



COLEMAN ENGINEERING CO.

OF IRON MOUNTAIN

Civil Engineering • Environmental Engineering
Geotechnical Engineering • Land Surveying • Test Drilling
Construction Quality Control • Materials Laboratory Testing

Principals:
James R. Foley
John R. Garske
James J. Strigel
Michael L. DesRosier



May 5, 1995

Mr. Scott Watson
Wisconsin Department of Natural Resources
107 Sutliff Avenue
P. O. Box 818
Rhinelander, Wisconsin 54501

Re: Letter of Modification to C. M. Christiansen Company
Wood Preserving Pole Treatment Site Investigation Work Plan

Dear Mr. Watson:

In the Department's April 26, 1995 review letter concerning modification of the Site Investigation Work Plan for the C. M. Christiansen Company pole treatment facility we provide the following comments which are to serve as clarifications and modifications to the Work Plan:

- Composite Sampling

In Section III(A)(2)(C) on page 5 and 6 it was proposed to collect composite samples of media which appeared to exhibit similar generation and composition. As indicated in the DNR review letter, the sample compositing procedure is to also take into account the locations of the media to be sampled. That is, in addition to the proposed criteria for compositing, sample compositing will only occur at the same general locations about the site (i.e., samples collected from "area a" in the north east corner of the site will not be composited with samples from "area b" located by the treatment vat).

- Investigative Wastes

As is standard procedure all drummed investigation waste (soil cuttings and development water) will be labeled as to point of generation, and potentially hazardous to health. The drummed waste will also be consolidated into a single on-site storage area. Liquid wastes will be properly managed prior to freeze-up.

635 Industrial Park Drive - P.O. Box 607
Iron Mountain, Michigan 49801
(906) 774-3440
FAX: (906) 774-7776

Office Also Located At:
205 N. Harrison Street
Ironwood, Michigan 49938
(906) 932-5048
FAX: (906) 932-3213

- Well Construction

Prior to beginning any on-site drilling the DNR soil boring logs and well construction detail will be requested and reviewed to make an initial determination as to the adequacy of 0.010 slot well screen. Should it be apparent the 0.010 slot well screen is inappropriate, steps will be taken to size the well screen to the expected characteristics of the soil formation(s). Also, well screen sizing will be considered during drilling operations and adjusted in the field if necessary.

- Well Development

In Section III(H)(4) on page 16, paragraph three identifies that during well development 10 well volumes of water are to be removed from the well or until the well produces sediment-free water. It is understood that well development water volumes are to include the volume of water in the filter pack. The total well development purge volumes will be calculated as follows:

$$V_1 + V_2 = \text{Total Purge Volume}$$

$$V_1 = [\pi * D_1/2)^2 * H_1]a$$

V_1 = volume of water in well casing in cubic feet

π = approximately 3.142

D_1 = inside diameter of well in feet

H_1 = height of water column in feet

a = ten (10) well volumes purged or until well produces sediment free water

$$V_2 = N * \pi * H_2[(D_3/2)^2 - (D_2/2)^2]$$

V_2 = volume of water in filter pack

N = porosity of filter pack

π = approximately 3.142

H_2 = Length of filter pack or the height of the water column in water table observation wells (7.48 gal. water per cubic foot of water)

D_2 = outside diameter of well casing

D_3 = diameter of borehole

- Groundwater Sampling

Purge volumes prior to sampling of the wells will be calculated as outlined in Section III(H)(5)(6) on page 17 of the work plan. The formula for calculating purge volumes shall be corrected as follows: $V = [\pi * (d/2)^2 * h] a$. The

variables to the equations are defined in the referenced section.

In addition, we also propose to modify the Well Purging Operation (P. 18 H)5c)) to include the flexibility of using a submersible pump for well purging operations only. Any and all water samples collected from the groundwater wells will be, as stated in the work plan, collected by bailer. The submersible pump would be a Grundfos RediFlo2 constructed completely with Teflon and stainless steel materials. Additionally, QA/QC for this purging method would be rinsing the pump with deionized water and flushing the tubing with deionized water between wells. Field blanks of the pump and discharge tubing system will be collected at the usual 10% frequency to confirm that no cross-contamination between wells has occurred.

- **Bioremediation Analysis**

Pursuant to conversations regarding the likelihood of passive bioremediation occurring at the site, the Department has indicated that monitoring CO₂ levels at the site might provide some useful indication of microbial activity. The monitoring of CO₂ will be considered and possibly incorporated into site monitoring, but not until after review of the initial investigation and bioremediation parameters proposed in the Work Plan.

Table 3 on page 27 of the Work Plan lists the bioremediation analytical regime. This table is hereby modified to include "other chlorophenols". The "other chlorophenol" parameters were inadvertently missed when developing Table 3.

- **Soil Classification/Physical Testing**

Our normal procedure for physical soil testing uses USCS as the method for soil classification. However, as a secondary classification we will also use a modified USDA system. That is, ASTM methods associated with the USCS classification process will be used to identify soils with USDA nomenclature.

- **Schedule**

We are very much aware of the necessity to progress with work activities related to the project and understand the Department's concern regarding the scheduling of work. In response to the DNR review of the proposed schedule, it should be noted that timelines related to work efforts will be adjusted such that activities progress in a timely fashion.

Page -4-
May 4, 1995

In order to ensure that the initial field investigation activities are conducted at appropriate locations about the site, it is necessary for us to complete the historical review process. At this time the limiting factor of the historical review is obtaining and reviewing aerial photographs of the site.

We have located and ordered several vintages but to date they have not been received. These photographs coupled with the interview process provide the basis for the initial field efforts. Upon completion of the initial first phase field work, the proposed schedule will be reviewed with the Department's concerns in mind and adjusted as appropriate.

Should you have any questions or comments, please feel free to contact this office at your earliest convenience.

Sincerely,

COLEMAN ENGINEERING COMPANY
OF IRON MOUNTAIN



Mark A. Gregory
Environmental Scientist

MAG/lhg

cc: Raymond Roder - Reinhart, Boerner, Van Deuren, Norris &
Rieselback, S.C.
Dr. Edstrom - WWA

CEC Project #E-95042-A4