d4	*115 %*	*80-120*			"	"	"	"	
Surrogate: Toluene-d8	*102 %*	*80-120*			"	"	"	"	
Surrogate: 4-BFB	*105 %*	*80-120*			"	"	"	"	

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Volatile Organic Compounds by EPA Method 8260B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW8-051800 (B0E0354-05) Water	**Sampled: 05/18/00 17:30**		**Received: 05/19/00 13:00**						
Acetone	ND	10.0	ug/l	1	0E22013	05/22/00	05/22/00	EPA 8260B	
Benzene	ND	1.00	"	"	"	"	"	"	
Bromobenzene	ND	1.00	"	"	"	"	"	"	
Bromochloromethane	ND	1.00	"	"	"	"	"	"	
Bromodichloromethane	ND	1.00	"	"	"	"	"	"	
Bromoform	ND	1.00	"	"	"	"	"	"	
Bromomethane	ND	1.00	"	"	"	"	"	"	
2-Butanone	ND	10.0	"	"	"	"	"	"	
n-Butylbenzene	ND	1.00	"	"	"	"	"	"	
sec-Butylbenzene	ND	1.00	"	"	"	"	"	"	
tert-Butylbenzene	ND	1.00	"	"	"	"	"	"	
Carbon disulfide	ND	1.00	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.00	"	"	"	"	"	"	
Chlorobenzene	ND	1.00	"	"	"	"	"	"	
Chloroethane	ND	1.00	"	"	"	"	"	"	
Chloroform	ND	1.00	"	"	"	"	"	"	
Chloromethane	ND	5.00	"	"	"	"	"	"	
2-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
4-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
Dibromochloromethane	ND	1.00	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	5.00	"	"	"	"	"	"	
1,2-Dibromoethane	ND	1.00	"	"	"	"	"	"	
Dibromomethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.00	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,3-Dichloropropane	ND	1.00	"	"	"	"	"	"	
2,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloropropene	ND	1.00	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	

North Creek Analytical - Bothell

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Laura Cook for

Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Volatile Organic Compounds by EPA Method 8260B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW8-051800 (B0E0354-05) Water	**Sampled: 05/18/00 17:30**		**Received: 05/19/00 13:00**						
Ethylbenzene	ND	1.00	ug/l	1	0E22013	05/22/00	05/22/00	EPA 8260B	
Hexachlorobutadiene	ND	1.00	"	"	"	"	"	"	
2-Hexanone	ND	10.0	"	"	"	"	"	"	
Isopropylbenzene	ND	1.00	"	"	"	"	"	"	
p-Isopropyltoluene	ND	1.00	"	"	"	"	"	"	
Methylene chloride	ND	5.00	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	10.0	"	"	"	"	"	"	
Naphthalene	ND	1.00	"	"	"	"	"	"	
n-Propylbenzene	ND	1.00	"	"	"	"	"	"	
Styrene	ND	1.00	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
Tetrachloroethene	ND	1.00	"	"	"	"	"	"	
Toluene	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1.00	"	"	"	"	"	"	
Trichloroethene	ND	1.00	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	1.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
Vinyl chloride	ND	1.00	"	"	"	"	"	"	
m,p-Xylene	ND	2.00	"	"	"	"	"	"	
o-Xylene	ND	1.00	"	"	"	"	"	"	
Surrogate: 1,2-DCA-d4	*115 %*	*80-120*			"	"	"	"	
Surrogate: Toluene-d8	*101 %*	*80-120*			"	"	"	"	
Surrogate: 4-BFB	*106 %*	*80-120*			"	"	"	"	

Laura Cacek for
Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Volatile Organic Compounds by EPA Method 8260B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Portal (B0E0354-06) Water Sampled: 05/18/00 18:30 Received: 05/19/00 13:00									
Acetone	ND	10.0	ug/l	1	0E22013	05/22/00	05/22/00	EPA 8260B	
Benzene	ND	1.00	"	"	"	"	"	"	
Bromobenzene	ND	1.00	"	"	"	"	"	"	
Bromochloromethane	ND	1.00	"	"	"	"	"	"	
Bromodichloromethane	ND	1.00	"	"	"	"	"	"	
Bromoform	ND	1.00	"	"	"	"	"	"	
Bromomethane	ND	1.00	"	"	"	"	"	"	
2-Butanone	ND	10.0	"	"	"	"	"	"	
n-Butylbenzene	ND	1.00	"	"	"	"	"	"	
sec-Butylbenzene	ND	1.00	"	"	"	"	"	"	
tert-Butylbenzene	ND	1.00	"	"	"	"	"	"	
Carbon disulfide	ND	1.00	"	"	"	"	"	"	
Carbon tetrachloride	ND	1.00	"	"	"	"	"	"	
Chlorobenzene	ND	1.00	"	"	"	"	"	"	
Chloroethane	ND	1.00	"	"	"	"	"	"	
Chloroform	ND	1.00	"	"	"	"	"	"	
Chloromethane	ND	5.00	"	"	"	"	"	"	
2-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
4-Chlorotoluene	ND	1.00	"	"	"	"	"	"	
Dibromochloromethane	ND	1.00	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	5.00	"	"	"	"	"	"	
1,2-Dibromoethane	ND	1.00	"	"	"	"	"	"	
Dibromomethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	1.00	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,2-Dichloroethane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloroethene	ND	1.00	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	1.00	"	"	"	"	"	"	
1,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,3-Dichloropropane	ND	1.00	"	"	"	"	"	"	
2,2-Dichloropropane	ND	1.00	"	"	"	"	"	"	
1,1-Dichloropropene	ND	1.00	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	1.00	"	"	"	"	"	"	

North Creek Analytical - Bothell

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Laura Cackett

Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Volatile Organic Compounds by EPA Method 8260B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Portal (B0E0354-06) Water Sampled: 05/18/00 18:30 Received: 05/19/00 13:00									
Ethylbenzene	ND	1.00	ug/l	1	0E22013	05/22/00	05/22/00	EPA 8260B	
Hexachlorobutadiene	ND	1.00	"	"	"	"	"	"	
2-Hexanone	ND	10.0	"	"	"	"	"	"	
Isopropylbenzene	ND	1.00	"	"	"	"	"	"	
p-Isopropyltoluene	ND	1.00	"	"	"	"	"	"	
Methylene chloride	ND	5.00	"	"	"	"	"	"	
4-Methyl-2-pentanone	ND	10.0	"	"	"	"	"	"	
Naphthalene	ND	1.00	"	"	"	"	"	"	
n-Propylbenzene	ND	1.00	"	"	"	"	"	"	
Styrene	ND	1.00	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	"	"	"	
Tetrachloroethene	ND	1.00	"	"	"	"	"	"	
Toluene	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	1.00	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	1.00	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	1.00	"	"	"	"	"	"	
Trichloroethene	ND	1.00	"	"	"	"	"	"	
Trichlorofluoromethane	ND	1.00	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	1.00	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	"	"	"	
Vinyl chloride	ND	1.00	"	"	"	"	"	"	
m,p-Xylene	ND	2.00	"	"	"	"	"	"	
o-Xylene	ND	1.00	"	"	"	"	"	"	
Surrogate: 1,2-DCA-d4	*115 %*	*80-120*			"	"	"	"	
Surrogate: Toluene-d8	*102 %*	*80-120*			"	"	"	"	
Surrogate: 4-BFB	*106 %*	*80-120*			"	"	"	"	

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Semivolatile Organic Compounds by EPA Method 8270C
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW3-051800 (B0E0354-01) Water	**Sampled: 05/18/00 10:15**		**Received: 05/19/00 13:00**						
Acenaphthene	ND	10.0	ug/l	1	0E20008	05/20/00	06/10/00	EPA 8270C	
Acenaphthylene	ND	10.0	"	"	"	"	"	"	
Aniline	ND	10.0	"	"	"	"	"	"	
Anthracene	ND	10.0	"	"	"	"	"	"	
Benzoic Acid	ND	10.0	"	"	"	"	"	"	
Benzo (a) anthracene	ND	10.0	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	10.0	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	10.0	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	10.0	"	"	"	"	"	"	
Benzo (a) pyrene	ND	10.0	"	"	"	"	"	"	
Benzyl alcohol	ND	10.0	"	"	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	10.0	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	10.0	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	10.0	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	50.0	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	10.0	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	10.0	"	"	"	"	"	"	
Carbazole	ND	10.0	"	"	"	"	"	"	
4-Chloroaniline	ND	10.0	"	"	"	"	"	"	
2-Chloronaphthalene	ND	10.0	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	10.0	"	"	"	"	"	"	
2-Chlorophenol	ND	10.0	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	10.0	"	"	"	"	"	"	
Chrysene	ND	10.0	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	10.0	"	"	"	"	"	"	
Dibenzofuran	ND	10.0	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	10.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	10.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	10.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	10.0	"	"	"	"	"	"	
3,3'-Dichlorobenzidine	ND	10.0	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	10.0	"	"	"	"	"	"	
Diethyl phthalate	ND	10.0	"	"	"	"	"	"	
2,4-Dimethylphenol	ND	10.0	"	"	"	"	"	"	
Dimethyl phthalate	ND	10.0	"	"	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	10.0	"	"	"	"	"	"	
2,4-Dinitrophenol	ND	20.0	"	"	"	"	"	"	
2,4-Dinitrotoluene	ND	10.0	"	"	"	"	"	"	

North Creek Analytical - Bothell

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Laura Creek for

Kirk Gendron, Project Manager

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541.383.9310 fax 541.382.7588

Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Semivolatile Organic Compounds by EPA Method 8270C

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW3-051800 (B0E0354-01) Water	**Sampled: 05/18/00 10:15**		**Received: 05/19/00 13:00**						
2,6-Dinitrotoluene	ND	10.0	ug/l	1	0E20008	05/20/00	06/10/00	EPA 8270C	
Di-n-octyl phthalate	ND	10.0	"	"	"	"	"	"	
Fluoranthene	ND	10.0	"	"	"	"	"	"	
Fluorene	ND	10.0	"	"	"	"	"	"	
Hexachlorobenzene	ND	10.0	"	"	"	"	"	"	
Hexachlorobutadiene	ND	10.0	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	10.0	"	"	"	"	"	"	
Hexachloroethane	ND	10.0	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	10.0	"	"	"	"	"	"	
Isophorone	ND	10.0	"	"	"	"	"	"	
2-Methylnaphthalene	ND	10.0	"	"	"	"	"	"	
2-Methylphenol	ND	10.0	"	"	"	"	"	"	
3 & 4-Methylphenol	ND	10.0	"	"	"	"	"	"	
Naphthalene	ND	10.0	"	"	"	"	"	"	
2-Nitroaniline	ND	10.0	"	"	"	"	"	"	
3-Nitroaniline	ND	10.0	"	"	"	"	"	"	
4-Nitroaniline	ND	10.0	"	"	"	"	"	"	
Nitrobenzene	ND	10.0	"	"	"	"	"	"	
2-Nitrophenol	ND	10.0	"	"	"	"	"	"	
4-Nitrophenol	ND	10.0	"	"	"	"	"	"	
N-Nitrosodiphenylamine	ND	10.0	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	10.0	"	"	"	"	"	"	
Pentachlorophenol	ND	10.0	"	"	"	"	"	"	
Phenanthrene	ND	10.0	"	"	"	"	"	"	
Phenol	ND	10.0	"	"	"	"	"	"	
Pyrene	ND	10.0	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	10.0	"	"	"	"	"	"	
2,4,5-Trichlorophenol	ND	10.0	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	10.0	"	"	"	"	"	"	
Surrogate: 2-FP	*69.2 %*	*40-115*			"	"	"	"	
Surrogate: Phenol-d6	*68.2 %*	*18-145*			"	"	"	"	
Surrogate: 2,4,6-TBP	*70.3 %*	*24-130*			"	"	"	"	
Surrogate: Nitrobenzene-d5	*77.8 %*	*42-110*			"	"	"	"	
Surrogate: 2-FBP	*72.6 %*	*46-116*			"	"	"	"	
Surrogate: p-Terphenyl-d14	*89.2 %*	*63-117*			"	"	"	"	

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Semivolatile Organic Compounds by EPA Method 8270C
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW5-051800 (B0E0354-02) Water	**Sampled: 05/18/00 12:30**		**Received: 05/19/00 13:00**						
Acenaphthene	ND	10.0	ug/l	1	0E20008	05/20/00	06/10/00	EPA 8270C	
Acenaphthylene	ND	10.0	"	"	"	"	"	"	
Aniline	ND	10.0	"	"	"	"	"	"	
Anthracene	ND	10.0	"	"	"	"	"	"	
Benzoic Acid	ND	10.0	"	"	"	"	"	"	
Benzo (a) anthracene	ND	10.0	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	10.0	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	10.0	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	10.0	"	"	"	"	"	"	
Benzo (a) pyrene	ND	10.0	"	"	"	"	"	"	
Benzyl alcohol	ND	10.0	"	"	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	10.0	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	10.0	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	10.0	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	50.0	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	10.0	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	10.0	"	"	"	"	"	"	
Carbazole	ND	10.0	"	"	"	"	"	"	
4-Chloroaniline	ND	10.0	"	"	"	"	"	"	
2-Chloronaphthalene	ND	10.0	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	10.0	"	"	"	"	"	"	
2-Chlorophenol	ND	10.0	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	10.0	"	"	"	"	"	"	
Chrysene	ND	10.0	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	10.0	"	"	"	"	"	"	
Dibenzofuran	ND	10.0	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	10.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	10.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	10.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	10.0	"	"	"	"	"	"	
3,3'-Dichlorobenzidine	ND	10.0	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	10.0	"	"	"	"	"	"	
Diethyl phthalate	ND	10.0	"	"	"	"	"	"	
2,4-Dimethylphenol	ND	10.0	"	"	"	"	"	"	
Dimethyl phthalate	ND	10.0	"	"	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	10.0	"	"	"	"	"	"	
2,4-Dinitrophenol	ND	20.0	"	"	"	"	"	"	
2,4-Dinitrotoluene	ND	10.0	"	"	"	"	"	"	

North Creek Analytical - Bothell

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Laura Cackler

Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Semivolatile Organic Compounds by EPA Method 8270C
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW5-051800 (B0E0354-02) Water	**Sampled: 05/18/00 12:30**		**Received: 05/19/00 13:00**						
2,6-Dinitrotoluene	ND	10.0	ug/l	1	0E20008	05/20/00	06/10/00	EPA 8270C	
Di-n-octyl phthalate	ND	10.0	"	"	"	"	"	"	
Fluoranthene	ND	10.0	"	"	"	"	"	"	
Fluorene	ND	10.0	"	"	"	"	"	"	
Hexachlorobenzene	ND	10.0	"	"	"	"	"	"	
Hexachlorobutadiene	ND	10.0	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	10.0	"	"	"	"	"	"	
Hexachloroethane	ND	10.0	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	10.0	"	"	"	"	"	"	
Isophorone	ND	10.0	"	"	"	"	"	"	
2-Methylnaphthalene	ND	10.0	"	"	"	"	"	"	
2-Methylphenol	ND	10.0	"	"	"	"	"	"	
3 & 4-Methylphenol	ND	10.0	"	"	"	"	"	"	
Naphthalene	ND	10.0	"	"	"	"	"	"	
2-Nitroaniline	ND	10.0	"	"	"	"	"	"	
3-Nitroaniline	ND	10.0	"	"	"	"	"	"	
4-Nitroaniline	ND	10.0	"	"	"	"	"	"	
Nitrobenzene	ND	10.0	"	"	"	"	"	"	
2-Nitrophenol	ND	10.0	"	"	"	"	"	"	
4-Nitrophenol	ND	10.0	"	"	"	"	"	"	
N-Nitrosodiphenylamine	ND	10.0	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	10.0	"	"	"	"	"	"	
Pentachlorophenol	ND	10.0	"	"	"	"	"	"	
Phenanthrene	ND	10.0	"	"	"	"	"	"	
Phenol	ND	10.0	"	"	"	"	"	"	
Pyrene	ND	10.0	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	10.0	"	"	"	"	"	"	
2,4,5-Trichlorophenol	ND	10.0	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	10.0	"	"	"	"	"	"	
Surrogate: 2-FP	*78.4 %*	*40-115*			"	"	"	"	
Surrogate: Phenol-d6	*73.4 %*	*18-145*			"	"	"	"	
Surrogate: 2,4,6-TBP	*80.3 %*	*24-130*			"	"	"	"	
Surrogate: Nitrobenzene-d5	*79.5 %*	*42-110*			"	"	"	"	
Surrogate: 2-FBP	*74.6 %*	*46-116*			"	"	"	"	
Surrogate: p-Terphenyl-d14	*87.8 %*	*63-117*			"	"	"	"	

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Semivolatile Organic Compounds by EPA Method 8270C
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW2-051800 (B0E0354-03) Water	**Sampled: 05/18/00 15:42**		**Received: 05/19/00 13:00**						
Acenaphthene	ND	10.0	ug/l	1	0E20008	05/20/00	06/10/00	EPA 8270C	
Acenaphthylene	ND	10.0	"	"	"	"	"	"	
Aniline	ND	10.0	"	"	"	"	"	"	
Anthracene	ND	10.0	"	"	"	"	"	"	
Benzoic Acid	ND	10.0	"	"	"	"	"	"	
Benzo (a) anthracene	ND	10.0	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	10.0	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	10.0	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	10.0	"	"	"	"	"	"	
Benzo (a) pyrene	ND	10.0	"	"	"	"	"	"	
Benzyl alcohol	ND	10.0	"	"	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	10.0	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	10.0	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	10.0	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	50.0	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	10.0	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	10.0	"	"	"	"	"	"	
Carbazole	ND	10.0	"	"	"	"	"	"	
4-Chloroaniline	ND	10.0	"	"	"	"	"	"	
2-Chloronaphthalene	ND	10.0	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	10.0	"	"	"	"	"	"	
2-Chlorophenol	ND	10.0	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	10.0	"	"	"	"	"	"	
Chrysene	ND	10.0	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	10.0	"	"	"	"	"	"	
Dibenzofuran	ND	10.0	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	10.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	10.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	10.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	10.0	"	"	"	"	"	"	
3,3'-Dichlorobenzidine	ND	10.0	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	10.0	"	"	"	"	"	"	
Diethyl phthalate	ND	10.0	"	"	"	"	"	"	
2,4-Dimethylphenol	ND	10.0	"	"	"	"	"	"	
Dimethyl phthalate	ND	10.0	"	"	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	10.0	"	"	"	"	"	"	
2,4-Dinitrophenol	ND	20.0	"	"	"	"	"	"	
2,4-Dinitrotoluene	ND	10.0	"	"	"	"	"	"	

North Creek Analytical - Bothell

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Laura Creek for
Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Semivolatile Organic Compounds by EPA Method 8270C
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW2-051800 (B0E0354-03) Water	**Sampled: 05/18/00 15:42**		**Received: 05/19/00 13:00**						
2,6-Dinitrotoluene	ND	10.0	ug/l	1	0E20008	05/20/00	06/10/00	EPA 8270C	
Di-n-octyl phthalate	ND	10.0	"	"	"	"	"	"	
Fluoranthene	ND	10.0	"	"	"	"	"	"	
Fluorene	ND	10.0	"	"	"	"	"	"	
Hexachlorobenzene	ND	10.0	"	"	"	"	"	"	
Hexachlorobutadiene	ND	10.0	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	10.0	"	"	"	"	"	"	
Hexachloroethane	ND	10.0	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	10.0	"	"	"	"	"	"	
Isophorone	ND	10.0	"	"	"	"	"	"	
2-Methylnaphthalene	ND	10.0	"	"	"	"	"	"	
2-Methylphenol	ND	10.0	"	"	"	"	"	"	
3 & 4-Methylphenol	ND	10.0	"	"	"	"	"	"	
Naphthalene	ND	10.0	"	"	"	"	"	"	
2-Nitroaniline	ND	10.0	"	"	"	"	"	"	
3-Nitroaniline	ND	10.0	"	"	"	"	"	"	
4-Nitroaniline	ND	10.0	"	"	"	"	"	"	
Nitrobenzene	ND	10.0	"	"	"	"	"	"	
2-Nitrophenol	ND	10.0	"	"	"	"	"	"	
4-Nitrophenol	ND	10.0	"	"	"	"	"	"	
N-Nitrosodiphenylamine	ND	10.0	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	10.0	"	"	"	"	"	"	
Pentachlorophenol	ND	10.0	"	"	"	"	"	"	
Phenanthrene	ND	10.0	"	"	"	"	"	"	
Phenol	ND	10.0	"	"	"	"	"	"	
Pyrene	ND	10.0	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	10.0	"	"	"	"	"	"	
2,4,5-Trichlorophenol	ND	10.0	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	10.0	"	"	"	"	"	"	
Surrogate: 2-FP	*73.0 %*	*40-115*			"	"	"	"	
Surrogate: Phenol-d6	*71.3 %*	*18-145*			"	"	"	"	
Surrogate: 2,4,6-TBP	*74.2 %*	*24-130*			"	"	"	"	
Surrogate: Nitrobenzene-d5	*74.6 %*	*42-110*			"	"	"	"	
Surrogate: 2-FBP	*68.8 %*	*46-116*			"	"	"	"	
Surrogate: p-Terphenyl-d14	*86.5 %*	*63-117*			"	"	"	"	

North Creek Analytical - Bothell

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Laura Cacek for

Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Semivolatile Organic Compounds by EPA Method 8270C
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW4-051800 (B0E0354-04) Water	**Sampled: 05/18/00 17:12**		**Received: 05/19/00 13:00**						
Acenaphthene	ND	10.0	ug/l	1	0E20008	05/20/00	06/10/00	EPA 8270C	
Acenaphthylene	ND	10.0	"	"	"	"	"	"	
Aniline	ND	10.0	"	"	"	"	"	"	
Anthracene	ND	10.0	"	"	"	"	"	"	
Benzoic Acid	ND	10.0	"	"	"	"	"	"	
Benzo (a) anthracene	ND	10.0	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	10.0	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	10.0	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	10.0	"	"	"	"	"	"	
Benzo (a) pyrene	ND	10.0	"	"	"	"	"	"	
Benzyl alcohol	ND	10.0	"	"	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	10.0	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	10.0	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	10.0	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	50.0	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	10.0	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	10.0	"	"	"	"	"	"	
Carbazole	ND	10.0	"	"	"	"	"	"	
4-Chloroaniline	ND	10.0	"	"	"	"	"	"	
2-Chloronaphthalene	ND	10.0	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	10.0	"	"	"	"	"	"	
2-Chlorophenol	ND	10.0	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	10.0	"	"	"	"	"	"	
Chrysene	ND	10.0	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	10.0	"	"	"	"	"	"	
Dibenzofuran	ND	10.0	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	10.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	10.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	10.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	10.0	"	"	"	"	"	"	
3,3'-Dichlorobenzidine	ND	10.0	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	10.0	"	"	"	"	"	"	
Diethyl phthalate	ND	10.0	"	"	"	"	"	"	
2,4-Dimethylphenol	ND	10.0	"	"	"	"	"	"	
Dimethyl phthalate	ND	10.0	"	"	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	10.0	"	"	"	"	"	"	
2,4-Dinitrophenol	ND	20.0	"	"	"	"	"	"	
2,4-Dinitrotoluene	ND	10.0	"	"	"	"	"	"	

North Creek Analytical - Bothell

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Laura Creek for

Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Semivolatile Organic Compounds by EPA Method 8270C
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW4-051800 (B0E0354-04) Water	**Sampled: 05/18/00 17:12**		**Received: 05/19/00 13:00**						
2,6-Dinitrotoluene	ND	10.0	ug/l	1	0E20008	05/20/00	06/10/00	EPA 8270C	
Di-n-octyl phthalate	ND	10.0	"	"	"	"	"	"	
Fluoranthene	ND	10.0	"	"	"	"	"	"	
Fluorene	ND	10.0	"	"	"	"	"	"	
Hexachlorobenzene	ND	10.0	"	"	"	"	"	"	
Hexachlorobutadiene	ND	10.0	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	10.0	"	"	"	"	"	"	
Hexachloroethane	ND	10.0	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	10.0	"	"	"	"	"	"	
Isophorone	ND	10.0	"	"	"	"	"	"	
2-Methylnaphthalene	ND	10.0	"	"	"	"	"	"	
2-Methylphenol	ND	10.0	"	"	"	"	"	"	
3 & 4-Methylphenol	ND	10.0	"	"	"	"	"	"	
Naphthalene	ND	10.0	"	"	"	"	"	"	
2-Nitroaniline	ND	10.0	"	"	"	"	"	"	
3-Nitroaniline	ND	10.0	"	"	"	"	"	"	
4-Nitroaniline	ND	10.0	"	"	"	"	"	"	
Nitrobenzene	ND	10.0	"	"	"	"	"	"	
2-Nitrophenol	ND	10.0	"	"	"	"	"	"	
4-Nitrophenol	ND	10.0	"	"	"	"	"	"	
N-Nitrosodiphenylamine	ND	10.0	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	10.0	"	"	"	"	"	"	
Pentachlorophenol	ND	10.0	"	"	"	"	"	"	
Phenanthrene	ND	10.0	"	"	"	"	"	"	
Phenol	ND	10.0	"	"	"	"	"	"	
Pyrene	ND	10.0	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	10.0	"	"	"	"	"	"	
2,4,5-Trichlorophenol	ND	10.0	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	10.0	"	"	"	"	"	"	
Surrogate: 2-FP	*68.5 %*	*40-115*			"	"	"	"	
Surrogate: Phenol-d6	*66.6 %*	*18-145*			"	"	"	"	
Surrogate: 2,4,6-TBP	*73.6 %*	*24-130*			"	"	"	"	
Surrogate: Nitrobenzene-d5	*71.8 %*	*42-110*			"	"	"	"	
Surrogate: 2-FBP	*71.1 %*	*46-116*			"	"	"	"	
Surrogate: p-Terphenyl-d14	*89.1 %*	*63-117*			"	"	"	"	

Laura Cook for

Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Semivolatile Organic Compounds by EPA Method 8270C
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Portal (B0E0354-06) Water Sampled: 05/18/00 18:30 Received: 05/19/00 13:00									
Acenaphthene	ND	10.0	ug/l	1	0E20008	05/20/00	06/10/00	EPA 8270C	
Acenaphthylene	ND	10.0	"	"	"	"	"	"	
Aniline	ND	10.0	"	"	"	"	"	"	
Anthracene	ND	10.0	"	"	"	"	"	"	
Benzoic Acid	ND	10.0	"	"	"	"	"	"	
Benzo (a) anthracene	ND	10.0	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	10.0	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	10.0	"	"	"	"	"	"	
Benzo (ghi) perylene	ND	10.0	"	"	"	"	"	"	
Benzo (a) pyrene	ND	10.0	"	"	"	"	"	"	
Benzyl alcohol	ND	10.0	"	"	"	"	"	"	
Bis(2-chloroethoxy)methane	ND	10.0	"	"	"	"	"	"	
Bis(2-chloroethyl)ether	ND	10.0	"	"	"	"	"	"	
Bis(2-chloroisopropyl)ether	ND	10.0	"	"	"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	50.0	"	"	"	"	"	"	
4-Bromophenyl phenyl ether	ND	10.0	"	"	"	"	"	"	
Butyl benzyl phthalate	ND	10.0	"	"	"	"	"	"	
Carbazole	ND	10.0	"	"	"	"	"	"	
4-Chloroaniline	ND	10.0	"	"	"	"	"	"	
2-Chloronaphthalene	ND	10.0	"	"	"	"	"	"	
4-Chloro-3-methylphenol	ND	10.0	"	"	"	"	"	"	
2-Chlorophenol	ND	10.0	"	"	"	"	"	"	
4-Chlorophenyl phenyl ether	ND	10.0	"	"	"	"	"	"	
Chrysene	ND	10.0	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	10.0	"	"	"	"	"	"	
Dibenzofuran	ND	10.0	"	"	"	"	"	"	
Di-n-butyl phthalate	ND	10.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	10.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	10.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	10.0	"	"	"	"	"	"	
3,3'-Dichlorobenzidine	ND	10.0	"	"	"	"	"	"	
2,4-Dichlorophenol	ND	10.0	"	"	"	"	"	"	
Diethyl phthalate	ND	10.0	"	"	"	"	"	"	
2,4-Dimethylphenol	ND	10.0	"	"	"	"	"	"	
Dimethyl phthalate	ND	10.0	"	"	"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	10.0	"	"	"	"	"	"	
2,4-Dinitrophenol	ND	20.0	"	"	"	"	"	"	
2,4-Dinitrotoluene	ND	10.0	"	"	"	"	"	"	

North Creek Analytical - Bothell

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Laura Cackett

Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Semivolatile Organic Compounds by EPA Method 8270C
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Portal (B0E0354-06) Water Sampled: 05/18/00 18:30 Received: 05/19/00 13:00									
2,6-Dinitrotoluene	ND	10.0	ug/l	1	0E20008	05/20/00	06/10/00	EPA 8270C	
Di-n-octyl phthalate	ND	10.0	"	"	"	"	"	"	
Fluoranthene	ND	10.0	"	"	"	"	"	"	
Fluorene	ND	10.0	"	"	"	"	"	"	
Hexachlorobenzene	ND	10.0	"	"	"	"	"	"	
Hexachlorobutadiene	ND	10.0	"	"	"	"	"	"	
Hexachlorocyclopentadiene	ND	10.0	"	"	"	"	"	"	
Hexachloroethane	ND	10.0	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	10.0	"	"	"	"	"	"	
Isophorone	ND	10.0	"	"	"	"	"	"	
2-Methylnaphthalene	ND	10.0	"	"	"	"	"	"	
2-Methylphenol	ND	10.0	"	"	"	"	"	"	
3 & 4-Methylphenol	ND	10.0	"	"	"	"	"	"	
Naphthalene	ND	10.0	"	"	"	"	"	"	
2-Nitroaniline	ND	10.0	"	"	"	"	"	"	
3-Nitroaniline	ND	10.0	"	"	"	"	"	"	
4-Nitroaniline	ND	10.0	"	"	"	"	"	"	
Nitrobenzene	ND	10.0	"	"	"	"	"	"	
2-Nitrophenol	ND	10.0	"	"	"	"	"	"	
4-Nitrophenol	ND	10.0	"	"	"	"	"	"	
N-Nitrosodiphenylamine	ND	10.0	"	"	"	"	"	"	
N-Nitrosodi-n-propylamine	ND	10.0	"	"	"	"	"	"	
Pentachlorophenol	ND	10.0	"	"	"	"	"	"	
Phenanthrene	ND	10.0	"	"	"	"	"	"	
Phenol	ND	10.0	"	"	"	"	"	"	
Pyrene	ND	10.0	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	10.0	"	"	"	"	"	"	
2,4,5-Trichlorophenol	ND	10.0	"	"	"	"	"	"	
2,4,6-Trichlorophenol	ND	10.0	"	"	"	"	"	"	
Surrogate: 2-FP	*63.2 %*	*40-115*			"	"	"	"	
Surrogate: Phenol-d6	*60.7 %*	*18-145*			"	"	"	"	
Surrogate: 2,4,6-TBP	*73.2 %*	*24-130*			"	"	"	"	
Surrogate: Nitrobenzene-d5	*68.8 %*	*42-110*			"	"	"	"	
Surrogate: 2-FBP	*67.8 %*	*46-116*			"	"	"	"	
Surrogate: p-Terphenyl-d14	*94.4 %*	*63-117*			"	"	"	"	

North Creek Analytical - Bothell

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Laura Cackler

Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Conventional Chemistry Parameters by APHA/EPA Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW3-051800 (B0E0354-01) Water	**Sampled: 05/18/00 10:15**		**Received: 05/19/00 13:00**						
Bicarbonate Alkalinity	**155**	5.00	mg/L as CaCO3	1	0E30024	05/30/00	05/30/00	SM 2320B	
Carbonate Alkalinity	ND	5.00	"	"	"	"	"	"	
Hydroxide Alkalinity	ND	5.00	"	"	"	"	"	"	
Total Alkalinity	**155**	5.00	"	"	"	"	"	"	
Cyanide (total)	ND	0.0100	mg/l	"	0E22019	05/22/00	05/22/00	EPA 9010B	
Fluoride	ND	0.100	"	"	0F01010	06/01/00	06/01/00	EPA 340.2	
Hardness	**159**	1.00	mg eq. CaCO3/L	"	0E20005	05/20/00	06/08/00	SM 2340B	
Nitrate/Nitrite-Nitrogen	ND	10.0	ug/l as N	"	0E31004	05/30/00	05/30/00	EPA 353.2	
Total Dissolved Solids	**180**	10	mg/l	"	0E30033	05/24/00	05/27/00	EPA 160.1	
LMW5-051800 (B0E0354-02) Water	**Sampled: 05/18/00 12:30**		**Received: 05/19/00 13:00**						
Bicarbonate Alkalinity	**476**	5.00	mg/L as CaCO3	1	0E30024	05/30/00	05/30/00	SM 2320B	
Carbonate Alkalinity	ND	5.00	"	"	"	"	"	"	
Hydroxide Alkalinity	ND	5.00	"	"	"	"	"	"	
Total Alkalinity	**476**	5.00	"	"	"	"	"	"	
Cyanide (total)	ND	0.0100	mg/l	"	0E22019	05/22/00	05/22/00	EPA 9010B	
Fluoride	**0.125**	0.100	"	"	0F01010	06/01/00	06/01/00	EPA 340.2	
Hardness	**509**	1.00	mg eq. CaCO3/L	"	0E20005	05/20/00	06/08/00	SM 2340B	
Nitrate/Nitrite-Nitrogen	ND	10.0	ug/l as N	"	0E31004	05/30/00	05/30/00	EPA 353.2	
Total Dissolved Solids	**490**	10	mg/l	"	0E30033	05/24/00	05/27/00	EPA 160.1	
LMW2-051800 (B0E0354-03) Water	**Sampled: 05/18/00 15:42**		**Received: 05/19/00 13:00**						
Bicarbonate Alkalinity	**644**	5.00	mg/L as CaCO3	1	0E30024	05/30/00	05/30/00	SM 2320B	
Carbonate Alkalinity	ND	5.00	"	"	"	"	"	"	
Hydroxide Alkalinity	ND	5.00	"	"	"	"	"	"	
Total Alkalinity	**644**	5.00	"	"	"	"	"	"	
Cyanide (total)	ND	0.0100	mg/l	"	0E22019	05/22/00	05/22/00	EPA 9010B	
Fluoride	ND	0.100	"	"	0F01010	06/01/00	06/01/00	EPA 340.2	
Hardness	**646**	1.00	mg eq. CaCO3/L	"	0E20005	05/20/00	06/08/00	SM 2340B	
Nitrate/Nitrite-Nitrogen	ND	10.0	ug/l as N	"	0E31004	05/30/00	05/30/00	EPA 353.2	
Total Dissolved Solids	**610**	10	mg/l	"	0E30033	05/24/00	05/27/00	EPA 160.1	

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Conventional Chemistry Parameters by APHA/EPA Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW4-051800 (B0E0354-04) Water	**Sampled: 05/18/00 17:12**		**Received: 05/19/00 13:00**						
Bicarbonate Alkalinity	**657**	5.00	mg/L as CaCO3	1	0E30024	05/30/00	05/30/00	SM 2320B	
Carbonate Alkalinity	ND	5.00	"	"	"	"	"	"	
Hydroxide Alkalinity	ND	5.00	"	"	"	"	"	"	
Total Alkalinity	**657**	5.00	"	"	"	"	"	"	
Cyanide (total)	ND	0.0100	mg/l	"	0E22019	05/22/00	05/22/00	EPA 9010B	
Fluoride	ND	0.100	"	"	0F01010	06/01/00	06/01/00	EPA 340.2	
Hardness	**693**	1.00	mg eq. CaCO3/L	"	0E20005	05/20/00	06/08/00	SM 2340B	
Nitrate/Nitrite-Nitrogen	**24.9**	10.0	ug/l as N	"	0E31004	05/30/00	05/30/00	EPA 353.2	
Total Dissolved Solids	**650**	10	mg/l	"	0E30033	05/24/00	05/27/00	EPA 160.1	
Portal (B0E0354-06) Water	**Sampled: 05/18/00 18:30**		**Received: 05/19/00 13:00**						
Bicarbonate Alkalinity	**395**	5.00	mg/L as CaCO3	1	0E30024	05/30/00	05/30/00	SM 2320B	
Carbonate Alkalinity	ND	5.00	"	"	"	"	"	"	
Hydroxide Alkalinity	ND	5.00	"	"	"	"	"	"	
Total Alkalinity	**395**	5.00	"	"	"	"	"	"	
Cyanide (total)	ND	0.0100	mg/l	"	0E31021	05/31/00	05/31/00	EPA 9010B	
Fluoride	ND	0.100	"	"	0F01010	06/01/00	06/01/00	EPA 340.2	
Hardness	**435**	1.00	mg eq. CaCO3/L	"	0E20005	05/20/00	06/08/00	SM 2340B	
Nitrate/Nitrite-Nitrogen	ND	10.0	ug/l as N	"	0E31004	05/30/00	05/30/00	EPA 353.2	
Total Dissolved Solids	**630**	10	mg/l	"	0E30033	05/24/00	05/27/00	EPA 160.1	

North Creek Analytical - Bothell

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Laura Caeck for

Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Anions by EPA Method 300.0

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
LMW3-051800 (B0E0354-01) Water	**Sampled: 05/18/00 10:15**		**Received: 05/19/00 13:00**						
Chloride	**2.02**	0.200	mg/l	1	0E22008	05/20/00	05/20/00	EPA 300.0	
Sulfate	**7.51**	0.200	"	"	"	"	"	"	
LMW5-051800 (B0E0354-02) Water	**Sampled: 05/18/00 12:30**		**Received: 05/19/00 13:00**						
Chloride	**2.25**	0.200	mg/l	1	0E22008	05/20/00	05/20/00	EPA 300.0	
Sulfate	**32.6**	1.00	"	5	0E24009	05/23/00	05/23/00	"	
LMW2-051800 (B0E0354-03) Water	**Sampled: 05/18/00 15:42**		**Received: 05/19/00 13:00**						
Chloride	**6.74**	0.200	mg/l	1	0E22008	05/20/00	05/20/00	EPA 300.0	
Sulfate	**6.47**	0.200	"	"	"	"	"	"	
LMW4-051800 (B0E0354-04) Water	**Sampled: 05/18/00 17:12**		**Received: 05/19/00 13:00**						
Chloride	**6.39**	0.200	mg/l	1	0E22008	05/20/00	05/20/00	EPA 300.0	
Sulfate	**9.01**	0.200	"	"	"	"	"	"	
Portal (B0E0354-06) Water	**Sampled: 05/18/00 18:30**		**Received: 05/19/00 13:00**						
Chloride	**2.47**	0.200	mg/l	1	0E22008	05/20/00	05/20/00	EPA 300.0	
Sulfate	**20.0**	0.800	"	4	"	"	"	"	

North Creek Analytical - Bothell

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.

Laura Cacek for

Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Hydrocarbon Identification by Washington DOE Method NWTPH-HCID - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0E21002: Prepared 05/21/00 Using EPA 3520C/600 Series										
Blank (0E21002-BLK1)										
Gx Range Hydrocarbons	ND	0.250	mg/l							
Kerosene Range Hydrocarbons	ND	0.630	"							
Diesel Range Hydrocarbons	ND	0.630	"							
Insulating Oil Range Hydrocarbons	ND	0.630	"							
Heavy Fuel Oil Range Hydrocarbons	ND	0.630	"							
Lube Oil Range Hydrocarbons	ND	0.630	"							
Surrogate: 2-FBP	*DET*		"	*0.320*		*62.8*	*50-150*			

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Dissolved Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0E22009: Prepared 05/22/00 Using EPA 3005A										
Blank (0E22009-BLK1)										
Aluminum	ND	0.250	mg/l							
Calcium	ND	0.250	"							
Iron	ND	0.150	"							
Magnesium	ND	0.100	"							
Nickel	ND	0.0300	"							
Potassium	ND	1.00	"							
Silicon	ND	0.500	"							
Sodium	ND	0.500	"							
LCS (0E22009-BS1)										
Aluminum	9.80	0.250	mg/l	10.0		98.0	80-120			
Calcium	9.92	0.250	"	10.0		99.2	80-120			
Iron	10.3	0.150	"	10.0		103	80-120			
Magnesium	10.2	0.100	"	10.0		102	80-120			
Nickel	10.2	0.0300	"	10.0		102	80-120			
Potassium	34.8	1.00	"	30.0		116	80-120			
Sodium	10.0	0.500	"	10.0		100	80-120			
LCS (0E22009-BS2)										
Silicon	9.38	0.500	mg/l	10.0		93.8	80-120			
Matrix Spike (0E22009-MS1)					**Source: B0E0354-03**					
Aluminum	9.56	0.250	mg/l	10.0	ND	95.6	80-120			
Calcium	125	0.250	"	10.0	126	-10.0	80-120			Q-15
Iron	9.85	0.150	"	10.0	ND	98.5	80-120			
Magnesium	80.9	0.100	"	10.0	76.7	42.0	80-120			Q-15
Nickel	9.34	0.0300	"	10.0	ND	93.4	80-120			
Potassium	39.9	1.00	"	30.0	4.76	117	80-120			
Sodium	35.1	0.500	"	10.0	28.3	68.0	80-120			Q-13

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Dissolved Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0E22009: Prepared 05/22/00 Using EPA 3005A										
Matrix Spike (0E22009-MS2)					**Source: B0E0354-03**					
Silicon	20.1	0.500	mg/l	10.0	9.74	104	80-120			
Matrix Spike Dup (0E22009-MSD1)					**Source: B0E0354-03**					
Aluminum	9.85	0.250	mg/l	10.0	ND	98.5	80-120	2.99	20	
Calcium	125	0.250	"	10.0	126	-10.0	80-120	0	20	Q-15
Iron	9.99	0.150	"	10.0	ND	99.9	80-120	1.41	20	
Magnesium	81.8	0.100	"	10.0	76.7	51.0	80-120	1.11	20	Q-15
Nickel	9.37	0.0300	"	10.0	ND	93.7	80-120	0.321	20	
Potassium	39.5	1.00	"	30.0	4.76	116	80-120	1.01	20	
Sodium	34.8	0.500	"	10.0	28.3	65.0	80-120	0.858	20	Q-13
Matrix Spike Dup (0E22009-MSD2)					**Source: B0E0354-03**					
Silicon	20.1	0.500	mg/l	10.0	9.74	104	80-120	0	20	
Batch 0E23031: Prepared 05/23/00 Using EPA 3005A										
Blank (0E23031-BLK1)										
Antimony	ND	0.00100	mg/l							
Arsenic	ND	0.00100	"							
Barium	ND	0.00100	"							
Beryllium	ND	0.00100	"							
Cadmium	ND	0.00100	"							
Chromium	ND	0.00100	"							
Cobalt	ND	0.00100	"							
Copper	ND	0.00100	"							
Lead	ND	0.00100	"							
Manganese	ND	0.0100	"							
Nickel	ND	0.00100	"							
Selenium	ND	0.00100	"							
Silver	ND	0.00100	"							
Thallium	ND	0.00100	"							
Vanadium	ND	0.00100	"							
Zinc	0.0102	0.0100	"							B

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Dissolved Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0E23031: Prepared 05/23/00 Using EPA 3005A										
LCS (0E23031-BS1)										
Antimony	0.193	0.00100	mg/l	0.200		96.5	80-120			
Arsenic	0.195	0.00100	"	0.200		97.5	80-120			
Barium	0.216	0.00100	"	0.200		108	80-120			
Beryllium	0.197	0.00100	"	0.200		98.5	80-120			
Cadmium	0.201	0.00100	"	0.200		101	80-120			
Chromium	0.198	0.00100	"	0.200		99.0	80-120			
Cobalt	0.191	0.00100	"	0.200		95.5	80-120			
Copper	0.204	0.00100	"	0.200		102	80-120			
Lead	0.207	0.00100	"	0.200		103	80-120			
Manganese	0.192	0.0100	"	0.200		96.0	80-120			
Nickel	0.193	0.00100	"	0.200		96.5	80-120			
Selenium	0.195	0.00100	"	0.200		97.5	80-120			
Silver	0.199	0.00100	"	0.200		99.5	80-120			
Thallium	0.216	0.00100	"	0.200		108	80-120			
Vanadium	0.219	0.00100	"	0.200		109	80-120			
Zinc	0.204	0.0100	"	0.200		102	80-120			
Matrix Spike (0E23031-MS1)					**Source: B0E0354-01**					
Antimony	0.0992	0.00100	mg/l	0.100	ND	98.8	75-125			
Arsenic	0.219	0.00100	"	0.200	ND	109	75-125			
Barium	0.292	0.00100	"	0.200	0.0751	108	75-125			
Beryllium	0.212	0.00100	"	0.200	ND	106	75-125			
Cadmium	0.210	0.00100	"	0.200	ND	105	75-125			
Chromium	0.204	0.00100	"	0.200	ND	102	75-125			
Cobalt	0.193	0.00100	"	0.200	ND	96.4	75-125			
Copper	0.205	0.00100	"	0.200	ND	102	75-125			
Manganese	0.237	0.0100	"	0.200	0.0421	97.4	75-125			
Nickel	0.197	0.00100	"	0.200	0.00107	98.0	75-125			
Selenium	0.216	0.00100	"	0.200	ND	108	75-125			
Vanadium	0.239	0.00100	"	0.200	ND	119	75-125			
Zinc	0.215	0.0100	"	0.200	ND	106	75-125			

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Dissolved Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0E23031: Prepared 05/23/00 Using EPA 3005A										
Matrix Spike (0E23031-MS2)					**Source: B0E0354-02**					
Lead	0.231	0.00100	mg/l	0.200	ND	116	75-125			
Silver	0.184	0.00100	"	0.200	ND	92.0	75-125			
Thallium	0.222	0.0100	"	0.200	ND	111	75-125			
Matrix Spike Dup (0E23031-MSD1)					**Source: B0E0354-01**					
Antimony	0.0938	0.00100	mg/l	0.100	ND	93.4	75-125	5.60	20	
Arsenic	0.209	0.00100	"	0.200	ND	104	75-125	4.67	20	
Barium	0.284	0.00100	"	0.200	0.0751	104	75-125	2.78	20	
Beryllium	0.193	0.00100	"	0.200	ND	96.4	75-125	9.38	20	
Cadmium	0.199	0.00100	"	0.200	ND	99.4	75-125	5.38	20	
Chromium	0.194	0.00100	"	0.200	ND	97.0	75-125	5.03	20	
Cobalt	0.191	0.00100	"	0.200	ND	95.4	75-125	1.04	20	
Copper	0.197	0.00100	"	0.200	ND	98.3	75-125	3.98	20	
Manganese	0.232	0.0100	"	0.200	0.0421	94.9	75-125	2.13	20	
Nickel	0.186	0.00100	"	0.200	0.00107	92.5	75-125	5.74	20	
Selenium	0.205	0.00100	"	0.200	ND	102	75-125	5.23	20	
Vanadium	0.257	0.00100	"	0.200	ND	128	75-125	7.26	20	Q-01
Zinc	0.204	0.0100	"	0.200	ND	100	75-125	5.25	20	
Matrix Spike Dup (0E23031-MSD2)					**Source: B0E0354-02**					
Lead	0.235	0.00100	mg/l	0.200	ND	117	75-125	1.72	20	
Silver	0.188	0.00100	"	0.200	ND	94.0	75-125	2.15	20	
Thallium	0.249	0.0100	"	0.200	ND	124	75-125	11.5	20	
Batch 0E31014: Prepared 05/31/00 Using EPA 7470A										
Blank (0E31014-BLK1)										
Mercury	ND	0.00100	mg/l							

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Dissolved Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0E31014: Prepared 05/31/00 Using EPA 7470A										
LCS (0E31014-BS1)										
Mercury	0.00386	0.00100	mg/l	0.00500		77.2	70-130			
Matrix Spike (0E31014-MS1)					**Source: B0E0354-03**					
Mercury	0.00400	0.00100	mg/l	0.00500	ND	80.0	75-125			
Matrix Spike (0E31014-MS2)					**Source: B0E0455-02**					
Mercury	0.00400	0.00100	mg/l	0.00500	ND	80.0	75-125			
Matrix Spike Dup (0E31014-MSD1)					**Source: B0E0354-03**					
Mercury	0.00383	0.00100	mg/l	0.00500	ND	76.6	75-125	4.34	20	
Matrix Spike Dup (0E31014-MSD2)					**Source: B0E0455-02**					
Mercury	0.00398	0.00100	mg/l	0.00500	ND	79.6	75-125	0.501	20	

Laura Creek for

Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Organochlorine Pesticides and PCBs by EPA Method 8081A and 8082 - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0E20007: Prepared 05/20/00 Using EPA 3520C/600 Series										
Blank (0E20007-BLK1)										
Aldrin	ND	0.0400	ug/l							
alpha-BHC	ND	0.0200	"							
beta-BHC	ND	0.100	"							
delta-BHC	ND	0.0500	"							
gamma-BHC (Lindane)	ND	0.0300	"							
Chlordane (tech)	ND	0.150	"							
alpha-Chlordane	ND	0.0500	"							
gamma-Chlordane	ND	0.0200	"							
4,4'-DDD	ND	0.0400	"							
4,4'-DDE	ND	0.0300	"							
4,4'-DDT	ND	0.0900	"							
Dieldrin	ND	0.0700	"							
Endosulfan I	ND	0.0300	"							
Endosulfan II	ND	0.0500	"							
Endosulfan sulfate	ND	0.0700	"							
Endrin	ND	0.0800	"							
Endrin aldehyde	ND	0.100	"							
Heptachlor	ND	0.0300	"							
Heptachlor epoxide	ND	0.0300	"							
Methoxychlor	ND	0.500	"							
Toxaphene	ND	1.50	"							
Aroclor 1016	ND	0.100	"							
Aroclor 1221	ND	0.100	"							
Aroclor 1232	ND	0.100	"							
Aroclor 1242	ND	0.100	"							
Aroclor 1248	ND	0.100	"							
Aroclor 1254	ND	0.100	"							
Aroclor 1260	ND	0.100	"							
Aroclor 1262	ND	0.100	"							
Aroclor 1268	ND	0.100	"							
Surrogate: TCX	*0.165*		"	*0.200*		*82.5*	*40-130*			
Surrogate: Decachlorobiphenyl	*0.141*		"	*0.200*		*70.5*	*40-130*			

North Creek Analytical - Bothell

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Laura Cook for

Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Organochlorine Pesticides and PCBs by EPA Method 8081A and 8082 - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0E20007: Prepared 05/20/00 Using EPA 3520C/600 Series										
LCS (0E20007-BS1)										
Aldrin	0.205	0.0400	ug/l	0.250		82.0	45-143			
gamma-BHC (Lindane)	0.223	0.0300	"	0.250		89.2	45-147			
Heptachlor	0.189	0.0300	"	0.250		75.6	37-156			
Aroclor 1260	8.55	0.100	"	10.0		85.5	33-122			
Surrogate: TCX	*0.193*		"	*0.200*		*96.5*	*40-130*			
Surrogate: Decachlorobiphenyl	*0.203*		"	*0.200*		*101*	*40-130*			
Matrix Spike (0E20007-MS1)					**Source: B0E0354-03**					
Aldrin	0.331	0.0663	ug/l	0.415	ND	79.8	45-143			
gamma-BHC (Lindane)	0.334	0.0498	"	0.415	ND	80.5	45-147			
Heptachlor	0.331	0.0498	"	0.415	ND	79.8	37-156			
Aroclor 1260	13.6	0.166	"	16.6	ND	81.9	33-122			
Surrogate: TCX	*0.283*		"	*0.332*		*85.2*	*40-130*			
Surrogate: Decachlorobiphenyl	*0.304*		"	*0.332*		*91.6*	*40-130*			
Matrix Spike Dup (0E20007-MSD1)					**Source: B0E0354-03**					
Aldrin	0.494	0.0902	ug/l	0.564	ND	87.6	45-143	39.5	36	Q-07
gamma-BHC (Lindane)	0.496	0.0677	"	0.564	ND	87.9	45-147	39.0	25	Q-07
Heptachlor	0.467	0.0677	"	0.564	ND	82.8	37-156	34.1	37	
Aroclor 1260	20.1	0.226	"	22.6	ND	88.9	33-122	38.6	21	Q-07
Surrogate: TCX	*0.360*		"	*0.451*		*79.8*	*40-130*			
Surrogate: Decachlorobiphenyl	*0.462*		"	*0.451*		*102*	*40-130*			

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Volatile Organic Compounds by EPA Method 8260B - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0E22013: Prepared 05/22/00 Using EPA 5030B [P/T]										
Blank (0E22013-BLK1)										
tert-Butyl methyl ether	ND	10.0	ug/l							
Acetone	ND	10.0	"							
Benzene	ND	1.00	"							
Bromobenzene	ND	1.00	"							
Bromochloromethane	ND	1.00	"							
Bromodichloromethane	ND	1.00	"							
Bromoform	ND	1.00	"							
Bromomethane	ND	1.00	"							
2-Butanone	ND	10.0	"							
n-Butylbenzene	ND	1.00	"							
sec-Butylbenzene	ND	1.00	"							
tert-Butylbenzene	ND	1.00	"							
Carbon disulfide	ND	1.00	"							
Carbon tetrachloride	ND	1.00	"							
Chlorobenzene	ND	1.00	"							
Chloroethane	ND	1.00	"							
Chloroform	ND	1.00	"							
Chloromethane	ND	5.00	"							
2-Chlorotoluene	ND	1.00	"							
4-Chlorotoluene	ND	1.00	"							
Dibromochloromethane	ND	1.00	"							
1,2-Dibromo-3-chloropropane	ND	5.00	"							
1,2-Dibromoethane	ND	1.00	"							
Dibromomethane	ND	1.00	"							
1,2-Dichlorobenzene	ND	1.00	"							
1,3-Dichlorobenzene	ND	1.00	"							
1,4-Dichlorobenzene	ND	1.00	"							
Dichlorodifluoromethane	ND	1.00	"							
1,1-Dichloroethane	ND	1.00	"							
1,2-Dichloroethane	ND	1.00	"							
1,1-Dichloroethene	ND	1.00	"							
cis-1,2-Dichloroethene	ND	1.00	"							
trans-1,2-Dichloroethene	ND	1.00	"							
1,2-Dichloropropane	ND	1.00	"							

North Creek Analytical - Bothell

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Laura Cacek for

Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Volatile Organic Compounds by EPA Method 8260B - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0E22013: Prepared 05/22/00 Using EPA 5030B [P/T]										
Blank (0E22013-BLK1)										
1,3-Dichloropropane	ND	1.00	ug/l							
2,2-Dichloropropane	ND	1.00	"							
1,1-Dichloropropene	ND	1.00	"							
cis-1,3-Dichloropropene	ND	1.00	"							
trans-1,3-Dichloropropene	ND	1.00	"							
Ethylbenzene	ND	1.00	"							
Hexachlorobutadiene	ND	1.00	"							
2-Hexanone	ND	10.0	"							
Isopropylbenzene	ND	1.00	"							
p-Isopropyltoluene	ND	1.00	"							
Methylene chloride	8.43	5.00	"							B
4-Methyl-2-pentanone	ND	10.0	"							
Naphthalene	ND	1.00	"							
n-Propylbenzene	ND	1.00	"							
Styrene	ND	1.00	"							
1,1,1,2-Tetrachloroethane	ND	1.00	"							
1,1,2,2-Tetrachloroethane	ND	1.00	"							
Tetrachloroethene	ND	1.00	"							
Toluene	ND	1.00	"							
1,2,3-Trichlorobenzene	ND	1.00	"							
1,2,4-Trichlorobenzene	ND	1.00	"							
1,1,1-Trichloroethane	ND	1.00	"							
1,1,2-Trichloroethane	ND	1.00	"							
Trichloroethene	ND	1.00	"							
Trichlorofluoromethane	ND	1.00	"							
1,2,3-Trichloropropane	ND	1.00	"							
1,2,4-Trimethylbenzene	ND	1.00	"							
1,3,5-Trimethylbenzene	ND	1.00	"							
Vinyl chloride	ND	1.00	"							
m,p-Xylene	ND	2.00	"							
o-Xylene	ND	1.00	"							
Surrogate: 1,2-DCA-d4	*45.7*		"	*40.0*		*114*	*80-120*			
Surrogate: Toluene-d8	*40.2*		"	*40.0*		*101*	*80-120*			
Surrogate: 4-BFB	*43.5*		"	*40.0*		*109*	*80-120*			

North Creek Analytical - Bothell

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Laura Cackett

Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Volatile Organic Compounds by EPA Method 8260B - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0E22013: Prepared 05/22/00 Using EPA 5030B [P/T]										
LCS (0E22013-BS1)										
Benzene	19.2	1.00	ug/l	20.0		96.0	80-120			
Chlorobenzene	19.0	1.00	"	20.0		95.0	80-120			
1,1-Dichloroethene	21.9	1.00	"	20.0		109	80-120			
Toluene	19.0	1.00	"	20.0		95.0	80-120			
Trichloroethene	20.2	1.00	"	20.0		101	80-120			
Surrogate: 1,2-DCA-d4	*47.7*		"	*40.0*		*119*	*80-120*			
Surrogate: Toluene-d8	*40.5*		"	*40.0*		*101*	*80-120*			
Surrogate: 4-BFB	*41.5*		"	*40.0*		*104*	*80-120*			
Matrix Spike (0E22013-MS1)					**Source: B0E0354-03**					
Benzene	16.4	1.00	ug/l	18.0	ND	91.1	80-120			
Chlorobenzene	16.7	1.00	"	18.0	ND	92.8	80-120			
1,1-Dichloroethene	16.9	1.00	"	18.0	ND	93.9	80-120			
Toluene	16.2	1.00	"	18.0	ND	90.0	80-120			
Trichloroethene	16.3	1.00	"	18.0	ND	90.6	80-120			
Surrogate: 1,2-DCA-d4	*45.6*		"	*40.0*		*114*	*80-120*			
Surrogate: Toluene-d8	*40.3*		"	*40.0*		*101*	*80-120*			
Surrogate: 4-BFB	*41.8*		"	*40.0*		*104*	*80-120*			
Matrix Spike Dup (0E22013-MSD1)					**Source: B0E0354-03**					
Benzene	15.4	1.00	ug/l	18.0	ND	85.6	80-120	6.29	15	
Chlorobenzene	15.7	1.00	"	18.0	ND	87.2	80-120	6.17	15	
1,1-Dichloroethene	15.3	1.00	"	18.0	ND	85.0	80-120	9.94	15	
Toluene	15.2	1.00	"	18.0	ND	84.4	80-120	6.37	15	
Trichloroethene	15.2	1.00	"	18.0	ND	84.4	80-120	6.98	15	
Surrogate: 1,2-DCA-d4	*45.4*		"	*40.0*		*114*	*80-120*			
Surrogate: Toluene-d8	*40.1*		"	*40.0*		*100*	*80-120*			
Surrogate: 4-BFB	*43.7*		"	*40.0*		*109*	*80-120*			

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Volatile Organic Compounds by EPA Method 8260B - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0E24010: Prepared 05/23/00 Using EPA 5030B [P/T]										
Blank (0E24010-BLK1)										
Acetone	ND	10.0	ug/l							
Benzene	ND	1.00	"							
Bromobenzene	ND	1.00	"							
Bromochloromethane	ND	1.00	"							
Bromodichloromethane	ND	1.00	"							
Bromoform	ND	1.00	"							
Bromomethane	ND	1.00	"							
2-Butanone	ND	10.0	"							
n-Butylbenzene	ND	1.00	"							
sec-Butylbenzene	ND	1.00	"							
tert-Butylbenzene	ND	1.00	"							
Carbon disulfide	ND	1.00	"							
Carbon tetrachloride	ND	1.00	"							
Chlorobenzene	ND	1.00	"							
Chloroethane	ND	1.00	"							
Chloroform	ND	1.00	"							
Chloromethane	ND	5.00	"							
2-Chlorotoluene	ND	1.00	"							
4-Chlorotoluene	ND	1.00	"							
Dibromochloromethane	ND	1.00	"							
1,2-Dibromo-3-chloropropane	ND	5.00	"							
1,2-Dibromoethane	ND	1.00	"							
Dibromomethane	ND	1.00	"							
1,2-Dichlorobenzene	ND	1.00	"							
1,3-Dichlorobenzene	ND	1.00	"							
1,4-Dichlorobenzene	ND	1.00	"							
Dichlorodifluoromethane	ND	1.00	"							
1,1-Dichloroethane	ND	1.00	"							
1,2-Dichloroethane	ND	1.00	"							
1,1-Dichloroethene	ND	1.00	"							
cis-1,2-Dichloroethene	ND	1.00	"							
trans-1,2-Dichloroethene	ND	1.00	"							
1,2-Dichloropropane	ND	1.00	"							
1,3-Dichloropropane	ND	1.00	"							

North Creek Analytical - Bothell

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Laura Creek for

Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Volatile Organic Compounds by EPA Method 8260B - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0E24010: Prepared 05/23/00 Using EPA 5030B [P/T]										
Blank (0E24010-BLK1)										
2,2-Dichloropropane	ND	1.00	ug/l							
1,1-Dichloropropene	ND	1.00	"							
cis-1,3-Dichloropropene	ND	1.00	"							
trans-1,3-Dichloropropene	ND	1.00	"							
Ethylbenzene	ND	1.00	"							
Hexachlorobutadiene	ND	1.00	"							
2-Hexanone	ND	10.0	"							
Isopropylbenzene	ND	1.00	"							
p-Isopropyltoluene	ND	1.00	"							
Methylene chloride	10.8	5.00	"							B
4-Methyl-2-pentanone	ND	10.0	"							
Naphthalene	ND	1.00	"							
n-Propylbenzene	ND	1.00	"							
Styrene	ND	1.00	"							
1,1,1,2-Tetrachloroethane	ND	1.00	"							
1,1,2,2-Tetrachloroethane	ND	1.00	"							
Tetrachloroethene	ND	1.00	"							
Toluene	ND	1.00	"							
1,2,3-Trichlorobenzene	ND	1.00	"							
1,2,4-Trichlorobenzene	ND	1.00	"							
1,1,1-Trichloroethane	ND	1.00	"							
1,1,2-Trichloroethane	ND	1.00	"							
Trichloroethene	ND	1.00	"							
Trichlorofluoromethane	ND	1.00	"							
1,2,3-Trichloropropane	ND	1.00	"							
1,2,4-Trimethylbenzene	ND	1.00	"							
1,3,5-Trimethylbenzene	ND	1.00	"							
Vinyl chloride	ND	1.00	"							
m,p-Xylene	ND	2.00	"							
o-Xylene	ND	1.00	"							
Surrogate: 1,2-DCA-d4	*46.0*		"	*40.0*		*115*	*80-120*			
Surrogate: Toluene-d8	*40.3*		"	*40.0*		*101*	*80-120*			
Surrogate: 4-BFB	*46.0*		"	*40.0*		*115*	*80-120*			

North Creek Analytical - Bothell

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Laura Cacek for

Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Volatile Organic Compounds by EPA Method 8260B - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0E24010: Prepared 05/23/00 Using EPA 5030B [P/T]										
LCS (0E24010-BS1)										
Benzene	22.7	1.00	ug/l	20.0		114	80-120			
Chlorobenzene	22.4	1.00	"	20.0		112	80-120			
1,1-Dichloroethene	23.9	1.00	"	20.0		119	80-120			
Toluene	22.4	1.00	"	20.0		112	80-120			
Trichloroethene	23.0	1.00	"	20.0		115	80-120			
Surrogate: 1,2-DCA-d4	*47.5*		"	*40.0*		*119*	*80-120*			
Surrogate: Toluene-d8	*40.7*		"	*40.0*		*102*	*80-120*			
Surrogate: 4-BFB	*42.1*		"	*40.0*		*105*	*80-120*			
Matrix Spike (0E24010-MS1)					**Source: B0E0334-02**					
Benzene	16.7	1.00	ug/l	20.0	ND	83.5	80-120			
Chlorobenzene	16.3	1.00	"	20.0	ND	81.5	80-120			
1,1-Dichloroethene	17.9	1.00	"	20.0	ND	89.5	80-120			
Toluene	16.7	1.00	"	20.0	ND	83.5	80-120			
Trichloroethene	16.9	1.00	"	20.0	ND	84.5	80-120			
Surrogate: 1,2-DCA-d4	*46.0*		"	*40.0*		*115*	*80-120*			
Surrogate: Toluene-d8	*41.1*		"	*40.0*		*103*	*80-120*			
Surrogate: 4-BFB	*44.6*		"	*40.0*		*111*	*80-120*			
Matrix Spike Dup (0E24010-MSD1)					**Source: B0E0334-02**					
Benzene	16.2	1.00	ug/l	20.0	ND	81.0	80-120	3.04	15	
Chlorobenzene	16.1	1.00	"	20.0	ND	80.5	80-120	1.23	15	
1,1-Dichloroethene	16.8	1.00	"	20.0	ND	84.0	80-120	6.34	15	
Toluene	16.2	1.00	"	20.0	ND	81.0	80-120	3.04	15	
Trichloroethene	16.2	1.00	"	20.0	ND	81.0	80-120	4.23	15	
Surrogate: 1,2-DCA-d4	*45.8*		"	*40.0*		*114*	*80-120*			
Surrogate: Toluene-d8	*40.5*		"	*40.0*		*101*	*80-120*			
Surrogate: 4-BFB	*44.5*		"	*40.0*		*111*	*80-120*			

Laura Creek for
Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0E20008: Prepared 05/20/00 Using EPA 3520C/600 Series										
Blank (0E20008-BLK1)										
Acenaphthene	ND	10.0	ug/l							
Acenaphthylene	ND	10.0	"							
Aniline	ND	10.0	"							
Anthracene	ND	10.0	"							
Benzoic Acid	ND	10.0	"							
Benzo (a) anthracene	ND	10.0	"							
Benzo (b) fluoranthene	ND	10.0	"							
Benzo (k) fluoranthene	ND	10.0	"							
Benzo (ghi) perylene	ND	10.0	"							
Benzo (a) pyrene	ND	10.0	"							
Benzyl alcohol	ND	10.0	"							
Bis(2-chloroethoxy)methane	ND	10.0	"							
Bis(2-chloroethyl)ether	ND	10.0	"							
Bis(2-chloroisopropyl)ether	ND	10.0	"							
Bis(2-ethylhexyl)phthalate	ND	50.0	"							
4-Bromophenyl phenyl ether	ND	10.0	"							
Butyl benzyl phthalate	ND	10.0	"							
Carbazole	ND	10.0	"							
4-Chloroaniline	ND	10.0	"							
2-Chloronaphthalene	ND	10.0	"							
4-Chloro-3-methylphenol	ND	10.0	"							
2-Chlorophenol	ND	10.0	"							
4-Chlorophenyl phenyl ether	ND	10.0	"							
Chrysene	ND	10.0	"							
Dibenz (a,h) anthracene	ND	10.0	"							
Dibenzofuran	ND	10.0	"							
Di-n-butyl phthalate	ND	10.0	"							
1,3-Dichlorobenzene	ND	10.0	"							
1,4-Dichlorobenzene	ND	10.0	"							
1,2-Dichlorobenzene	ND	10.0	"							
3,3'-Dichlorobenzidine	ND	10.0	"							
2,4-Dichlorophenol	ND	10.0	"							
Diethyl phthalate	ND	10.0	"							
2,4-Dimethylphenol	ND	10.0	"							

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0E20008: Prepared 05/20/00 Using EPA 3520C/600 Series										
Blank (0E20008-BLK1)										
Dimethyl phthalate	ND	10.0	ug/l							
4,6-Dinitro-2-methylphenol	ND	10.0	"							
2,4-Dinitrophenol	ND	20.0	"							
2,4-Dinitrotoluene	ND	10.0	"							
2,6-Dinitrotoluene	ND	10.0	"							
Di-n-octyl phthalate	ND	10.0	"							
Fluoranthene	ND	10.0	"							
Fluorene	ND	10.0	"							
Hexachlorobenzene	ND	10.0	"							
Hexachlorobutadiene	ND	10.0	"							
Hexachlorocyclopentadiene	ND	10.0	"							
Hexachloroethane	ND	10.0	"							
Indeno (1,2,3-cd) pyrene	ND	10.0	"							
Isophorone	ND	10.0	"							
2-Methylnaphthalene	ND	10.0	"							
2-Methylphenol	ND	10.0	"							
3 & 4-Methylphenol	ND	10.0	"							
Naphthalene	ND	10.0	"							
2-Nitroaniline	ND	10.0	"							
3-Nitroaniline	ND	10.0	"							
4-Nitroaniline	ND	10.0	"							
Nitrobenzene	ND	10.0	"							
2-Nitrophenol	ND	10.0	"							
4-Nitrophenol	ND	10.0	"							
N-Nitrosodiphenylamine	ND	10.0	"							
N-Nitrosodi-n-propylamine	ND	10.0	"							
Pentachlorophenol	ND	10.0	"							
Phenanthrene	ND	10.0	"							
Phenol	ND	10.0	"							
Pyrene	ND	10.0	"							
1,2,4-Trichlorobenzene	ND	10.0	"							
2,4,5-Trichlorophenol	ND	10.0	"							
2,4,6-Trichlorophenol	ND	10.0	"							
Surrogate: 2-FP	*40.8*		"	*50.0*		*81.6*	*40-115*			

Laura Cackett

Kirk Gendron, Project Manager

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0E20008: Prepared 05/20/00 Using EPA 3520C/600 Series										
Blank (0E20008-BLK1)										
Surrogate: Phenol-d6	*39.1*		*ug/l*	*50.0*		*78.2*	*18-145*			
Surrogate: 2,4,6-TBP	*40.4*		*"*	*50.0*		*80.8*	*24-130*			
Surrogate: Nitrobenzene-d5	*40.6*		*"*	*50.0*		*81.2*	*42-110*			
Surrogate: 2-FBP	*33.7*		*"*	*50.0*		*67.4*	*46-116*			
Surrogate: p-Terphenyl-d14	*47.1*		*"*	*50.0*		*94.2*	*63-117*			
LCS (0E20008-BS1)										
Acenaphthene	79.2	10.0	ug/l	100		79.2	42-110			
4-Chloro-3-methylphenol	137	10.0	"	200		68.5	35-110			
2-Chlorophenol	134	10.0	"	200		67.0	45-110			
1,4-Dichlorobenzene	68.8	10.0	"	100		68.8	23-110			
2,4-Dinitrotoluene	67.5	10.0	"	100		67.5	51-110			
4-Nitrophenol	135	10.0	"	200		67.5	16-110			
N-Nitrosodi-n-propylamine	69.3	10.0	"	100		69.3	34-115			
Pentachlorophenol	158	10.0	"	200		79.0	30-124			
Phenol	134	10.0	"	200		67.0	39-110			
Pyrene	103	10.0	"	100		103	49-113			
1,2,4-Trichlorobenzene	71.3	10.0	"	100		71.3	17-110			
Surrogate: 2-FP	*33.5*		*"*	*50.0*		*67.0*	*40-115*			
Surrogate: Phenol-d6	*33.4*		*"*	*50.0*		*66.8*	*18-145*			
Surrogate: 2,4,6-TBP	*42.8*		*"*	*50.0*		*85.6*	*24-130*			
Surrogate: Nitrobenzene-d5	*33.5*		*"*	*50.0*		*67.0*	*42-110*			
Surrogate: 2-FBP	*33.2*		*"*	*50.0*		*66.4*	*46-116*			
Surrogate: p-Terphenyl-d14	*49.0*		*"*	*50.0*		*98.0*	*63-117*			
Matrix Spike (0E20008-MS1)					**Source: B0E0354-03**					
Acenaphthene	138	18.6	ug/l	186	ND	74.2	48-110			
4-Chloro-3-methylphenol	259	18.6	"	372	ND	69.6	45-110			
2-Chlorophenol	270	18.6	"	372	ND	72.6	39-110			
1,4-Dichlorobenzene	150	18.6	"	186	ND	80.6	27-110			
2,4-Dinitrotoluene	124	18.6	"	186	ND	66.7	60-110			
4-Nitrophenol	236	18.6	"	372	ND	63.4	20-110			
N-Nitrosodi-n-propylamine	117	18.6	"	186	ND	62.9	23-116			
Pentachlorophenol	268	18.6	"	372	ND	72.0	39-129			
Phenol	237	18.6	"	372	ND	63.7	31-115			
Pyrene	97.4	18.6	"	186	ND	52.4	63-113			Q-01

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Semivolatile Organic Compounds by EPA Method 8270C - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0E20008: Prepared 05/20/00 Using EPA 3520C/600 Series										
Matrix Spike (0E20008-MS1)					**Source: B0E0354-03**					
1,2,4-Trichlorobenzene	146	18.6	ug/l	186	ND	78.5	54-123			
Surrogate: 2-FP	*60.2*		"	*92.9*		*64.8*	*40-115*			
Surrogate: Phenol-d6	*18.6*		"	*92.9*		*20.0*	*18-145*			
Surrogate: 2,4,6-TBP	*69.4*		"	*92.9*		*74.7*	*24-130*			
Surrogate: Nitrobenzene-d5	*65.8*		"	*92.9*		*70.8*	*42-110*			
Surrogate: 2-FBP	*53.6*		"	*92.9*		*57.7*	*46-116*			
Surrogate: p-Terphenyl-d14	*68.8*		"	*92.9*		*74.1*	*63-117*			
Matrix Spike Dup (0E20008-MSD1)					**Source: B0E0354-03**					
Acenaphthene	179	19.7	ug/l	197	ND	90.9	48-110	25.9	31	
4-Chloro-3-methylphenol	304	19.7	"	393	ND	77.4	45-110	16.0	30	
2-Chlorophenol	291	19.7	"	393	ND	74.0	39-110	7.49	38	
1,4-Dichlorobenzene	158	19.7	"	197	ND	80.2	27-110	5.19	42	
2,4-Dinitrotoluene	157	19.7	"	197	ND	79.7	60-110	23.5	28	
4-Nitrophenol	303	19.7	"	393	ND	77.1	20-110	24.9	33	
N-Nitrosodi-n-propylamine	172	19.7	"	197	ND	87.3	23-116	38.1	36	Q-07
Pentachlorophenol	324	19.7	"	393	ND	82.4	39-129	18.9	22	
Phenol	295	19.7	"	393	ND	75.1	31-115	21.8	38	
Pyrene	183	19.7	"	197	ND	92.9	63-113	61.1	18	Q-07
1,2,4-Trichlorobenzene	161	19.7	"	197	ND	81.7	54-123	9.77	29	
Surrogate: 2-FP	*69.2*		"	*98.4*		*70.3*	*40-115*			
Surrogate: Phenol-d6	*65.4*		"	*98.4*		*66.5*	*18-145*			
Surrogate: 2,4,6-TBP	*80.1*		"	*98.4*		*81.4*	*24-130*			
Surrogate: Nitrobenzene-d5	*71.3*		"	*98.4*		*72.5*	*42-110*			
Surrogate: 2-FBP	*74.8*		"	*98.4*		*76.0*	*46-116*			
Surrogate: p-Terphenyl-d14	*85.8*		"	*98.4*		*87.2*	*63-117*			

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0E20005: Prepared 05/20/00 Using EPA 3010A										
Blank (0E20005-BLK1)										
Hardness	ND	1.00	mg eq. CaCO3/L							
LCS (0E20005-BS1)										
Hardness	70.6	1.00	mg eq. CaCO3/L	66.2		107	70-130			
Matrix Spike (0E20005-MS1)					**Source: B0E0354-03**					
Hardness	721	1.00	mg eq. CaCO3/L	66.2	646	113	75-125			
Matrix Spike Dup (0E20005-MSD1)					**Source: B0E0354-03**					
Hardness	724	1.00	mg eq. CaCO3/L	66.2	646	118	75-125	0.415	20	
Batch 0E22019: Prepared 05/22/00 Using General Preparation										
Blank (0E22019-BLK1)										
Cyanide (total)	ND	0.0100	mg/l							
LCS (0E22019-BS1)										
Cyanide (total)	0.0466	0.0100	mg/l	0.0500		93.2	75-125			
Duplicate (0E22019-DUP1)					**Source: B0E0354-03**					
Cyanide (total)	ND	0.0100	mg/l		ND			53.0	21	
Matrix Spike (0E22019-MS1)					**Source: B0E0354-03**					
Cyanide (total)	0.0502	0.0100	mg/l	0.0500	ND	96.0	75-125			
Batch 0E30024: Prepared 05/30/00 Using General Preparation										
Blank (0E30024-BLK1)										
Bicarbonate Alkalinity	ND	5.00	mg/L as CaCO3							
Carbonate Alkalinity	ND	5.00	"							
Hydroxide Alkalinity	ND	5.00	"							
Total Alkalinity	ND	5.00	"							

Laura Cackett

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0E30024: Prepared 05/30/00 Using General Preparation										
LCS (0E30024-BS1)										
Total Alkalinity	50.5	5.00	mg/L as CaCO3	50.0		101	90-110			
Duplicate (0E30024-DUP1)					**Source: B0E0388-03**					
Bicarbonate Alkalinity	44.0	5.00	mg/L as CaCO3		44.0			0	6	
Carbonate Alkalinity	ND	5.00	"		ND				6	
Hydroxide Alkalinity	ND	5.00	"		ND				6	
Total Alkalinity	44.0	5.00	"		44.0			0	6	
Batch 0E30033: Prepared 05/24/00 Using General Preparation										
Blank (0E30033-BLK1)										
Total Dissolved Solids	ND	10	mg/l							
Duplicate (0E30033-DUP1)					**Source: B0E0354-03**					
Total Dissolved Solids	630	10	mg/l		610			3.2	17	
Batch 0E31004: Prepared 05/30/00 Using General Preparation										
Blank (0E31004-BLK1)										
Nitrate/Nitrite-Nitrogen	ND	10.0	ug/l as N							
LCS (0E31004-BS1)										
Nitrate/Nitrite-Nitrogen	1030	10.0	ug/l as N	1000		103	90-110			
Matrix Spike (0E31004-MS1)					**Source: B0E0354-03**					
Nitrate/Nitrite-Nitrogen	538	10.0	ug/l as N	500	ND	107	71-128			

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.

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0E31004: Prepared 05/30/00 Using General Preparation										
Matrix Spike Dup (0E31004-MSD1)					**Source: B0E0354-03**					
Nitrate/Nitrite-Nitrogen	527	10.0	ug/l as N	500	ND	104	71-128	2.07	20	
Batch 0E31021: Prepared 05/31/00 Using General Preparation										
Blank (0E31021-BLK1)										
Cyanide (total)	ND	0.0100	mg/l							
Blank (0E31021-BLK2)										
Cyanide (total)	ND	0.0100	mg/l							
LCS (0E31021-BS1)										
Cyanide (total)	0.0482	0.0100	mg/l	0.0500		96.4	75-125			
Duplicate (0E31021-DUP1)					**Source: B0E0474-06**					
Cyanide (total)	ND	0.0100	mg/l		ND			0	21	
Matrix Spike (0E31021-MS1)					**Source: B0E0474-06**					
Cyanide (total)	0.0482	0.0100	mg/l	0.0500	ND	90.0	75-125			
Batch 0F01010: Prepared 06/01/00 Using General Preparation										
Blank (0F01010-BLK1)										
Fluoride	ND	0.100	mg/l							
LCS (0F01010-BS1)										
Fluoride	1.08	0.100	mg/l	1.00		108	78-113			

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0F01010: Prepared 06/01/00 Using General Preparation										
Duplicate (0F01010-DUP1)					**Source: B0E0354-06**					
Fluoride	ND	0.100	mg/l		ND			19.7	25	
Matrix Spike (0F01010-MS1)					**Source: B0E0354-06**					
Fluoride	1.04	0.100	mg/l	1.00	ND	97.1	75-125			

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Anions by EPA Method 300.0 - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0E22008: Prepared 05/20/00 Using General Preparation										
Blank (0E22008-BLK1)										
Chloride	ND	0.200	mg/l							
Sulfate	ND	0.200	"							
LCS (0E22008-BS1)										
Chloride	2.01	0.200	mg/l	2.00		100	90-110			
Sulfate	5.87	0.200	"	6.00		97.8	90-110			
Matrix Spike (0E22008-MS1)					**Source: B0E0356-03**					
Chloride	81.2	2.00	mg/l	20.0	54.2	135	80-120			Q-01
Sulfate	58.6	2.00	"	60.0	ND	97.4	80-120			
Matrix Spike (0E22008-MS2)					**Source: B0E0324-05**					
Chloride	132	4.00	mg/l	40.0	92.6	98.5	80-120			
Matrix Spike Dup (0E22008-MSD1)					**Source: B0E0356-03**					
Chloride	76.5	2.00	mg/l	20.0	54.2	111	80-120	5.96	25	
Sulfate	58.2	2.00	"	60.0	ND	96.8	80-120	0.685	25	
Matrix Spike Dup (0E22008-MSD2)					**Source: B0E0324-05**					
Chloride	134	4.00	mg/l	40.0	92.6	104	80-120	1.50	25	
Batch 0E24009: Prepared 05/23/00 Using General Preparation										
Blank (0E24009-BLK1)										
Chloride	ND	0.200	mg/l							
Sulfate	ND	0.200	"							

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/22/00 11:31

Anions by EPA Method 300.0 - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0E24009: Prepared 05/23/00 Using General Preparation										
LCS (0E24009-BS1)										
Chloride	1.95	0.200	mg/l	2.00		97.5	90-110			
Sulfate	5.77	0.200	"	6.00		96.2	90-110			
Duplicate (0E24009-DUP1)					**Source: B0E0386-01**					
Sulfate	2.07	0.200	mg/l		2.07			0	25	
Duplicate (0E24009-DUP2)					**Source: B0E0386-01**					
Chloride	30.1	1.00	mg/l		32.6			7.97	25	
Matrix Spike (0E24009-MS1)					**Source: B0E0386-01**					
Sulfate	7.72	0.200	mg/l	6.00	2.07	94.2	80-120			
Matrix Spike (0E24009-MS2)					**Source: B0E0386-01**					
Chloride	44.8	1.00	mg/l	10.0	32.6	122	80-120			Q-01

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Golder Associates Inc.	Project: Palmer/Landsburg Project	
18300 NE Union Hill Road, Suite 200	Project Number: 923-100	**Reported:**
Redmond WA, 98052-3333	Project Manager: Gary Zimmerman	06/30/00 12:06

Notes and Definitions

A-01	Samples were diluted due to high sulfur content.
A-02	Samples were biased high due to high CCVs.
B	Analyte detected in the method blank.
Q-01	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.
Q-07	The RPD value for this QC sample is above the established control limit. Review of associated QC indicates the high RPD does not represent an out-of-control condition for the batch.
Q-13	Multiple analyses indicate the percent recovery is outside the control limits due to a matrix effect.
Q-15	Analyses are not controlled on matrix spike RPD and/or percent recoveries when the sample concentration is significantly higher than the spike level.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

North Creek Analytical - Bothell

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.

Kirk Gendron, Project Manager

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CHAIN OF CUSTODY REPORT

Work Order #: B0E0354

CLIENT: Golder Associates
REPORT TO: Gary Zimmerman
ADDRESS: 18300 NE Union Hill Road, Suite 200 Redmond, WA 98052
PHONE: 425 883-0777 FAX: 425 882-5498

INVOICE TO: Golder
P.O. NUMBER:

PROJECT NAME: Palmer / Landsburg
PROJECT NUMBER: 923-1000
SAMPLED BY: Gary Zimmerman

TURNAROUND REQUEST in Business Days*
Organic & Inorganic Analyses: [10] [7] [5] [4] [3] [2] [1] [<1] STD.
Petroleum Hydrocarbon Analyses: [5] [4] [3] [2] [1] [<1] STD.
[OTHER] Please Specify
*Turnaround Requests less than standard may incur Rush Charges.

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	VOA's 8260	Semi-VOA 8270	PAH's 8310 or 8270 SIM	Dissolved TAL Metals (23)	Total Cyanide	Nitrate + Nitrite	SO4, Cl, F, CO3, HCO3, TDS	NWTPH-HCID	NWTPH-G *	NWTPH-D *	MATRIX (W, S, O)	# OF CONT.	COMMENTS	NCA WO ID
1. LMW3-051800	5-18-00 1015	✓	✓	✓	✓	✓	✓	✓	✓	*	*	W	13		-01
2. LMW5-051800	1230	✓	✓	✓	✓	✓	✓	✓	✓	*	*		13		-02
3. LMW2-051800	1542	✓	✓	✓	✓	✓	✓	✓	✓	*	*		29	Extra Volume for MS/MSD	-03
4. LMW4-051800	1712	✓	✓	✓	✓	✓	✓	✓	✓	*	*		13		-04
5. LMW8-051800	1730	✓			✓					*	*		3		-05
6. Portal	5-18-00 1830	✓	✓	✓	✓	✓	✓	✓	✓	*	*	↓	13		-06
7.															
8.															
9.															
10.															
11.															
12.															
13.															
14.															
15.															

RELINQUISHED BY: Gary L. Zimmerman FIRM: Golder DATE: 5-19-00 TIME: 1225
RECEIVED BY: [signature] FIRM: NCA DATE: 5-19-00 TIME: 1225

RELINQUISHED BY: [signature] FIRM: NCA DATE: 5-19-00 TIME: 13:00
RECEIVED BY: PRANY TONTY FIRM: NCA DATE: 5/19/00 TIME: 1300

ADDITIONAL REMARKS: Metals were field filtered 0.45 µm
Reference Landsburg quote from NCA dated 5-15-2000 (Lee Canfield) W/O

COC REV 3/99 TEMP: 3.8 PAGE OF

APPENDIX A

DATA SHEETS

PIE WETLAND DE...ATION DATA FORM Plot No. A3
ROUTINE ONSITE DETERMINATION METHOD Transect ID ____
Weather: Rain Cowardin PSS
Project/Site: Landsburg Date: 5-30-00
Field Investigator: AB TM MB ____ Size(ac): <0.5 <1 1-2 2-5 >5
Normal Conds? Y N Surrounding
Disturbance? Y N
Problem Area? Y N

Cover Class
1= 0 - 5→ 2.5 2=5 - 25→15 3= 25 - 50→37.5 4= 50 - 75→62.5 5= 75 - 95→85 6= >95→ 97.5

W/L Dominant Plant Spp	Cvr Cls	Indicator Status	Stratum	W/L UP Dominant Plant Species	Cvr Cls	Indicator Status	Stratum
RUSP	3	FACT	S	6 DEMU			
2 SPW	4			7 RUSP, RUDI			
3				8 ACCI, SARA			
4				9			
				10			

reg'n'l know! W/L plnt list phys/repr adapt morph adapt tech lit W/L plant data base
%OBL, FACW or FAC ____ herb + ____ shrub + ____ tree = ____ total Hydrophytic Veg Y N
Rationale: >50% <50%[OBL, FACW or FAC (no FAC-)] other ____

HYDROLOGY
Inund? Y N Surf H_2O depth: " Sat^12" (6" in sandy soils)? Y N Depth of free H_2O in pit/hole: 3"
Other 1° Indicators; water marks drift lines sediment deposit W/L drainage patterns
Other field evidence of surface inundation or soil saturation ____
Secondary Indicators: oxidized root channels^12" water-stained leaves local soil survey data
FAC-Neutral Test (in vague hydrol) other ____ none
Recorded Data: stream, lake or tide gauge aerial photo other ____
Growing Season? Y N Based on: date obsv growth soil temp 19.7° >41°F ____
Wetland hydrology? Y N Rationale: Saturation

SOILS to at least 16"
Series/Phase: ____ Taxonomy ____ Drainage Class ____ Confirm Mapg Y N

Depth	Matrix Color*	Mottle?/Color	Gley? Texture
0-18+	10YR 3/2 Y N	10YR 4/6	N Sandstone chips
____	____ Y N	____	Y N ____
____	____ Y N	____	Y N ____
____	____ Y N	____	Y N ____

*below A horizon or 10" (whichever shallower)
Hydric Soil Indicators: Histosol Histic epipedon Sulfidic Odor Aquic Moisture Regime
Reducing conditions Gleyed/Low Chroma High Surface Organic Content in Sandy Soils
Concretions Organic Streaking in Sandy Soils Hydric Soils List: Local National
Other hydric soil indicators: ____ Hydric Soil? Y N
Rationale: prof. judgement

JURISDICTIONAL DETERMINATION AND RATIONALE
Wetland? Y N Rationale: all param? no veg no soils no hydrol Sample point within wetland? Y N
Other information/Remarks: PJ

1200 SF

FUNCTIONS AND VALUES

HYDROLOGIC SUPPORT Small
- Groundwater recharge (H M L N/A) ____
- Groundwater discharge (H M L N/A) ____
- Stream baseflow contribution (H M L N/A) ____
- Floodwater attenuation (H M L N/A) ____
  - Floodwater detention (H M L N/A) ____
  - Floodwater retention (H M L N/A) ____
  - Floodwater attenuation (H M L N/A) ____
  - Floodwater desynchronization (H M L N/A) ____

WATER QUALITY FUNCTIONS
- Sediment/shoreline stabilization (H M L N/A) ____
- Retention of sediments, nutrients or toxicants (H M L N/A) ____
- Transformation of nutrients or toxicants (H M L N/A) ____
- Wastewater treatment (H M L N/A) ____

NATURAL BIOLOGICAL FUNCTIONS
- Primary productivity (H M L N/A) ____
- Organic accumulation (H M L N/A) ____
- Organic export (H M L N/A) ____
- Decomposition (H M L N/A) ____
- Detrital transport (H M L N/A) ____
- Nutrient cycling and utilization (H M L N/A) ____
- Food chain support (H M L N/A) ____

HABITAT FUNCTIONS
- Invertebrates (H M L N/A) ____
- Amphibians (H M L N/A) ____
- Fisheries (H M L N/A) ____
- Mammals (H M L N/A) ____
- Birds (H M L N/A) ____
- Sanctuary and refuge (H M L N/A) ____

SOCIO-ECONOMIC FUNCTIONS
- Non-consumptive value
  - Recreational (H M L N/A) ____
  - Aesthetic (H M L N/A) ____
  - Historical (H M L N/A) ____
  - Archeological (H M L N/A) ____
- Consumptive value
  - Fisheries (H M L N/A) ____
  - Renewable resources (H M L N/A) ____
  - Agricultural (H M L N/A) ____

Wildlife ____
Data Plot Location Sketch

PIE WETLAND DELINEATION DATA FORM Plot No. B
ROUTINE ONSITE DETERMINATION METHOD Transect ID ____
Weather: Rain Cowardin PDW
Project/Site: Landsburg Date: 5-30-00
Field Investigator: AR TM MB Size(ac): <0.5 <1 1-2 2-5 >5
Normal Conds? Y N Subsidence
Disturbance? Y N
Problem Area? Y N depression

Cover Class
1= 0 - 5→ 2.5 2=5 - 25→15 3= 25 - 50→37.5 4= 50 - 75→62.5 5= 75 - 95→85 6= >95→ 97.5

W/L Dominant Plant Spp	Cvr Cls	Indicator Status	Stratum	W/L UP Dominant Plant Species	Cvr Cls	Indicator Status	Stratum
1 POTR	1	FACW	S	6 RUDI			
2 ~~RUDI~~				7 ACMA			
3 SALA	1	FACW+	S	8			
4 ALRU	2	FAC	S	9			
5				10			

☐ reg'n'l know! ☒ W/L plnt list ☐ phys/repr adapt ☐ morph adapt ☐ tech lit ☐ W/L plant data base
%OBL, FACW or FAC ___ herb + 100 shrub + ___ tree = 100 otal Hydrophytic Veg Y N
Rationale: ☒>50% ☐<50%[OBL, FACW or FAC (no FAC-)] ☐ other ____

HYDROLOGY
Inund? Y N Surf H_2O depth: 2.5 ft " Sat^12" (6" in sandy soils)? Y N Depth of free H_2O in pit/hole: ____"
Other 1° Indicators: ☐ water marks ☐ drift lines ☐ sediment deposit ☐ W/L drainage patterns
Other field evidence of surface inundation or soil saturation ____
Secondary Indicators: ☐ oxidized root channels^12" ☐ water-stained leaves ☐ local soil survey data
☐FAC-Neutral Test (in vague hydrol) ☐ other ____
Recorded Data: ☐ stream, lake or tide gauge ☐ aerial photo ☐ other ____ ☐ none
Growing Season? Y N Based on: ☐ date ☐ obsv growth ☐ soil temp @19.7" >41°F ☐ ____
Wetland hydrology? Y N Rationale: prof judgement

SOILS to at least 16"
Series/Phase: ____ Taxonomy ____ Drainage Class ____ Confirm Mapg Y N

Depth	Matrix Color*	Mottle?/Color	Gley?	Texture
____	____	Y N ____	Y N	____
____	____	Y N ____	Y N	____
____	____	Y N ____	Y N	____
____	____	Y N ____	Y N	____

*below A horizon or 10" (whichever shallower)
Hydric Soil Indicators: ☐ Histosol ☐ Histic epipedon ☐ Sulfidic Odor ☐ Aquic Moisture Regime
☐ Reducing conditions ☐ Gleyed/Low Chroma ☐ High Surface Organic Content in Sandy Soils
☐ Concretions ☐ Organic Streaking in Sandy Soils Hydric Soils List: ☐Local ☐National
Other hydric soil indicators: Inund, prof judgem Hydric Soil? Y N
Rationale: ____

JURISDICTIONAL DETERMINATION AND RATIONALE
Wetland? Y N Rationale: all param no veg no soils no hydrol Sample point within wetland Y N
Other Information/Remarks: Prof. Judgement
Dangerous site no flagging due to chem presence

trace C non wetland, no sat to 18"

FUNCTIONS AND VALUES

HYDROLOGIC SUPPORT
- Groundwater recharge (H M L N/A)
- Groundwater discharge (H M L N/A)
- Stream baseflow contribution (H M L N/A)
- Floodwater attenuation (H M L N/A)
- Floodwater detention (H M L N/A)
- Floodwater retention (H M L N/A)
- Floodwater attenuation (H M L N/A)
- Floodwater desynchronization (H M L N/A)

WATER QUALITY FUNCTIONS
- Sediment/shoreline stabilization (H M L N/A)
- Retention of sediments, nutrients or toxicants (H M L N/A)
- Transformation of nutrients or toxicants (H M L N/A)
- Wastewater treatment (H M L N/A)

NATURAL BIOLOGICAL FUNCTIONS
- Primary productivity (H M L N/A)
- Organic accumulation (H M L N/A)
- Organic export (H M L N/A)
- Decomposition (H M L N/A)
- Detrital transport (H M L N/A)
- Nutrient cycling and utilization (H M L N/A)
- Food chain support (H M L N/A)

HABITAT FUNCTIONS
- Invertebrates (H M L N/A)
- Amphibians (H M L N/A)
- Fisheries (H M L N/A)
- Mammals (H M L N/A)
- Birds (H M L N/A)
- Sanctuary and refuge (H M L N/A)

SOCIO-ECONOMIC FUNCTIONS
- Non-consumptive value
  - Recreational (H M L N/A)
  - Aesthetic (H M L N/A)
  - Historical (H M L N/A)
  - Archeological (H M L N/A)
- Consumptive value
  - Fisheries (H M L N/A)
  - Renewable resources (H M L N/A)
  - Agricultural (H M L N/A)
  - Wildlife

Data Plot Location Sketch

PIE WETLAND DELINEATION DATA FORM Plot No. D
ROUTINE ONSITE DETERMINATION METHOD Transect ID
Weather: Rain Cowardin POW
Project/Site: Landsburg Date: 5-30-00
Field Investigator: (AR) TM MB Size(ac): (<0.5) <1 1-2 2-5 >5
Normal Conds? Y (N) subsidence
Disturbance? (Y) N
Problem Area? (Y) N

Cover Class
1= 0 - 5→ 2.5 2=5 - 25→15 3= 25 - 50→37.5 4= 50 - 75→62.5 5= 75 - 95→85 6= >95→ 97.5

	W/L Dominant Plant Spp	Cvr Cls	Indicator Status	Stratum	W/L UP Dominant Plant Species	Cvr Cls	Indicator Status	Stratum
1	SALA	1	FACW+	S	6	/		
2	OW	5	—		7			
3					8			
4					9			
5					10			

reg'n'l known W/L plnt list phys/repr adapt morph adapt tech lit W/L plant data base
%OBL, FACW or FAC ___ herb + 100 shrub + ___ tree = 100 total Hydrophytic Veg (Y) N
Rationale: (>50% <50%[OBL, FACW or FAC (no FAC-)] other prof. Judgement

HYDROLOGY
Inund? (Y) N Surf H_2O depth: 4 Sat^12" (6" in sandy soils)? (Y) N Depth of free H_2O in pit/hole: Surf.
Other 1° indicators: water marks drift lines sediment deposit W/L drainage patterns
Other field evidence of surface inundation or soil saturation
Secondary Indicators: oxidized root channels^12" water-stained leaves local soil survey data
FAC-Neutral Test (in vague hydrol) other none
Recorded Data: stream, lake or tide gauge aerial photo other
Growing Season? Y N Based on: date obsv growth soil temp @19.7° >41°F
Wetland hydrology? (Y) N Rationale: saturation

SOILS to at least 16"
Series/Phase: Taxonomy Drainage Class Confirm Mapg Y N

Depth	Matrix Color*	Mottle?/Color	Gley?	Texture
0-18+	2.5Y 5/2 (Y) N	10YR 4/6	Y (N)	sil
	Y N		Y N	
	Y N		Y N	
	Y N		Y N	

*below A horizon or 10" (whichever shallower)
Hydric Soil Indicators: Histosol Histic epipedon Sulfidic Odor Aquic Moisture Regime
Reducing conditions Gleyed/Low Chroma High Surface Organic Content in Sandy Soils
Concretions Organic Streaking in Sandy Soils Hydric Soils List: Local National
Other hydric soil indicators: Hydric Soil? (Y) N
Rationale: prof. judgement, chroma

JURISDICTIONAL DETERMINATION AND RATIONALE
Wetland? (Y) N Rationale: all param? no veg no soils no hydrol Sample point within wetland? (Y) N
Other Information/Remarks:
no access to most of W/L → steep slopes
no drainage into W/L
W/L E=8 no access to any segment
vaped veg'd
no drainage entering

FUNCTIONS AND VALUES

HYDROLOGIC SUPPORT
- Groundwater recharge (H M (L) N/A) Surge
- Groundwater discharge (H M L (N/A)
- Stream baseflow contribution (H M L (N/A)
- Floodwater attenuation (H (M) L N/A)
- Floodwater detention (H (M) L N/A)
- Floodwater retention (H (M) L N/A)
- Floodwater attenuation (H (M) L N/A)
- Floodwater desynchronization (H (M) L N/A)

WATER QUALITY FUNCTIONS
- Sediment/shoreline stabilization (H M L (N/A)
- Retention of sediments, nutrients or toxicants (H (M) L N/A)
- Transformation of nutrients or toxicants (H (M) L N/A)
- Wastewater treatment (H M L (N/A)

NATURAL BIOLOGICAL FUNCTIONS
- Primary productivity (H M (L) N/A)
- Organic accumulation (H (M) L N/A)
- Organic export (H M L (N/A)
- Decomposition (H (M) L N/A)
- Detrital transport (H M L (N/A)
- Nutrient cycling and utilization (H (M) L N/A)
- Food chain support (H (M) L N/A)

HABITAT FUNCTIONS
- Invertebrates (H (M) L N/A)
- Amphibians (H (M) L N/A)
- Fisheries (H M L (N/A)
- Mammals (H M (L) N/A)
- Birds (H (M) L N/A)
- Sanctuary and refuge (H M (L) N/A)

SOCIO-ECONOMIC FUNCTIONS
- Non-consumptive value
Recreational (H M L (N/A)
Aesthetic (H M L (N/A)
Historical (H M L (N/A)
Archeological (H M L (N/A)
- Consumptive value
Fisheries (H M L (N/A)
Renewable resources (H M L (N/A)
Agricultural (H M L (N/A)
Wildlife
Data Plot Location Sketch