



**CONESTOGA-ROVERS
& ASSOCIATES**

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November 28, 2000

Reference No. 012629

Mr. Michael Schmoller
Wisconsin Department of Natural Resources
3911 Fish Hatchery Road
Fitchburg, Wisconsin 53711

Dear Mr. Schmoller:

Re: Request for Exemption Under WAC NR 140.28
Wheeler Pit Site
Rock County, Wisconsin

Conestoga-Rovers & Associates (CRA), on behalf of General Motors Corporation (GM), is requesting an exemption from the response requirements under Sections NR 140.24(2) and 140.26(2) of the Wisconsin Administrative Code (WAC) for the shallow groundwater manganese concentrations exceeding the preventive action limit (PAL) and enforcement standard (ES) in a very limited area of the Wheeler Pit Site.

SITE HISTORY AND BACKGROUND

The Wheeler Pit Site (Site) is a 3.42 acre landfill located in LaPrairie Township, Rock County, Wisconsin. In 1984, the Site was placed on the National Priorities List (NPL). In 1987, an Administrative Order by Consent to conduct a Remedial Investigation/Feasibility (RI/FS) at the Site was issued by U.S. EPA. The RI/FS, conducted from 1988 through 1990, concluded that arsenic, chromium, iron, and manganese exceeded applicable and relevant WAC NR 140 groundwater standards at one or more monitoring locations, during one or more sampling events. The FS was streamlined (all active groundwater remedial action alternatives were removed from consideration) given the straightforward nature of the Site.

In September 1990, the Record of Decision (ROD) for remedial action at the Site was signed by the U.S. EPA Regional Administrator. The ROD concluded that groundwater contamination was limited in terms of contaminant concentration and extent. Although detected below the groundwater standards during the RI, 1,4-dichlorobenzene was also identified in the ROD as an additional chemical of concern for the Site.

In May 1991, U.S. EPA issued an Administrative Order pursuant to CERCLA Section 106(a), and a Scope of Work for Remedial Design/Remedial Action was incorporated as Appendix III to the Order. The SOW identified arsenic, chromium, iron, manganese, and 1,4-dichlorobenzene as chemicals of concern for the Site. In January and March 1992, baseline groundwater monitoring was conducted at the Site prior to commencing the remedial action. The groundwater data from the baseline monitoring event were found to be similar to the groundwater data from the RI.

REGISTERED COMPANY
ISO 9001
ENGINEERING DESIGN



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In October 1992, remedial construction, consisting of waste consolidation and capping the landfill with a multi-layer soil cover system, was completed at the Site. Operation and Maintenance (O&M) groundwater monitoring commenced in October 1992. The last 4 years of O&M groundwater monitoring data indicate that the WAC NR 140 standards for all chemicals of concern at the Site have been achieved with the exception of manganese in one monitoring well adjacent to the landfill cap. Manganese is regulated for aesthetic purposes (may impart a color tint to water) pursuant to the NR 140 public welfare standards, not public health standards. Therefore, the only issue remaining at the Site, other than continued O&M, is the presence of manganese at a concentration above the WAC NR 140 standards in this single well.

Provided below are discussions of the extent of groundwater at the Site that exhibit manganese concentrations exceeding the PAL and ES, historical manganese data for upgradient, background, and downgradient monitoring wells, and the rationale for requesting an exemption from the WAC NR 140 standards for manganese.

CURRENT EXTENT OF MANGANESE IN GROUNDWATER

Figure 1 provides a layout of the Site and direction of shallow groundwater flow. Groundwater with manganese concentrations exceeding the PAL (25 µg/L) and ES (50 µg/L) is limited to the area in the vicinity of downgradient shallow monitoring well MW07A. Generally, these exceedances at monitoring well MW07A are in the range of 100 to 250 µg/L. On occasion, the background wells also have exceeded these criteria. Monitoring well MW07A is also screened at the top of the water table aquifer. The exceedances in the background wells are lower and fewer than those in monitoring well MW07A and generally are within the range of 40 to 180 µg/L. The manganese data for monitoring well MW07B, which is screened just below MW07A in the same aquifer, has not exceeded the PAL or ES. The location of this area is shown on Figure 1 for reference. It should also be noted that manganese concentrations in groundwater samples collected from shallow off-Site monitoring well MW03AR, which is just downgradient of monitoring well MW07A, do not exceed either the PAL or ES. Thus, the PAL and ES exceedance at MW07A is extremely limited both vertically and horizontally in the aquifer.

The manganese data for the most recent samples collected from these monitoring wells and monitoring wells MW05A and MW06A generally are consistent with historical data. The geometric mean for all manganese data obtained during the June 2000 monitoring event is 5.88 µg/L, which is well below the PAL.



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HISTORICAL MANGANESE GROUNDWATER DATA

Manganese historically has been detected at concentrations exceeding the PAL and ES in background shallow monitoring well MW01A. Manganese also has been detected at concentrations above the PAL in upgradient shallow monitoring well MW06A and upgradient intermediate monitoring well MW06B. These background and upgradient manganese data indicate that the presence of manganese in the downgradient shallow monitoring wells may be due in part to regional groundwater conditions. Manganese has not been detected above the PAL in any basal (deep) monitoring well or the residential wells included in the groundwater monitoring network for the Site.

The historical manganese data for monitoring well MW07A has varied widely during the post-remedial construction period. As noted in "Five Year Groundwater Assessment Report" (CRA, February 1998), the presence of elevated concentrations of manganese in the groundwater likely is the result of localized reducing conditions beneath the landfill as well as the background levels of manganese. Reducing conditions such as those present beneath a capped landfill cause manganese present in the aquifer to become solubilized and mobile. As the groundwater migrates downgradient of the landfill, it becomes increasingly more oxidized and the dissolved manganese becomes insoluble and immobile, thus precipitating back on the native soil. Therefore, the presence of elevated manganese concentrations in shallow groundwater in the vicinity of downgradient shallow monitoring well MW07A is not unexpected. The manganese data for monitoring well MW03AR, which is a downgradient off-Site shallow well, confirms that the elevated manganese concentrations are limited to the localized area on the downgradient edge of the landfill at MW07A. Furthermore, the lack of manganese PAL or ES exceedances at monitoring well MW07B, screened just below MW07A in the same groundwater unit, also demonstrates the localized nature of the elevated manganese concentrations.

Table 1 provides a summary of the post-construction monitoring well data only for those samples which exceed their respective PALs or ESs. This table illustrates that, since January 1996, the only well currently exceeding a PAL is MW07A and that the only parameter exceeding a PAL is manganese.

BASIS FOR EXEMPTION

As noted above, manganese has been detected above the PAL and ES in background monitoring wells at the Site. Sections NR 140.28(3)(a) and (4)(a) provide exemptions from the requirements to attain the PAL and ES under specific circumstances. These sections state that "[t]he department may grant an exemption under this section to a facility, practice or activity which is regulated by the department in an area where the background concentration of nitrate



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or a substance of public welfare concern attains or exceeds" either the PAL or ES "if the facility, practice or activity is designed to achieve the lowest possible concentration for that substance which is technically and economically feasible and the existing or anticipated increase in the concentration of the substance does not present a threat to public health or welfare."

Manganese is a substance of public welfare concern and background concentrations of manganese at the Site have exceeded both the PAL and ES. According to the WAC when such a condition exists, an exemption can be granted when (1) the facility is designed to achieve the lowest possible concentration which is technically and economically feasible and (2) the conditions do not present a threat either to public health or welfare. The following assesses Site conditions as they relate to these two elements.

First, the facility has been designed to achieve the lowest possible concentration for manganese which is technically and economically feasible. The remedy for the Site was selected by U.S. EPA and WDNR after appropriate analysis of the Site conditions and possible alternatives. The remedial design is documented in the U.S. EPA-approved document "Final Cover System Design Report" (Warzyn Inc., April 1992). Remedial construction at the Wheeler Pit Site consisted of consolidating all waste under a multi-layer soil cover system that was designed and constructed in accordance with the requirements of WAC NR 504.07. The selected cover system was designed specifically to reduce the amount of infiltration through the waste and into groundwater. The cover system consists (from top to bottom) of a 6-inch thick topsoil layer, a 18-inch thick rooting zone layer, a geotextile filter, a 12-inch thick drainage layer, a 24-inch thick compacted clay layer, and a minimum 6-inch thick grading layer. In addition to the cover system, drainage swales and a retention basin were included in the design to prevent erosion of the final cover system. Remedial construction was completed at the Site in October 1992 and was documented in the U.S. EPA-approved document "Construction Completion Report" (Warzyn Inc., April 1993). Post-construction operation and maintenance at the Site has occurred, and will continue to occur, on a routine scheduled basis during the post-remedial construction period.

Post-remedial construction groundwater monitoring has been ongoing since October 1992. The groundwater monitoring network consists of background, upgradient on-Site, downgradient on-Site, downgradient off-Site, and private (residential) wells. During the RI/FS process, several constituents were detected above their respective PAL and ES. As discussed above, the only chemical of concern in groundwater at the Site that currently exceeds a PAL or ES is manganese in the vicinity of monitoring well MW07A (downgradient on-Site well). Therefore, this monitoring has demonstrated that the selected remedy has effectively improved groundwater quality and minimized further impacts at the facility.



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Secondly, the existing or anticipated increase in the concentration of the substance does not present a threat to public health or welfare. Manganese is a public welfare constituent that may impart a color tint to water, it is not a public health constituent. Monitoring over an eight year period has demonstrated that manganese exceeds the PAL and ES in a very localized area adjacent to the landfill cover. The geometric mean of the manganese concentrations for the 3.42 acre landfill is 5.88 µg/L, which is below the PAL. Due to the demonstrated effectiveness of the cap, manganese concentrations at monitoring well MW07A would be expected to stabilize or decrease in the future.

In addition to the localized on-Site nature of the impact, there are institutional controls that mitigate the potential for human exposure. As part of the overall remedy, deed restrictions have been recorded that restrict future use of the Site, including the installation of drinking water wells on Site. The potential for human exposure off Site is mitigated by the regulations in WAC NR 112.07 that restrict future installation of drinking water wells within 1,200 feet from the waste management boundary. Manganese concentrations in downgradient off-Site and the private wells, which are within 1,200 feet of the landfill, do not exceed the PAL or ES. Therefore, the existing concentration of manganese does not present a threat to public health or welfare.

Based on the historical and current groundwater monitoring data, the proven success of the remedial construction activities and the lack of any threat to public health or welfare, we believe that an exemption from the response requirements under WAC Sections NR 140.24(2) and 140.26(2) should be granted pursuant to WAC Sections NR 140.28(3)(a) and NR 140.28(4)(a).

Should you have any questions regarding this exemption request, please contact the undersigned at your convenience.

Yours truly,

CONESTOGA-ROVERS & ASSOCIATES


Steven Day

SCD/lg/1
Encl.

c.c.: Ed Peterson - GM

TABLE 1

**SUMMARY MONITORING DATA EXCEEDING NR 140 PALs AND ESs
WHEELER PIT SITE
LAPRAIRIE TOWNSHIP, ROCK COUNTY, WISCONSIN**

<i>Analyte</i>	<i>Well (Location)</i>	<i>WDNR PAL</i>	<i>WDNR ES</i>	<i>Sampling Event</i>	<i>Result (µg/L)</i>
<u>Public Health Standards</u>					
Cadmium	MW01A (Background)	1	10	1-93	1.8
				4-93	12.1
				7-93	5.2
				10-93	2.0
Cadmium	MW01B (Background)	1	10	1-93	1.2
Chromium	MW04A (Downgradient)	5	50	10-93	5.5
				1-96	7.3
Lead	MW05A (Downgradient)	5	50	10-92	7.3
Selenium	MW01A (Background)	1	10	1-95	4.7
<u>Public Welfare Standards</u>					
Iron	MW01A (Background)	150	300	7-95	178
Manganese	MW01A (Background)	25	50	4-93	320
				10-93	68.0
				1-94	44.0
				7-95	34.7
Manganese	MW03AR (Downgradient)	25	50	10-92	51
				1-93	71
				4-93	110
				7-93	197
				10-93	31.0
				1-94	27
				4-94	105
				1-95	104
7-95	26.5				

TABLE 1

**SUMMARY MONITORING DATA EXCEEDING NR 140 PALs AND ESs
WHEELER PIT SITE
LAPRAIRIE TOWNSHIP, ROCK COUNTY, WISCONSIN**

<i>Analyte</i>	<i>Well (Location)</i>	<i>WDNR PAL</i>	<i>WDNR ES</i>	<i>Sampling Event</i>	<i>Result (µg/L)</i>
<u>Public Welfare Standards</u>					
Manganese	MW05A (Downgradient)	25	50	10-93	31.0
				1-94	47.0
				7-94	52.6
Manganese	MW06A (Upgradient)	25	50	1-94	40.0
Manganese	MW06B (Upgradient)	25	50	10-92	42.0
Manganese	MW07A (Downgradient)	25	50	10-92	366
				1-93	295
				4-93	142
				7-93	59.0
				10-93	74.0
				7-94	82.2
				1-95	148
				7-95	205
				1-96	589
				9-96	212
				1-97	214
7-97	204				
7-98	193				
6-99	121				
6-00	225				

Notes:

The July 1994 metals data rejected as outliers have not been included.

Monitoring well MWB was removed from the sampling program effective December 1995.

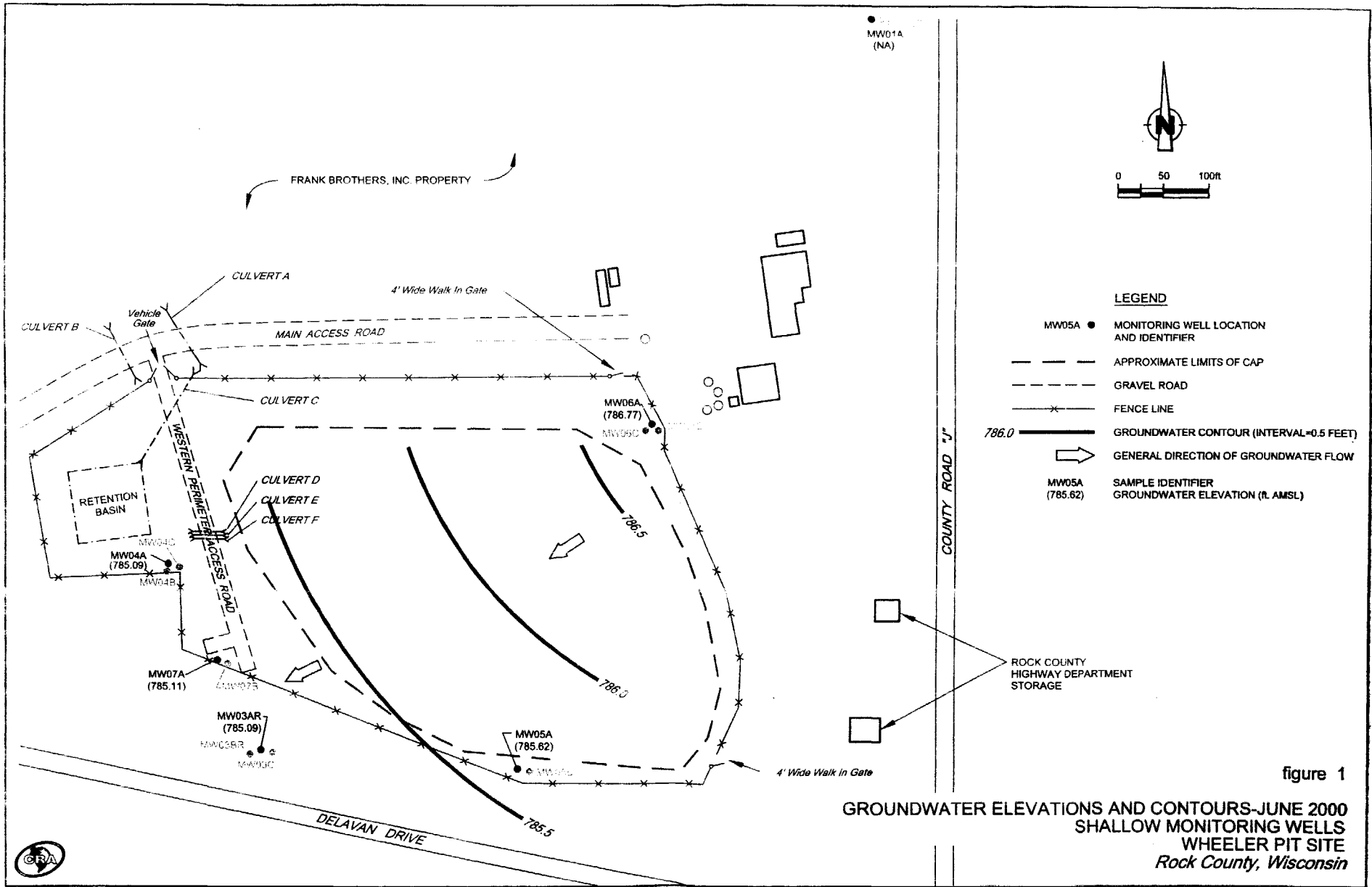


figure 1
 GROUNDWATER ELEVATIONS AND CONTOURS-JUNE 2000
 SHALLOW MONITORING WELLS
 WHEELER PIT SITE
 Rock County, Wisconsin

