



Remediation and Liability Management Company, Inc.

12636
MC: 483-619-356
1996 Technology Drive
Troy, Michigan 48083
(248) 680-5548
Fax (248) 680-5129

FILE COPY

August 30, 2002

Mr. Kevin Holdwick
Michigan Department of Environmental Quality
Waste Management Division
P.O. Box 30241
Lansing, MI 48909-7741

Dear Mr. Holdwick:

Re: Response to MDEQ's May 14, 2002 Comments on REALM's March 28, 2002 Response
Former Peregrine (US) Inc. Coldwater Road Facility, Genesee Township, Michigan
MIR 000 020 743

This letter presents Remediation and Liability Management Company, Inc.'s (REALM's) response to your comments (dated May 14, 2002) on REALM's earlier response (dated March 28, 2002) to your comments (dated March 29, 2001) on the Draft RCRA Facility Investigation (RFI) Report (CRA, November 2000), for the Former Peregrine (US) Inc. Coldwater Road Facility (Facility). This Response to Comments includes the following Attachments:

Attachment A - Field Procedures for GWNIAA Investigation.

As you are aware, REALM and MDEQ are in the process of negotiating a Voluntary Corrective Action Agreement for this Facility. Comments on the recent draft of the Voluntary Corrective Action Agreement will be handled under separate cover.

COMMENTS

MDEQ Response to Comment #1

The response agreed with our observation that the use of Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, generic industrial criteria limits future land use to industrial zoning and stated that institutional controls limiting the zoning would be proposed as a component of the Corrective Measures Study for the facility.

Response to MDEQ's Response to Comment #1

Agreed. It should be noted that institutional controls will only be utilized if applicable generic criteria are not achieved.

- d) As discussed during the conference call on June 19, 2002, REALM conducted a variety of investigative and remedial activities in the area prior to backfilling of the basement. REALM installed 35 boreholes during the initial RFI and during subsequent delineation activities. All boreholes encountered the clay unit within a few feet of the basement floor, thereby demonstrating lateral continuity; with the exception of two borings adjacent to BH-9-26-00 (these hit refusal, but the BH-9-26-00 excavation encountered the clay unit) and one boring adjacent to BH-9-25-00 (this did not encounter clay at a depth of 8 feet but borings within 10 feet of this location encountered clay within 1 to 4 feet). As discussed during the June 19, 2002 conference call, REALM indicated the planned GWNIAA investigation (and associated reporting) would be completed prior to incurring additional unnecessary costs for further investigation in the basement area. This work is being implemented and will be reported as a Technical Memorandum.
- e) A groundwater sample will be collected from PFW-1, as discussed in Attachment A. It should be noted that previous samples collected in the drift aquifer have shown that the groundwater in the drift aquifer is not impacted.
- f) REALM is not aware of a requirement to contact the local health department regarding their concerns about GWNIAA at this site. This does not seem to fit with what should be a technical demonstration of GWNIAA. Could MDEQ please provide a reference for this requirement.

MDEQ Response to Comment #10

We requested information the impact of nearby surface water bodies on site hydrology. Though we had never asked for stormwater samples earlier in the project (i.e., Work Plan phase), a discussion of existing data or the collection of both dry and wet weather data to document the quality of effluent, as proposed in the response would be desirable.

Response to MDEQ's Response to Comment #10

The Facility has undergone environmental decommissioning, demolition, and restoration. These programs were designed, in part, to address stormwater issues. Our discussions with MDEQ Surface Water Quality Division (SWQD) indicated that the Facility stormwater permit will not be required after the following items are addressed:

1. Decommissioning of stormwater collection system at AOI #18;
2. The coal fines pile was removed from AOI #11, in July 2002; and
3. Cleaning of residual oil stains on concrete slab.

REALM is proceeding with these activities.



MDEQ Response to Comment #11

We had requested additional delineation of arsenic contamination at soil boring BH-2-3-00 and they provided a workplan for doing the requested sampling.

Response to MDEQ's Response to Comment #11

REALM is proceeding with additional delineation. Sample results will be presented as a Technical Memorandum.

MDEQ Response to Comment #12

We had requested additional delineation of 1,1-dichloroethene contamination at soil boring BH-9-23-00 and they provided a workplan for doing the requested sampling.

Response to MDEQ's Response to Comment #12

REALM is proceeding with additional delineation. Sample results will be presented as a Technical Memorandum.

MDEQ Response to Comment #13

We had requested additional delineation for Particulate Soil Inhalation Criteria (PSIC) exceedance at BH-9-24-00. They provided a workplan for doing the requested sampling. With respect to earlier remediation effort for nickel and lead PSIC exceedances at BH-9-26-00, all PSIC and IDCC were met. However, two sidewall and both bottom verification samples still exceed drinking water protection criteria for nickel and/or chromium. The facility maintains the drinking water pathway is not applicable and no further action is required here; however, they should be reminded that the GWNIAA determination has not been granted and that the drinking water pathway is still relevant at the site. In addition, the results for the twenty-one random samples and samples surrounding BH-9-25-00 are not presented and/or discussed. This data must be presented and evaluated.

Response to MDEQ's Response to Comment #13

See Response to Comment #1 and #9. REALM believes that the perched water zone will be demonstrated to be GWNIAA. The random samples and samples surrounding BH-9-25-00 were not analyzed.



MDEQ Response to Comment #14

We had requested additional information concerning exceedances of Part 201 soil drinking water protection criteria. They responded by stating that the GWNIAA determination would address drinking water concerns. The remaining issues with the GWNIAA determination are discussed in item 9, above.

Response to MDEQ's Response to Comment #14

See Response #1, #9, and #13.

MDEQ Response to Comment #15

We had requested additional delineation of arsenic contamination at several locations. They provided a workplan for doing the requested sampling.

Response to MDEQ's Response to Comment #15

REALM is proceeding with additional delineation. Sample results will be presented in a Technical Memorandum.

MDEQ Response to Comment #16

We had stated that the preliminary risk evaluation proposed in the draft RFI report was premature. They responded by withdrawing Section 6 from the RFI report until all additional delineation was completed.

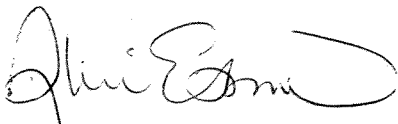
Response to MDEQ's Response to Comment #16

Acknowledged.

Should you have any questions on the above, please do not hesitate to contact me at
(248) 680-5219.

Yours truly,

REMEDICATION AND LIABILITY MANAGEMENT COMPANY, INC.



for

Cheryl Hiatt
Project Manager
REALM, Inc.

SE/cm/12636/6
Encl.

c.c.: Joe Rogers - MDEQ
John McCabe - MDEQ
Marilyn Dedyne - REALM
Jean Caufield - REALM
Steve Song - ENVIRON
Glenn Turchan - CRA
Sylvie Eastman - CRA

ATTACHMENT A

FIELD PROCEDURES FOR GWNIAA INVESTIGATION

1.0 INTRODUCTION

This document outlines the recommended field procedures for implementation at the Facility, with respect to gathering supporting documentation to confirm that the shallow perched water zone at the Facility is Groundwater Not In An Aquifer (GWNIAA). The procedures outlined herein have been developed based on our review of the GWNIAA Staff Guidance document prepared by the Michigan Department of Environmental Quality (MDEQ) Waste Management Division (WMD) dated May 4, 2000, CRA's standard field operating procedures, and General Motors Corporation's (GM's) standard Field Methods Guidelines (FMGs).

2.0 OVERVIEW OF PROPOSED FIELD PROGRAM

An additional investigation program to support the determination that the perched zone at the Facility is GWNIAA was briefly outlined in the RFI Work Plan Addendum #2 prepared by CRA, dated March 2002. The proposed field work includes performance of single well response tests (SWRTs) on numerous shallow monitoring wells at the Facility, step-drawdown testing, and a longer-term constant rate pumping test/recovery test on a deep monitoring well (completed in the drift aquifer) at the Facility (PFW-1) while monitoring for a hydraulic response in the shallow monitoring wells. In support of these tests, additional shallow monitoring wells in proximity to PFW-1 were recommended for installation.

3.0 FIELD PROCEDURES

The following sections outline the field procedures to be followed during the testing. All data collected during the field work are to be documented on GM Standard Field Forms or CRA Standard Forms if an appropriate GM form is not available.

3.1 Monitoring Well Installations

Three additional monitoring wells were installed at the Facility during the week of June 24, 2002, all located approximately 50 feet from PFW-1 and screened within the shallow perched zone, where present. Very moist, sandy clay to clayey silt partings, approximately 3-inches thick were identified at 12 ft bgs for the southwest and east boreholes. However, no very moist seams were observed in the borehole location completed to the northwest. An additional shallow monitoring well was installed during the week of July 1, 2002, immediately adjacent (within 5 to 10 feet) to PFW-1. A very moist, sandy clay to clayey silt lens, approximately 3-inches thick, was identified at 12 ft bgs. All four wells were screened from 10 to 15 feet bgs. Each of these four new monitoring wells will be properly developed, following standard operating procedures, prior to any additional testing being completed.

3.2 Water Level Measurements

Prior to commencing the SWRTs, step-drawdown tests, and long-term constant-rate pumping test, the water level in each monitoring well at the facility will be measured. This will allow for determination of which monitoring wells contain water and will be monitored during the subsequent pumping tests.

3.3 Disposal of Generated Water

All discharge waters generated during the various pumping tests to be completed at the Facility will be contained during the testing, as infiltration of pumped water may affect the pumping test results. After all testing is complete, the water will be sampled and discharged to the ground surface at the Facility.

3.4 Single Well Response Tests – Shallow Perched Zone

To determine the in situ hydraulic conductivity of the shallow perched zone, single well response tests will be conducted at the four new monitoring wells and five additional monitoring wells (PFW-9, PFB-24, MW-9, MW-5, and PFW-4) across the Facility. Should any of these monitoring wells be found to contain no water or an insufficient well volume to allow testing, then an alternate monitoring well in the same general area of the Facility may be substituted, if another well can be found that contains perched water.

There are two types of single-well response tests; the slug test and the recovery test. The slug test involves causing a sudden change in water level in a well and measuring the water level response within that well. Water level change may be induced by suddenly injecting or removing a known quantity or "slug" of water into or out of the well or emplacement or removal of a solid slug (i.e., stainless steel, PVC) into the water column. An alternate single-well response test, which provides estimates of the hydraulic properties of a larger portion of the formation surrounding the monitored interval and which is not as sensitive to impacts from a partially saturated sandpack, is recovery monitoring after pumping of the monitoring well. Given the anticipated slow recovery of the monitoring wells in the perched zone at the facility, the use of the recovery test method is recommended.

The procedures for the single well response testing are as follows:

- All data collected during the testing will be recorded on the field record data sheet.
- The static water level in the monitoring well will be measured using an electronic water level meter.
- A system consisting of poly-tubing and foot valve assembly will be installed. The water level in the monitoring well will then be measured again, to determine any displacement of the water column.
- The electronic water level meter will be left in the monitoring well, to allow for quick recording of the changes in water level both during the removal of water and the subsequent recovery of the water column.
- The entire standing water column in the monitoring well will be rapidly removed using a poly-tubing and foot valve assembly. The water will be discharged to a graduated bucket

so the total volume of water removed can be determined. The water will later be disposed in an appropriate manner, as discussed previously.

- The water level at the time pumping ceases will be recorded. Water level measurements will then be recorded at approximate 10 second intervals until the time for a change in the water level to be realized is greater than 10 seconds. Water level measurements will then be measured at regular time intervals of 30 seconds, until the water level has recovered to 90 percent of the removed volume. If 90 percent recovery is not achieved, and the time for a change in water level to be realized increases to a period greater than 10 minutes, then the monitoring interval can be increased to between 30 and 60 minutes for the remainder of the day or until 90 percent recovery is realized, whichever comes sooner.
- Should 90 percent recovery not be realized by the end of the day, the water level will be monitored again early the next day. If at that time 90 percent recovery has still not been achieved, monitoring will continue on a periodic basis throughout the day, until a total time period of 24 hours since the start of the testing has elapsed or 90 percent recovery is realized.

3.5 Step-Drawdown Testing – Drift Aquifer

The purpose of step-drawdown testing is to allow for calculation of the specific-capacity and long-term yield of the well, and therefore an appropriate pumping rate for a constant-rate pumping test. The step-drawdown test typically consists of pumping the well for 1 hour at each of three different flow rates, starting from the lowest flow rate and progressing to the maximum which has been estimated using the information obtained during well construction and any single-well response test results. If sufficient drawdown is not obtained at the estimated maximum flow rate, a fourth step may be performed.

As outlined in the RFI Addendum #2, step-drawdown testing will be conducted on PFW-1 and also monitoring well B-23D, located north of the Facility.

The procedures for the step-drawdown testing are as follows:

- Determine the static water level prior to pump installation, install the pump, and confirm the water level has returned to static prior to initiating the test.
- The discharge rate of the pump will be controlled by means of a gate valve in the discharge line, and the pumping rate monitored through use of an in-line flow meter. The discharge rate will be recorded with each water level measurement (see schedule below). The discharged water should be contained for disposal following all testing, as described previously in Section 3.3.
- Commence Step No. 1 at the lowest flow rate and pump for 1 hour. Measure the water level in the pumping well at the following time intervals:

<i>Time since pumping started</i>	<i>Time Interval for Measurement</i>
0 to 5 minutes	30 seconds
5 to 15 minutes	1 minute
15 to 30 minutes	2 minutes
30 to 60 minutes	5 minutes

- Following the one hour testing period, the discharge rate will be increased and the above steps repeated for the new rate. The procedure will then be repeated a third time, and a fourth if necessary. The exact rates for each step will be determined in the field, based on the observations of the previous step.
- Terminate the test and allow the well to recover prior to conducting the constant-rate pumping test.

3.6 Constant-Rate Pumping Test – Drift Aquifer

The purpose of constant-rate pumping testing is to allow for monitoring of the hydraulic response of the aquifer and also the perched zone to pumping of the drift aquifer. If no hydraulic response in the perched zone is observed during the testing, then it can be concluded that there is no hydraulic communication between the aquifer and the perched zone. The constant-rate pumping test is conducted at a discharge rate determined from the step-drawdown test. The duration of the test will be between 24 to 48 hours, with the exact time period determined based on the hydraulic response of the pumping well.

The procedure for the constant-rate pumping test is as follows:

- The constant-rate pumping test is to be conducted by pumping monitoring well PFW-1, and monitoring the response in the aquifer at B-23D and in the perched zone at the four new monitoring wells and also other perched zone monitoring wells at the Facility that contain water. The monitoring network will have been established through the initial water level measurements (Section 3.1).
- Ensure that monitoring wells PWF-1 and B-23D have recovered from the step-drawdown testing.
- Complete a round of water levels at the perched zone monitoring wells to be monitored during the testing, to ensure there were no changes in water level during the step-drawdown testing.
- Start pump at design flow rate and adjust flow rate as necessary to ensure fluctuations are within 10 percent of the design rate. Water quality observations detailing clarity (i.e., clear, cloudy, opaque), turbidity values, pH, specific conductivity, chemical odor, or any other observation, will be noted throughout the testing period.
- Monitor the water level decline in the pumping well at the following time intervals:

<i>Time since pumping started</i>	<i>Time Interval for Measurement</i>
0 to 5 minutes	30 seconds
5 to 15 minutes	1 minute
15 to 30 minutes	2 minutes
30 to 60 minutes	5 minutes
60 to 120 minutes	10 minutes
120 minutes to 5 hours	30 minutes
5 to 24 hours	1 hour
24 to 48 hours (if needed)	4 hours

- Monitor the water level in the new perched zone monitoring well located directly adjacent to PFW-1, and also B-23D, at the same time intervals as above.
- Monitor the water level in the four new perched zone monitoring wells in the general vicinity of PFW-1 at the following time intervals:

<i>Time since pumping started</i>	<i>Time Interval for Measurement</i>
0 to 60 minutes	5 minutes
60 to 120 minutes	10 minutes
120 minutes to 5 hours	30 minutes
5 to 24 hours	1 hour
24 to 48 hours (if needed)	4 hours

- Monitor the water level in the remaining perched zone monitoring wells at the Facility at the following time intervals:

<i>Time since pumping started</i>	<i>Time Interval for Measurement</i>
0 minutes to 5 hours	approximately hourly
5 to 48 hours	approximately every 4 hours

- To accomplish the early time monitoring, it is anticipated that a team of at least three field staff will be required: one to monitor PFW-1 and the adjacent perched zone well, one to monitor B-23D, and one to monitor the three perched zone wells in the vicinity of PFW-1.
- Record or obtain barometric pressure data and precipitation data for the period of the test, including preceding water level measurements. This will allow for adjustment of water level measurements due to changes in climatic conditions, if required.
- Collect groundwater samples from a sample port on the discharge line at 1 hour, 12 hours, and 24 hours following the start of pumping. The groundwater samples are to be submitted to the laboratory under Chain-of-Custody procedures for analysis of VOCs and filtered lead.

3.7 Recovery Monitoring – Drift Aquifer

The main purpose of the recovery test is to determine if mining or depletion of the groundwater has occurred and to provide a check of the formation parameter values determined from the drawdown data.

The procedure for the recovery monitoring is as follows:

- Once the pump is shut down, the water level is measured in the pumping and observation wells at the same frequency used for the drawdown phase of the test.
- Water level measurements continue until at least 80 percent recovery of the pumped well has occurred.
- The pump should not be removed from the pumping well during the recovery period or the water level will be affected.
- Once recovery is complete, the pump should be removed and cleaned following standard procedures.