



ECOLOGICAL CONSULTING AND
ENVIRONMENTAL LABORATORY SERVICES

WHITE WATER ASSOCIATES, INC.

August 16, 1995

Mr. Scott Watson
Wisconsin Department of Natural Resources
North Central District Headquarters
107 Sutcliff
Box 818
Rhineland, Wisconsin 54501

Re: C.M. Christiansen Co., Phelps, Wisconsin - Pole Treatment Project

Dear Mr. Watson:

The first phase investigation efforts are being structured to implement initial field work in the pole dipping vat and the small upper wetland areas. At this time, we have reviewed the work plan pertaining to the pole dipping vat and the small upper wetland areas with respect to recent information made available to us. In light of the information gathered from Mr. Christiansen and the WDNR, it is proposed to modify the investigation of the small upper wetland area as outlined in the approved work plan in order to address WDNR concerns.

Work related to the small upper wetland area was proposed in the original work plan as follows:

- Collect six (6) to seven (7) surface samples along a drying rack and field screen each sample.
- Approximately one-third of the drying rack samples will be sent to the laboratory for analysis.
- In areas where burning was suspected or exhibited petroleum odors, surface samples would be collected and analyzed in the laboratory.

Work related to the small upper wetland area is proposed to be modified from that outlined above.

It is, hereafter, proposed to consist of the following:

- Placement of two (2) soil borings with continuous split spoon sampling to groundwater.
- At one of the soil boring locations a groundwater monitoring well will be installed.
- Perform approximately ten (10) to fifteen (15) hand auger borings to a maximum depth of four to five feet.
- Immunoassay and HNU Field screening of collected soil samples (approximately 50 to 60 samples).
- On the basis of the field screening results at each boring/hand auger location, a minimum of one sample will be submitted for laboratory analysis unless field indications suggest otherwise.
- Samples submitted for laboratory analysis at the soil boring sites will be analyzed for Pentachlorophenol (PCP), Volatile Organic Carbons (VOC), Polyaromatic Hydrocarbons (PAHs), and metals.
- Samples submitted for laboratory analysis from the hand auger sites will be analyzed for PCP and PAHs.
- The groundwater at the monitoring well will be sampled twice and analyzed for PCP, VOCs, PAHs, and metals.

Refer to the attached site drawing for review of the proposed sampling locations. The above outlined work is intended to serve as an initial site characterization.

Work related to the pole treatment vat area will be conducted as outlined in the work plan and as generally described below:

- Placement of four (4) soil borings with split spoon soil sampling.
- Installation of two (2) groundwater monitoring wells and one (1) piezometer.
- Performance of four (4) hand auger borings and soil sampling.
- Collection of three (3) surface soil samples from around the area of the vat.

Refer to the attached site drawing for the proposed sampling locations and the approved work plan for specifics regarding the proposed work. The sampling locations are based on our understanding of where areas of concern are located.

At this time, the remaining areas of work proposed in the work plan have not been modified. The planned work activities in these areas appear to be sufficient, however, the content and level of effort over the duration of the project must continue to be reviewed as more information becomes available. Should new information be sufficiently compelling, a revised scope of work may be necessary.

The tasks outlined in the work plan pertaining to the Military Creek assessment will not be evaluated until the WDNR assessment plan for the creek has been received and examined. Latest communications with you indicated that we can expect a draft of their work plan this week. The review of the WDNR study will not delay the drilling phase of this project.

In addition to the review of the work plan modifications, we also ask that the attached site map be reviewed by you. The site map represents our understanding of where site activities took place and where site structures were located. Information received from Mr. Christiansen and from inspections of historical aerial photographs have been included on the map. Please inform us of any comments or concerns regarding the proposed sampling locations, etc. Also inform us of any information that is not consistent with WDNR understanding of the site.

The attached tables of analytical methods and method detection limits for soils and groundwater are hereby proposed for the first phase initial site investigation. These laboratory methods are U.S. EPA accepted methods for the proposed chemical parameters and sample matrices we expect to encounter at the site.

Please review the above identified items and changes for the small upper wetland area. We are prepared to perform the initial site characterization work at the pole dipping area and upper wetland within one activity period, thereby reducing the cost over independent investigations. The remaining proposed tasks as outlined in the approved work plan will be evaluated after the findings of the initial site characterization have been reviewed.

If these changes are agreeable to you, we would like to receive your confirmation (verbal or written) to precede with the initial characterization by Friday of this week (8/18/95). We will keep you informed of the ensuing work activities and any changes in the scope of work that may occur.

At the present time, we expect to begin drilling the week of August 21, 1995. In light of this scheduling, we would appreciate your concurrence as soon as possible.

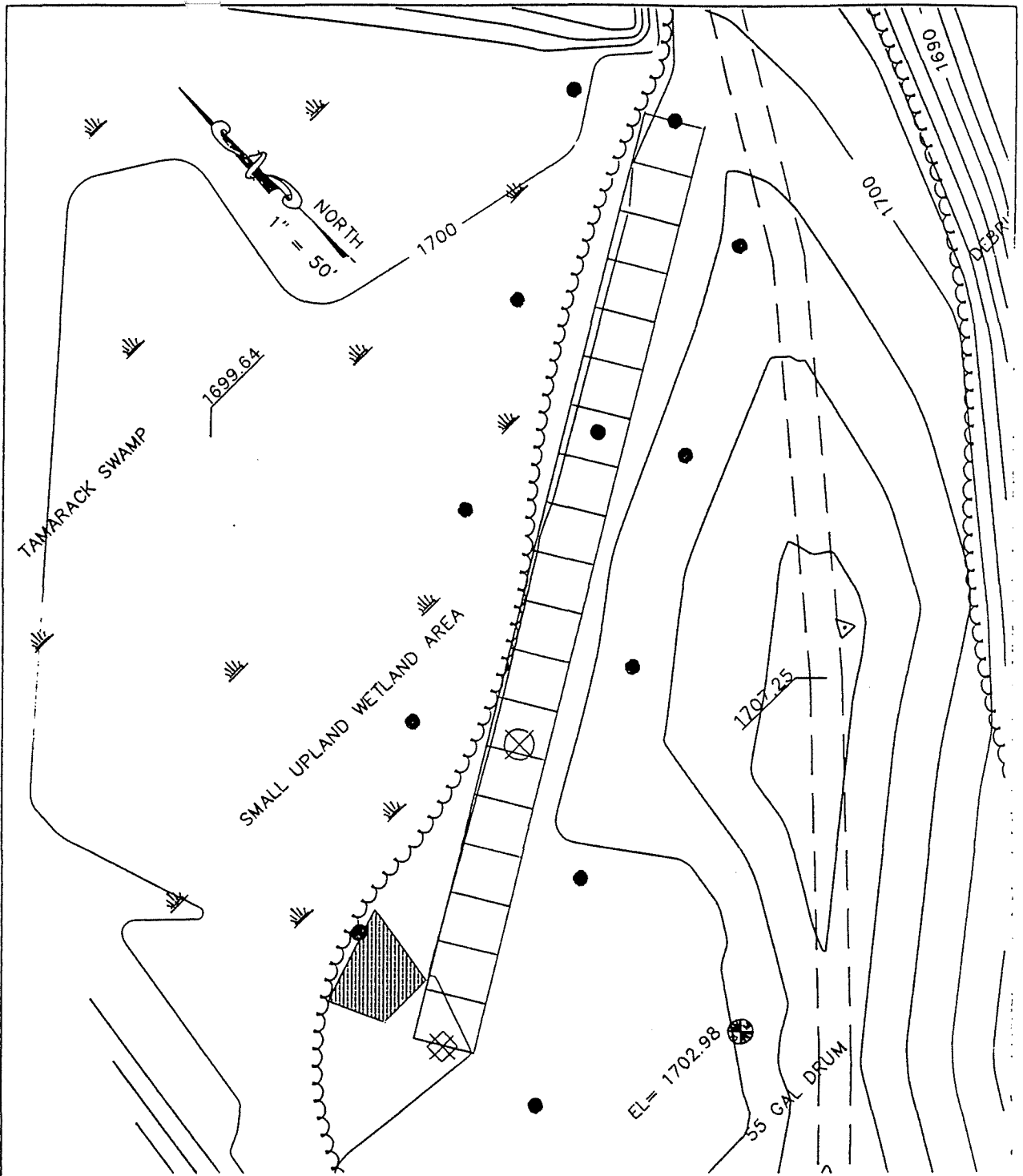
Should you have any questions or comments, please contact me at (906) 822-7373 or Mark Gregory at (906) 774-3440.

Sincerely,




A handwritten signature in cursive script that reads "Bette J. Premo". The signature is written in black ink and is positioned above the printed name.

Bette J. Premo, Ph.D.

cc w/o attachments: R. Roder; Rheinart. Boerner, Van Deuren, Norris & Rieselbach, S.C.
M. Gregory, Coleman Engineering Company



LEGEND

-  BORING
-  BORING/MONITORING WELL
-  HAND AUGER BORING

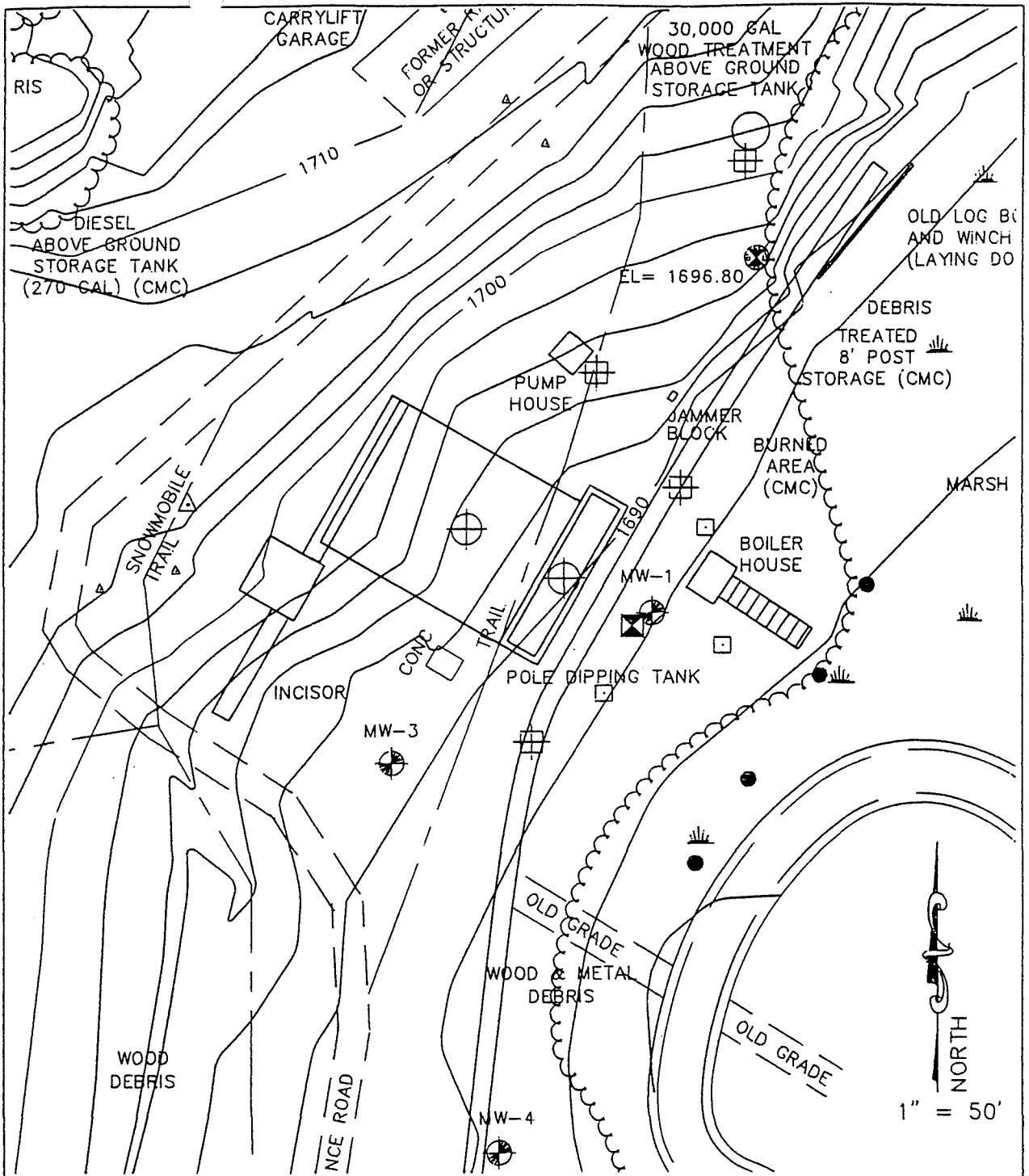
DRAWING PREPARED FROM EXISTING
CONDITIONS TOPOGRAPHIC SURVEY

C.M. CHRISTIANSON CO.
SMALL UPLAND WETLAND AREA
PROPOSED SAMPLING SITES



COLEMAN ENGINEERING COMPANY
OF IRON MOUNTAIN
635 INDUSTRIAL PARK DRIVE
IRON MOUNTAIN, MICHIGAN 49801

DATE AUG 95
JOB NO 95042 A3
CADD FILE 95042-01



LEGEND

-  BORING
-  BORING/MONITORING WELL
-  PIEZOMETER
-  HAND AUGER BORING
-  SURFACE SOIL SAMPLES

DRAWING PREPARED FROM EXISTING TOPOGRAPHIC SURVEY

**C.M. CHRISTIANSON CO.
POLE DIPPING VAT
PROPOSED SAMPLING SITES**



COLEMAN ENGINEERING COMPANY
OF IRON MOUNTAIN
635 INDUSTRIAL PARK DRIVE
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SOILS ANALYSIS

EPA SW-846 METHODS

<u>PARAMETER</u>		<u>METHOD</u>	<u>DETECTION LIMIT</u>
Metals - Flame			
Mercury	Cold Vapor	EPA 7471	0.1 mg/Kg
Nickel		EPA 7520	1 mg/Kg
Zinc		EPA 7950	1 mg/Kg
Metals - Graphite Furnace			
Arsenic		EPA 7061	1 ug/Kg
Barium		EPA 7081	200 ug/Kg
Cadmium		EPA 7131	0.2 ug/Kg
Chromium (Total)		EPA 7191	50 ug/Kg
Copper		EPA 7211	25 ug/Kg
Lead		EPA 7421	3 ug/Kg
Selenium		EPA 7741	1 ug/Kg
Silver		EPA 7761	0.5 ug/Kg

mg/Kg = Parts per million (10^{-3} g/Kg)

ug/Kg = Parts per billion (10^{-6} g/Kg)

GROUNDWATER ANALYSIS

<u>PARAMETER</u>	<u>METHOD</u>	<u>DETECTION LIMIT</u>
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Non-metals and Nutrients

Alkalinity	EPA 310.1	5 mg/L
Ammonia	EPA 350.3	0.01 mg/L
Conductivity	EPA 120.1	1 umho/cm
Nitrate Nitrogen	EPA 353.3	0.01 mg/L
Nitrite Nitrogen	EPA 354.1	0.01 ug/L
pH	EPA 150.1	±0.01
Total Phosphorus	EPA 365.2	0.01 mg/L
Total Suspended Solids	EPA 160.2	15 mg/L

Demand

Total Organic Carbon	EPA 415.2	1 ug/L
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Metals - Flame

Arsenic	EPA 7060	2 ug/L
Mercury Cold Vapor	EPA 7470	0.2 ug/L
Nickel	EPA 7520	40 ug/L
Zinc	EPA 7950	5 ug/L

Metals - Graphite Furnace

Barium	EPA 7081	2 ug/L
Cadmium	EPA 7131	0.1 ug/L
Chromium	EPA 7191	1 ug/L
Copper	EPA 7211	1 ug/L
Lead	EPA 7421	1 ug/L
Selenium	EPA 7741	1 ug/L
Silver	EPA 7761	0.2 ug/L

mg/L = Parts per million (10^{-3} g/L)

ug/L = Parts per billion (10^{-6} g/L)

GROUNDWATER ANALYSIS

EPA SW-846 METHODS (EPA 8290)

PARAMETER

DETECTION LIMIT

Chlorinated Dioxins and Furans

2,3,7,8-TCDD
1,2,3,7,8-PeCDD
1,2,3,6,7,8-HxCDD
1,2,3,7,8,9-HxCDD
1,2,3,4,7,8-HxCDD
1,2,3,4,6,7,8HpCDD
OCDD

Detection limits for
Dioxins in water concentrations
from 1- 10 ng/L depending
on degree of chlorination.

2,3,7,8-TCDF
1,2,3,7,8-PeCDF
2,3,4,7,8-PeCDF
1,2,3,6,7,8-HxCDF
1,2,3,7,8,9-HxCDF
1,2,3,4,7,8-HxCDF
2,3,4,6,7,8-HxCDF
1,2,3,4,6,7,8HpCDF
1,2,3,4,7,8,9-HpCDF
OCDF

Detection limits for
Furans in water concentrations
from 1 - 10 ng/L depending
on the degree of chlorination.

ng/L = Parts per Trillion (10^{-9} g/L)

GROUNDWATER ANALYSIS

EPA SW-846 METHODS

VOLATILE ORGANICS LIST FROM METHOD 8021A

(Detection limits listed in parts per billion.)

<u>PARAMETER</u>	<u>PID DETECTION LIMIT</u>
Benzene	0.09 ug/L
n-Butylbenzene	0.2 ug/L
sec-Butylbenzene	0.2 ug/L
tert-Butylbenzene	0.6 ug/L
Ethylbenzene	0.05 ug/L
Isopropylbenzene	0.5 ug/L
p-Isopropyltoluene	0.1 ug/L
Naphthalene	0.6 ug/L
n-Propylbenzene	0.04 ug/L
Styrene	0.1 ug/L
Toluene	0.1 ug/L
1,2,4-Trimethylbenzene	0.5 ug/L
1,3,5-Trimethylbenzene	0.04 ug/L
o-Xylene	0.1 ug/L
m-Xylene	0.1 ug/L
p-Xylene	0.2 ug/L

ug/L = Parts per billion (10^{-6} g/L)

GROUNDWATER ANALYSIS

EPA SW-846 METHODS (EPA 8270)

(All detection limits as parts per billion.)

PARAMETER

DETECTION LIMIT

Base/Neutral and Acid Extractable Organics

Acaenaphthene	10 ug/L
Acenaphthylene	10 ug/L
Anthracene	10 ug/L
Benz(a) anthracene	10 ug/L
Benzo(b) fluoranthene	10 ug/L
Benzo(k) fluoranthene	50 ug/L
Benzo(g,h,i) perylene	10 ug/L
Benzo(a) pyrene	10 ug/L
Dibenz(a,h) anthracene	10 ug/L
Dibenzofuran	10 ug/L
Fluoranthene	10 ug/L
Fluorene	10 ug/L
Indeno(1,2,3-cd) pyrene	10 ug/L
2-Methylnaphthalene	10 ug/L
Naphthalene	10 ug/L
N-Nitrosodiphenylamine	10 ug/L
Phenanthrene	10 ug/L
Pyrene	10 ug/L

Acid Extractable Organics (Method 8151)

Pentachlorophenol	0.5 ug/L
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ug/L = Parts per billion (10^{-6} g/L)

SOILS ANALYSIS

EPA SW-846 METHODS (EPA 8270)

(All detection limits as parts per billion.)

PARAMETER

DETECTION LIMIT

Polynuclear Aromatic Hydrocarbons

Acaenaphthene	330 ug/Kg
Acenaphthylene	330 ug/kg
Anthracene	330 ug/kg
Benz(a) anthracene	330 ug/Kg
Benzo(b) fluoranthene	330 ug/Kg
Benzo(k) fluoranthene	330 ug/Kg
Benzo(g,h,i) perylene	330 ug/Kg
Benzo(a) pyrene	330 ug/Kg
Dibenz(a,h) anthracene	330 ug/Kg
Dibenzofuran	330 ug/Kg
Fluoranthene	330 ug/Kg
Fluorene	330 ug/Kg
Indeno(1,2,3-cd) pyrene	330 ug/Kg
2-Methylnaphthalene	330 ug/Kg
Naphthalene	330 ug/Kg
N-Nitrosodiphenylamine	330 ug/Kg
Phenanthrene	330 ug/Kg
Pyrene	330 ug/Kg

Acid Extractable Organics (Method 8151)

Pentachlorophenol	20 ug/Kg
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ug/Kg = Parts per billion (10^{-6} g/Kg)

SOILS ANALYSIS (Low Concentration)

EPA SW-846 METHODS

VOLATILE ORGANICS LIST FOR METHOD 8021A

(Detection limits listed in parts per billion.)

<u>PARAMETER</u>	<u>PID DETECTION LIMIT</u>
Benzene	0.09 ug/Kg
n-Butylbenzene	0.2 ug/Kg
sec-Butylbenzene	0.2 ug/Kg
tert-Butylbenzene	0.6 ug/Kg
Ethylbenzene	0.05 ug/Kg
Isopropylbenzene	0.5 ug/Kg
p-Isopropyltoluene	0.1 ug/Kg
Naphthalene	0.6 ug/Kg
n-Propylbenzene	0.04 ug/Kg
Styrene	0.1 ug/Kg
Toluene	0.1 ug/Kg
1,2,4-Trimethylbenzene	0.5 ug/Kg
1,3,5-Trimethylbenzene	0.04 ug/Kg
o-Xylene	0.1 ug/Kg
m-Xylene	0.1 ug/Kg
p-Xylene	0.2 ug/Kg

ug/Kg = Parts per billion (10^{-6} g/Kg)

SOILS ANALYSIS

EPA SW-846 METHODS (EPA 8290)

(All detection limits as parts per trillion.)

PARAMETER

DETECTION LIMIT

Chlorinated Dioxins and Furans

2,3,7,8-TCDD	5 ng/Kg
1,2,3,7,8-PeCDD	4 ng/Kg
1,2,3,6,7,8-HxCDD	0.8 ng/Kg
1,2,3,7,8,9-HxCDD	0.8 ng/Kg
1,2,3,4,7,8-HxCDD	0.8 ng/Kg
1,2,3,4,6,7,8HpCDD	0.2 ng/Kg
OCDD	0.05 ng/Kg
2,3,7,8-TCDF	0.4 ng/Kg
1,2,3,7,8-PeCDF	0.4 ng/Kg
2,3,4,7,8-PeCDF	4 ng/Kg
1,2,3,6,7,8-HxCDF	0.8 ng/Kg
1,2,3,7,8,9-HxCDF	0.8 ng/Kg
1,2,3,4,7,8-HxCDF	0.8 ng/Kg
2,3,4,6,7,8-HxCDF	0.8 ng/Kg
1,2,3,4,6,7,8HpCDF	0.2 ng/Kg
1,2,3,4,7,8,9-HpCDF	0.2 ng/Kg
OCDF	0.05 ng/Kg
Toxic Congener Total	15 ng/Kg

ng/Kg = Parts per trillion (10^{-9} g/Kg)