



**CONESTOGA-ROVERS
& ASSOCIATES**

14496 Sheldon Road, Suite #200, Plymouth, MI 48170
Telephone: 734-453-5123 Facsimile: 734-453-5201
www.CRAworld.com

August 7, 2003

Reference No. 17303

Mr. Peter T. Masson
Department of Environmental Quality
Jackson District Office
301 East Louis Glick Highway
Jackson, Michigan 48201-1556

Dear Mr. Masson:

RE: Response to Comments
Interim Response Action Status Report
Company Vehicle Operations Area
Former Willow Run Assembly Plant
Washtenaw County, Michigan

On behalf of ENCORE, a wholly owned subsidiary of General Motors (GM), Conestoga-Rovers & Associates, Inc. (CRA) is providing this response to the Michigan Department of Environmental Quality (MDEQ) July 21, 2003 comments on the Interim Response Action (IRA) Status Report for the Company Vehicle Operations (CVO) Property (May, 2003) located in Ypsilanti, Michigan (Site). For clarity, MDEQ comments are provided in *Italics*, followed by CRA's response.

MDEQ Comment

1. *The Executive summary makes the comment that the shallow groundwater has been determined to not be a drinking water unit. Please explain this comment. Is this meant to imply that this is considered groundwater not in an aquifer, and if so, when was this determination made and reviewed by the Department of Environmental Quality?*

CRA Response

CRA is considering the first unconfined unit at the Site groundwater not in an aquifer based on a previous determination. During the design of the Willow Run Creek Site Remedial Action Plan (1995) the Michigan Department of Natural Resources (MDNR) reviewed the 100% Design Report submitted by CRA dated July 1, 1995 as it pertains to Part 111 of Act 451. The MDNR review dated August 1995 is attached to this letter. The review stated that the surficial saturated sand unit does not fit the definition of an aquifer. A copy of the letter is provided in Attachment 1.



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MDEQ Comment

2. *Section 4.3 notes that MW-5 and MW-6 have been damaged. As noted in Section 5.3, please insure that these wells are properly abandoned so they will not act as conduits for any potential releases in the future. In addition, the comment made in Section 5.3 that replacement wells may be necessary is likely, not only in the upland area between the two plumes where these wells used to be but near the pond as well to insure that there are no groundwater/surface water interface (GSI) issues between the plumes.*

CRA Response

Wells MW-5 and MW-6 were reinstalled on June 14, 2003 approximately five feet from their previous locations. Well MW-5 was abandoned by over drilling using 4 ¼ inch hollow stem augers to a depth of 2.5 feet below ground surface (bgs). The PVC riser was cut at 2 feet bgs. A tremie pipe was used to pressure grout a cement/bentonite slurry into the monitoring well, completely backfilling the PVC riser. A concrete patch was installed to the ground surface.

The same method of over drilling and pressure grouting was attempted at MW-6, but a blockage in the well was encountered at 4 feet bgs. The top 4 feet of the well was pressure grouted with the cement/bentonite slurry and a concrete patch was installed to the surface. Due to time restrictions, proper well abandonment was not completed at MW-6. During the next mobilization of a drill rig to the Site, the well will be properly abandoned by over drilling the entire depth of the well, removal of the well materials and backfilling with cement/bentonite grout.

ENCORE is preparing to conduct additional hydrogeologic investigations at the Site. The results of this investigation will be used to place additional GSI monitoring points along the bank of Tyler Pond.

MDEQ Comment

3. *Section 5.1 discusses the discovery of light non-aqueous phase liquid (LNAPL) in Area 1. As noted in Section 6.2, I will look forward to seeing your plan for removal of the LNAPL.*

CRA Response

A Soil IRA was completed during the GM 2003 July Shutdown as CRA discussed with you during a conference call in June 2003. The Soil IRA involved the removal of approximately 300 cubic yards of soil to address the LNAPL observed within Injection Area 1 at the Site. The MDEQ will be provided with a report summarizing the Soil IRA activities and results. CRA anticipates that this report will be submitted in September.



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MDEQ Comment

4. *Section 5.2 discusses the post-injection monitoring. Is there a concern that the action of the permanganate may produce breakdown products that are a greater concern than the material in the release? If so, this may actually complicate the remedial efforts. In addition, as is referenced later in the report, there are still exceedances of the GSI values in the plumes. Is it anticipated that this will be modeled so that a conclusion may be reached as to when the natural attenuation will achieve GSI compliance?*

CRA Response

Chlorinated ethylene compounds are typically oxidized rapidly by potassium permanganate solution and the reactions typically result in the formation of neutral, safe end products such as manganese dioxide, chloride ions, carbon dioxide and water. For example trichloroethylene (TCE) degradation by potassium permanganate produces formic, glycolic, glyoxylic and oxalic acids as transient intermediates. These acids degrade quickly to carbon dioxide and water. So there is no concern of the formation of toxic end products from the use of potassium permanganate.

Additional injections are planned during the fall of 2003 to provide additional remediation. Natural attenuation within Injection Area 2 and additional remedial alternatives are being evaluated.

MDEQ Comment

5. *As discussed in Section 5.3 levels of contaminants in MW-3 and IW-46 exceed the final acute values (FAV). These wells however, are not at the GSI compliance point. Please be aware then when GSI wells are placed at the site, as proposed in Section 6.2, if levels are discovered in these wells which exceed the FAV's, there are specific actions that are required under the Administrative Rules for Part 201, Environmental Remediation, of the natural Resources and Environmental Protection Act, Act 451 of 1994, as amended (Part 201). Specifically, Rule 526(4)(d) requires immediate interim response actions to mitigate such a release that is acutely toxic. In addition, Rule 716(14) outlines certain reporting requirements in this situation. Please be sure you are familiar with these rules.*

CRA Response

CRA and ENCORE are familiar with the specific actions required under Rule 716(14).



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MDEQ Comment

6. *It is recommended that the GSI monitoring wells also be sampled for permanganate to insure the interim response action is not impacting the pond.*

CRA Response

Permanganate and manganese will be added to the analysis of GSI wells down gradient of the two injection areas to ensure the permanganate injections are not impacting the pond.

MDEQ Comment

7. *The activities outlined in Section 6.2 are approved, and if a work plan is prepared for these actions, I would appreciate the opportunity to review it. Regarding the excavation of the LNAPL, it may be worthwhile to undertake verification sampling of the sidewalls when the product is removed. That will eliminate the need for such sampling at a later time when a final remedial action for the site is proposed. Additionally, Point 5 recommends monitoring only three GSI compliance points. Please be aware that this may not be considered sufficient considering the area and concentrations of the plumes.*

CRA Response

Currently three GSI wells have been installed on the bank of Tyler Pond. ENCORE is preparing to conduct additional hydrogeologic investigations at the Site. The results of this investigation will be used to place additional GSI monitoring points along the bank of Tyler Pond.

If you have any questions or concerns, please do not hesitate to contact us.

Yours truly,

Conestoga-Rovers & Associates

for Frederick W. Blickle, P.E.

BL/nl/1/Det.

Encl.

c.c.: Ken Richards, ENCORE
Beth Landale, CRA
Gary Klepper, CRA

ATTACHMENT

MDEQ LETTER

NATURAL RESOURCES
COMMISSION

JERRY C. BARTNIK
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DAVID HOLLI
JOEY M. SPANO

STATE OF MICHIGAN



JOHN ENGLER, Governor

DEPARTMENT OF NATURAL RESOURCES

STEVENS T MASON BUILDING, PO BOX 30028, LANSING MI 48909-7528

ROLAND HARMES, Director

4048/8671

Rec'd CRA

AUG 22 1995

REPLY TO:
JACKSON DISTRICT HEADQUARTERS
301 E LOUIS GLICK HWY
JACKSON MI, 49201-1558

August 21, 1995

Mr. Glenn Turchan
Conestoga-Rovers & Associates Limited
651 Colby Drive
Waterloo, Ontario Canada N2V 1C2

Dear Glenn,

As discussed by telephone, attached are staff comments regarding the design plans for the Willow Run Creek remedial action (RAP).

We find that the design provides sufficient information for us to continue to believe the RAP for the site is workable and can be implemented in a manner that both achieves the cleanup objectives for the site and is protective of the environment. However, as you will note, there remain some questions regarding both the degree of certainty that the plan can be successfully implemented, and that full compliance with all relevant state regulations would be achieved.

I am optimistic that once you have an opportunity to review issues raised by staff, we can further communicate on individual details and resolve courses of action that will keep the project on it's very aggressive schedule.

Sincerely,

Gary Klepper
District Supervisor
Environmental Response Division
517-780-7852

GK:k1

Attachments

cc: WRCA Site File

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

INTEROFFICE COMMUNICATION

August 15, 1995

TO: Vicki Katko, EQA, Jackson District
Environmental Response Division

FROM: John Esch, Geologist, Jackson District
Environmental Response Division

SUBJECT: Willow Run Creek Site, Wayne and Washtenaw Counties, Michigan
Hydrogeological Review of 100% Design Report & Related Technical
Memorandums

As you requested, I have my reviewed the 100% Design Report by CRA, dated July 1, 1995 as they pertain to Part 111 of Act 451 (old Act 64). I have not had time to review the long-term groundwater monitoring and construction quality assurance issues. Also included are comments on the Technical Memorandums as they pertain to PART 111 (old ACT 64). My review was only for the hydrogeologic aspects of the documents.

COMPLIANCE WITH PART 111 of ACT 451

Rule 505, Construction permit application; liner systems for landfills, surface impoundments, and waste piles: CRA must comply with all parts of this rule.

Rule 506, 1 (b): CRA has not identified the upper most aquifer and aquifers hydraulically connected to the upper most aquifer at the site. The intermediate saturated sand/silt unit does not appear to be an aquifer. CRA has itself stated that this unit is not an aquifer. The surficial saturated sand unit does not fit the definition of an aquifer. The uppermost aquifer is the lower sand confined aquifer. CRA must characterize this aquifer, they must determine its extent, vertical hydraulic gradients, groundwater flow direction and rate.

Rule 506, 1 (b): CRA must also determine aquifers hydraulically interconnected to the upper most aquifer. CRA stated that they were going to install 4 wells in the lower confined sand aquifer below the clay (RAP Page 105, Paragraph 2). CRA has not done this. At Wayne Disposal, the Antrim shale aquifer appears to be hydraulically connected to the lower confined sand aquifer. CRA may have to set wells in the Antrim shale.

Rule 506, 1 (c): CRA must identify any aquifer utilized by public and private wells within 2000 feet of the proposed site. There is a well log for a domestic well at Thompson and McCully at 785 Rawsonville Road. This well is within 2000 feet of the site. CRA did not include this well in its discussion or its maps.