Five-Year Review Report

Third Five-Year Review Report
for
Ripon City Landfill
(a/k/a Ripon FF/NN Landfill)
Town of Ripon, Fond du Lac County, Wisconsin

September 2011

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Date:

9/16/11

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Table of Contents

List of Acronyms and Some Abbreviations v
Executive Summary vii
Five-Year Review Summary Form ix

I. Introduction 1
II. Site Chronology 2
III. Background 2
History of Landfill Operations and Physical Characteristics 2
Land and Resource Use 3
Initial Response 4
Extent of Contamination 4
Basis for Taking Action 5
IV. Remedial Action 6
Remedy Selected 6
Remedy Implemented 7
Institutional Controls 7
Work Done After Remedy Implementation 9
V. Progress Since the Last Five-Year Review 10
VI. Five-Year Review Process 13
Administrative Components 13
Community Notification and Involvement 13
Document Review 13
Data Review 13
Site Inspection 13
VII. Technical Assessment 14
VIII. Issues 15
IX. Recommendations and Follow-Up Actions 15
X. Protectiveness Statement 16
XI. Next Review 16
Figure 17
Figure 1. Map of area of the Ripon City Landfill site showing sampling locations
Attachments 19
Attachment 1 – Five-year review local announcement ads
Attachment 2 – Site inspection form, photograph key figure, and photographs

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List of Acronyms and Some Abbreviations

ARARs	applicable or relevant and appropriate requirements
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
C.F.R.	Code of Federal Regulations
cis-1,2-DCE	cis-1,2-dichloroethene
CTH	County Trunk Highway
ES	enforcement standard [see NR 140.05(7) of the Wis. Admin. Code]
FS	feasibility study
IC	institutional controls
LEL	lower explosive limit
MCL	maximum contaminant level
msl	mean sea level
µg/l	micrograms/liter
MW	monitoring well
NCP	National Contingency Plan
NPL	National Priorities List
OU	operable unit
P	piezometer
PAL	preventive action limit [see NR 140.02(3) and NR 140.05(17) of the Wis. Admin. Code]
PCE	tetrachloroethene
PHA	Public Health Assessment
PRPs	potentially responsible parties
RA	remedial action
RD	remedial design
RI	remedial investigation
ROD	Record of Decision
SMCL	secondary maximum contaminant level
SPM	state project manager
SVOC	semi-volatile organic compound
TCE	trichloroethene
USEPA	United States Environmental Protection Agency
VC	vinyl chloride
VOC	volatile organic compound
Wis. Admin. Code	Wisconsin Administrative Code
WDNR	Wisconsin Department of Natural Resources
WPDES	Wisconsin Pollutant Discharge Elimination System

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Executive Summary

On March 27, 1996, the United States Environmental Protection Agency (USEPA) concurred with the remedies for the Ripon City Landfill site (Site) identified in the Record of Decision (ROD) signed by the Wisconsin Department of Natural Resources (WDNR) on February 26, 1996. The remedy covers two components: the source control operable unit, OU 1, and the groundwater operable unit, OU 2. The selected remedy for OU 1 was a composite landfill cover and passive landfill gas venting in conjunction with a groundwater monitoring plan. For OU 2, WDNR selected the no action alternative. WDNR stated that the groundwater contamination was not severe enough to warrant active groundwater remedial measures to restore groundwater quality and that implementing the OU 1 remedy would result in decreased migration of contaminants from the landfill to the groundwater. The ROD remedy included, as an institutional control, placement of a deed restriction that prohibited disturbing the landfill cap except for maintenance purposes. In addition, the ROD recognized that Section NR 812.08 of the Wisconsin Administrative Code forbids construction of a potable or nonpotable well within 1200 feet of a landfill, which was an additional institutional control. The Ripon FF/NN Landfill PRP Group constructed the source control remedy, obtained the institutional control for the property, and achieved construction completion for the Site with the signing of the Preliminary Close Out Report on September 25, 1996.

The assessment of this five-year review is that:

- The source control remedy selected in the ROD was implemented in accordance with the ROD.
- Additional measures have been implemented in response to the discovery of an expanded groundwater contaminant plume, including providing an alternative water supply to the affected private well owners, implementing an interim active landfill gas extraction system, and expanding groundwater monitoring.

For the source control operable unit, OU 1, the remedy is protective in the short-term because there is no evidence of exposure to Site-related contaminants. To be protective in the long-term, enhanced gas extraction must be adopted through a decision document and implemented to maintain gas control. For the groundwater operable unit, OU 2, the remedy is protective in the short-term because there is no evidence of exposure to Site-related contaminants. A remedy to address the contaminated plume in addition to the alternative water supply and the active gas extraction system that have already been provided must be selected and implemented through a decision document. Long-term protectiveness of the groundwater will be achieved when the groundwater reaches cleanup levels. For the entire Site, the remedy is protective in the short-term because there is no evidence of exposure to Site-related contaminants. Site-wide long-term protectiveness will be achieved when the additional remedy components are selected and implemented and the groundwater reaches cleanup levels. Long-term protectiveness requires compliance with effective institutional controls which will be ensured by implementing effective institutional controls and through long-term stewardship to monitor, maintain, and enforce them as well as maintaining the Site remedy components.

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Five-Year Review Summary Form

SITE IDENTIFICATION		
Site Name (from *CERCLIS*): Ripon City Landfill (a/k/a Ripon FF/NN Landfill)		
EPA ID (from *CERCLIS*): WID980610190		
Region: 5	State: WI	City/County: Town of Ripon/Fond du Lac County
SITE STATUS		
NPL status: x Final _ Deleted _ Other (specify) _____		
Remediation status (choose all that apply): _ Under construction x Operating _ Complete		
Multiple OUs?* x Yes _ No	Construction completion date: 9/25/96	
Has site been put into reuse? _ Yes x No		
REVIEW STATUS		
Lead Agency: _ EPA x State _ Tribe _ Other Federal Agency _____		
Author name: Gary A. Edelstein, P.E.		
Author title: State Remedial Project Manager	Author affiliation: Wisconsin DNR	
Review period:** 5/06 to 4/11		
Date(s) of site inspection: 10/13/10		
Type of review: x Post-SARA ___ Non-NPL remedial action site ___ Regional discretion	___ Pre-SARA ___ NPL State/Tribe-lead ___ NPL-removal only	
Review number: _ 1 (first) _ 2 (second) x 3 (third) _ Other (specify) _____		
Triggering action: _ Actual RA on-site construction at OU # ___ _ Construction completion _ Other (specify) _____	_ Actual RA start at OU # ___ x Previous five-year review report	
Triggering action date (from *CERCLIS*): 9/27/06	Due date: 9/27/11	

*--"OU" refers to operable unit
**--Review period should correspond to the actual start and end dates of the five-year review in *CERCLIS*

Issues:

1. Groundwater contamination has expanded since the completion of the construction of the remedy selected in the 1996 ROD.
2. Long-term stewardship of the Site must be assured.

Recommendations and Follow-Up Actions:

1. Continue groundwater monitoring to provide the data necessary for the selection of additional remedy components; issue a ROD Amendment to cover the alternative water supply, an active landfill gas extraction system, a means to address the remaining contamination in the groundwater, the additional institutional controls (ICs) that are needed, and the groundwater monitoring program needed; and implement the remedy.
2. Implement the IC plan to ensure effective ICs are in place and long-term stewardship procedures are followed to maintain, monitor, and enforce ICs.

Protectiveness Statement:

For the source control operable unit (OU 1) the remedy is protective in the short-term because there is no evidence of exposure to Site-related contaminants. To be protective in the long-term, enhanced gas extraction must be adopted through a decision document and implemented to maintain gas control. For the groundwater operable unit (OU 2) the remedy is protective in the short-term because there is no evidence of exposure to Site-related contaminants. A remedy to address the contaminated plume in addition to the alternative water supply and the active gas extraction system that have already been provided must be selected and implemented through a decision document. Long-term protectiveness of the groundwater will be achieved when the groundwater reaches cleanup levels. For the entire Site, the remedy is protective in the short-term because there is no evidence of exposure to Site-related contaminants. Site-wide long-term protectiveness will be achieved when the additional remedy components are selected and implemented and the groundwater reaches cleanup levels. Long-term protectiveness requires compliance with effective ICs which will be ensured by implementing effective ICs and through long-term stewardship to monitor, maintain, and enforce them as well as maintaining the Site remedy components.

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Ripon City Landfill Superfund Site
Town of Ripon, Fond du Lac County, Wisconsin
Third Five-Year Review Report

I. Introduction

The purpose of the five-year review is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of the review are documented in a five-year review report. In addition, the five-year review report identifies issues found during the review, if any, and provides recommendations to address them.

The Wisconsin DNR (WDNR) is preparing this five-year review report pursuant to §121 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Contingency Plan (NCP) (40 Code of Federal Regulations (C.F.R.) Part 300).

CERCLA §121 states:

> If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each 5 years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section 104 or 106, the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.

The Agency interpreted this requirement further in the NCP; 40 C.F.R. §300.430(f)(4)(ii) states:

> If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

The WDNR and Region 5 of USEPA have conducted this five-year review of the remedy implemented at the Ripon City Landfill National Priorities List site (Site) in the Town of Ripon (Fond du Lac County), Wisconsin. This review was conducted for the entire Site and drafted by the state project manager (SPM) and finalized by the remedial project manager (RPM) for the period from May 2006 through June 2011. This report documents the results of the review.

This is the third five-year review for the Site. The triggering action for this statutory review is the signature date of the second five-year review report on September 27, 2006. The five-year review is required due to the fact that hazardous substances, pollutants, or contaminants remain at the Site above levels that allow for unlimited use or unrestricted exposure (UU/UE).

II. Site Chronology

Event	Date
Landfill operations	1967-1983
WDNR and Settling PRPs agree to contract for remedial investigation, feasibility study, remedial design, and remedial action of source control operable unit (OU)	8/14/92
Proposed for placement on the NPL	6/23/93
Final on NPL	5/31/94
RI report	8/26/94
FS report	12/30/94
Public comment period	8/31/95-9/29/95
Public meeting	9/13/95
RD report approved by WDNR	1/26/96
ROD signed	3/27/96
Contractor for composite cap installation mobilizes at Site	5/13/96
Preliminary Close Out Report (construction completion under CERCLA)	9/25/96
Construction Documentation Report--Final Cover System	6/23/97
First five-year review report	5/22/01
Vinyl chloride detected in residential well for first time	October 2001
Municipal water supply pipeline extended from City of Ripon to and along Charles St. and first residences connected to the line	November 2002
Site inspection for the second five-year review	5/16/06
Interim active gas extraction installed	March 2006
Second five-year review report	9/27/06
Site inspection for the third five-year review	10/13/10

III. Background

History of Landfill Operation and Physical Characteristics

The Ripon City Landfill [also known as "Ripon City of Ldfl (Hwy FF)" or "Ripon FF/NN Landfill"] Superfund site is located outside the northwestern city limits of the City of Ripon in the Town of Ripon, Fond du Lac County, Wisconsin. More specifically, it is located in the S ½ of the SE ¼ of Section 7, T16N, R14E, Town of Ripon. The map in Figure 1 shows the Site and some of the area around it. The landfill cap, where the gas vent wells (GV wells) are located, is denoted by the dashed line in the figure. The landfill is bordered on the north by a stand of trees, on the west by a road with a sand and gravel quarry on the other side, on the south by former residential property that now contains a dog park, and on the east by a former quarry. A wetland area is located to the southwest and is a shallow groundwater discharge area.

The facility had been a gravel pit before it was leased to Speed Queen in 1967 for the disposal of wastes. The City of Ripon began leasing the property in 1968 for the disposal of wastes, and in 1969 was issued a license to operate the landfill (WDNR license # 467). Later, the Town of Ripon joined with the City of Ripon in the operation of the landfill. The landfill operated until

1983, accepting municipal, commercial, and industrial solid wastes. The landfill also accepted approximately 3.3 million gallons of sludge from the Ripon wastewater treatment facility, which were disposed of at the landfill between 1977 and 1983. The landfill area was capped with clay in 1985, vegetation was established, and a gas venting system was placed along the western edge of the landfill. From 1985 to 1992, hay was grown on the cap; this was discontinued in 1993 because of disturbance to the clay cap's integrity. The landfill was constructed without a liner or leachate collection system.

Land and Resource Use

The Site is located in a glaciated area of south central Wisconsin. The surficial geology of the area generally consists of ground, terminal, and recessional moraine deposits of unsorted silt, clay, sand and gravel, and glacial-lacustrian silt and clay underlain by a preglacial drainage and glacial drift fill. Outwash deposits of sand and gravel are evident in the quarry located just west of the Site. The landscape slopes gently eastward. The landfill rises to the approximate elevation of County Trunk Highway (CTH) NN on the west [872 ft above mean sea level (msl)] and slopes downward to the east where it is approximately 20 feet lower.

The geology at the Site consists of approximately 180 feet of unconsolidated glacial deposits, primarily sand with some silty and clayey lenses and gravel, overlying the bedrock. The bedrock is the Cambrian Franconian Formation, a medium-grained sandstone approximately 150 feet thick at the Site.

The glacial unconsolidated deposits and the Cambrian sandstone are the two principal aquifers present in the area surrounding the landfill. The municipal wells and most private water supply wells use the sandstone as their water source. The lower limit of the Cambrian sandstone aquifer is delineated by the granite Precambrian basement at a depth of approximately 330 feet. Depth to ground water is variable and dependant on topography and precipitation. Groundwater is present at depths ranging from approximately 5 to 50 feet below ground surface, with the water table occurring at an approximate elevation of 820 feet above msl. The water table is approximately 20 feet below the base of the landfill.

It was found during the remedial investigation that the shallow ground water at or near the water table flows to the southwest toward a wetland area. This flow system has an average horizontal gradient of approximately 0.01 feet per foot (ft/ft). Shallow piezometers completed between 30 and 40 feet below the water table were used to confirm a southwesterly flow direction in the deeper unconsolidated deposits. The mean horizontal hydraulic gradient of the shallow potentiometric surface is approximately 0.005 ft/ft. Groundwater flow in the sandstone is to the west, based on regional information. Vertical hydraulic gradients are primarily upward and range from 0.001 to 0.096 ft/ft. The highest upward vertical gradients were seen to the south and southwest of the landfill. Three locations had downward gradients ranging from 0.001 to 0.013 ft/ft. There are private water supply wells at some of the residences south of the landfill; at least some of these are screened in the sandstone.

It has been reported that the highest hydraulic conductivities were observed in the sandstone while the lowest were noted in the wetland clay located to the northeast of the Site (2.0×10^{-5}

feet per minute (ft/min)). Horizontal gradients, hydraulic conductivities based on bail down testing, and estimated porosities were used in the past to calculate average groundwater flow velocities. Velocities calculated in the unconsolidated sand and gravel were approximately 650 feet per year (ft/yr). However, in a focused feasibility study report submitted in October 2005, it was reported that calculated velocities in the shallow groundwater ranged from 0.02 to 708 ft/yr, with an arithmetic mean of 99 ft/yr.

Initial Response

In 1984, volatile organic compounds (VOCs) were detected in a private water supply well located approximately 350 feet south of the landfill. Sampling of a replacement well confirmed the elevated levels of VOCs at this location. This well was later abandoned, the house was relocated, and the City of Ripon purchased the property and converted this property to a dog park. Following the completion of a hazard assessment by WDNR, the Site was proposed for inclusion on the NPL in June 1993 and was added to the NPL in May 1994.

Several of the potentially responsible parties (PRPs) formed a group to investigate the Site. These Settling PRPs entered into a contract with WDNR on August 14, 1992 to complete the following: conduct a remedial investigation (RI) to adequately characterize the Site; perform a feasibility study (FS) to identify and evaluate potential remedial options for the Site; prepare plans and specifications for a landfill cap and landfill gas extraction system for source control; and implement the remedy.

Extent of Contamination

This subsection describes the contamination present at the Site at the time of the RI.

The refuse in the landfill was approximately 30 feet thick on the western side near CTH NN and slopes to less than 10 feet thick on the eastern side of the landfill. Approximately 180,000 cubic yards of waste were placed in the landfill, which occupies about 7.3 acres. The volume of leachate in the landfill at the time was estimated to be between 6 and 11 million gallons. During the RI, samples collected from two leachate head wells were found to contain 10 different VOCs. Both chlorinated solvents and their breakdown products as well as petroleum hydrocarbons, such as benzene, ethylbenzene, toluene and xylenes, were detected in the leachate.

The landfill was found to be producing a small amount of landfill gas consisting predominantly of methane and carbon dioxide. Methane was detected in monitoring wells and gas vents at concentrations which exceeded 25 percent of the lower explosive limit (LEL).

Eight different VOCs were detected in groundwater monitoring wells during the RI. Vinyl chloride (VC), cis-1,2-dichloroethene (cis-1,2-DCE), benzene, trichloroethene (TCE), and tetrachloroethene (PCE) were present at concentrations exceeding the preventive action limits (PALs) of Chapter NR 140 of the Wisconsin Administrative Code (Wis. Admin. Code). The concentrations of two of these compounds (VC and TCE) exceeded their respective NR 140 enforcement standards (ES). Three VOCs (TCE, cis-1,2-DCE, and VC) were detected in samples from more than one location. Concentrations of VC detected in the groundwater also

exceeded the federal maximum contaminate level (MCL). (For the five compounds whose concentrations exceeded the PALs, the PAL is 10 percent of the ES. For four of these five, the ES equals the MCL; for VC the ES is 10 percent of the MCL.)

Concentrations of VOCs in the shallow (water table) groundwater exceeding NR 140 PALs were limited to wells immediately adjacent to and downgradient (toward the southwest) from the landfill. The highest concentrations of VOCs were detected along the southern edge of the landfill. In well MW-103, the highest concentration of VC was more than two orders of magnitude greater than its MCL and the highest concentration of cis-1,2-DCE was more than an order of magnitude greater than its MCL. Locations of the wells are shown on Figure 1. Note that some of the wells shown on this figure were installed after the completion of the RI. In the shallow well in the 107 well nest, about 400 feet downgradient from the southern edge of the landfill, VC and cis-1,2-DCE were not found during the RI but the concentrations of TCE did exceed the PAL, which is 10 percent of the MCL. In the other monitoring well in the shallow groundwater further to the south no VOCs were detected at concentrations exceeding the PALs .

A discharge point for some of the shallow groundwater is the wetland located southwest of the Site. There were no VOCs detected in either of the two samples collected from the southwest wetland during the RI.

In the deeper groundwater, only VC was detected at concentrations exceeding the ES, at well nest 107, south of the landfill. Contaminant concentrations in the deeper groundwater were measured at two depths at this location during the RI. Contaminants here were detected in the unconsolidated deposits and the granite at the bottom of the Cambrian sandstone. The private water supply wells located near the landfill were completed at a depth near that of the contact between the unconsolidated deposits and the sandstone. No detections of VOCs were found in the analyses of samples obtained from these private water supply wells during the RI.

The remedial investigation activities are documented in a report dated August 26, 1994. The feasibility study report, dated December 30, 1994, presented remedial action alternatives for the source control and groundwater OUs.

More recently, groundwater contamination has been found further from the landfill than at the time of the remedial investigation. This is discussed later in this report.

Basis For Taking Action

On March 30, 1995, the Wisconsin Division of Health completed a Public Health Assessment (PHA) of the Site. This document was used for the risk discussion in the ROD. The PHA concluded that groundwater beneath and next to the Site was contaminated with VOCs at concentrations that could pose a health hazard if this water were used for domestic purposes, such as drinking. In addition, leachate seeps along the eastern edge of the landfill could also represent a direct contact health risk. The PHA concluded that if the use of contaminated groundwater for domestic purposes was restricted and the leachate seeps were eliminated then the Site would not pose a threat to human health.

Landfill gas was found in some of the groundwater monitoring wells indicating that some gas was escaping from the landfill.

Based on these facts, it was determined that remediation of the landfill was needed.

IV. Remedial Action

Remedy Selected

Remedial action objectives were developed for the Site to address the source of contamination, provide short-term and long-term protection of human health and the environment, and meet the applicable or relevant and appropriate requirements. The site specific remedial objectives developed for the Site included:

- prevent direct contact with landfill contents;
- reduce contaminant leaching to the groundwater;
- control surface water run-on, run-off, and erosion;
- prevent off-site migration of landfill gas;
- restore groundwater quality to NR 140 standards; and
- monitor groundwater quality, landfill gas, and leachate for environmental control.

On March 27, 1996, USEPA concurred with WDNR regarding the remedies identified for the Ripon City Landfill site in the Record of Decision (ROD) signed by WDNR on February 26, 1996. One component of the remedy addressed the contamination source, OU 1, and the second component addressed the groundwater, OU 2. The selected source control remedy was a composite landfill cap and passive landfill gas venting in conjunction with a groundwater monitoring plan.

The components specified for the source control remedy were:

- a composite landfill cover (that is, a landfill cover containing both a plastic membrane and soil materials) over the entire waste disposal area;
- a passive landfill gas venting system installed through the landfill cover;
- monitoring groundwater, in both monitoring wells and selected residential wells, to determine the effectiveness of the landfill cap towards improving groundwater quality;
- monitoring for gas migration from the landfill using the gas probes installed around the landfill to ensure that landfill gas is not migrating away from landfill in an uncontrolled manner;
- fencing the landfill perimeter to restrict access;
- maintaining the landfill cover; and
- providing a deed restriction that prohibits disturbing the landfill cover.

The selected groundwater remedy was the no action alternative. WDNR stated that the groundwater contamination was not severe enough to warrant active groundwater remedial measures to restore groundwater quality and that implementing the source control OU remedy would decrease migration of contaminants from the landfill to the groundwater. In addition to the monitoring program that is part of the source control remedy, the ROD recognized Chapter NR 812 of the

Wisc. Admin. Code as a groundwater institutional control prohibiting the construction of new wells within 1200 feet of the landfill without a variance. This minimum separating distance does not apply to dewatering wells approved under section NR 812.09(4)(a); greater separation distances may be required for wells requiring plan approval under section NR 812.09.

Remedy Implementation

The design and construction of the remedy was managed by the FF/NN Landfill PRP Group (PRP Group) under the contract with WDNR. Work at the Site began in May 1996. The remedy was constructed as planned. No additional areas of contamination were identified. USEPA conducted a final inspection on September 10, 1996. The Site achieved construction completion with the signing of the Preliminary Close Out Report on September 25, 1996, by USEPA.

The PRP Group submitted an as-built report dated June 23, 1997. The cap consisted of the following:

- passive gas collection trenches that were placed within the waste;
- 6- to 12-inch layer of sandy clay;
- 24-inch layer of compacted clay;
- 40-millimeter thick low density polyethylene geosynthetic membrane;
- 12-inch layer of granular drainage material and piping;
- geofabric filter over the granular drainage layer;
- 18-inch layer of fill soil over the geofabric; and
- final 6-inch layer of topsoil to establish vegetation.

A fence restricts access to the landfill. The trenches for the passive gas collection system were installed in a 150-foot grid network across the landfill. Thus, no portion of the landfill would be more than 75 feet from a collection trench. Slotted 4-inch diameter Advanced Drainage Systems, Inc. high density polyethylene pipe was placed in the trench. Vertical vent pipes were connected to the slotted pipe at the trench intersections. These vertical pipes were connected to the geosynthetic membrane with a pipe boot that was clamped to the pipe.

Institutional Controls

Institutional Controls (ICs) are non-engineered instruments, such as administrative and legal controls, that help to minimize the potential for exposure to contamination and that protect the integrity of the remedy. ICs are required to assure long-term protectiveness for any areas which do not allow for unlimited use or unrestricted exposure (UU/UE).

The second five-year review found that each of the ROD-selected ICs have been implemented, are effective as intended, and are protective of the remedy. The ROD remedy selected, as an institutional control, placement of a deed restriction that prohibits disturbing the landfill cap except for maintenance purposes. In addition, the ROD selected, as an institutional control, Section NR 812.08 of the Wis. Admin. Code, which forbids construction of a potable or nonpotable well within 1200 feet of a landfill. The following is a brief summary of the controls and restrictions that are in place for the landfill and the surrounding area as a result of the requirements of the 1996 ROD:

1. The former landfill property owner signed, on June 4, 1997, and filed with the Register of Deeds for Fond du Lac County, on October 21, 1997, a Declaration of Restrictions on the property containing the Ripon FF/NN Landfill. The Declaration of Restrictions prohibits installing water wells, other than monitoring or leachate wells, prohibits certain specified Site uses, and prohibits any use that might damage or impair the effectiveness of any remedial action component constructed at the Site and any interference with the performance of the remedial work. The City of Ripon and the Town of Ripon, both members of the PRP Group, are now the owners of, and possess control over, the landfill property, through a February 2004 Personal Representative's Deed.

2. Chapter NR 812.08(4)(g)1 of the Wis. Admin. Code requires a separation distance of 1200 feet between the landfill and any new potable or nonpotable wells.

The second five-year review found that the ROD selected IC mechanisms have been implemented, are protective of the remedy, and minimized the potential for human and environmental exposure to contaminants at the property containing the landfill. However, the second five-year review identified a groundwater plume extending from the Site. Due to this extended groundwater plume, the second five-year review found that, for other properties near the landfill, the ROD-selected remedy and ICs are insufficient to protect and to minimize the potential for human and environmental exposures to contaminants.

To address impacts to nearby properties affected by the extended groundwater plume, the second five-year review recommended developing an IC plan that includes or is based on a study of the existing ICs to verify the effectiveness and enforceability of the implemented ICs and to identify additional ICs necessary and appropriate to minimize the potential for human and environmental exposure from contaminants in the aquifer.

This five-year review identifies the need for a ROD amendment to select additional control measures which provide for an alternate water supply to affected private well owners, which implements an active landfill gas extraction system, and which implements an expanded groundwater monitoring system. In addition, this five-year review recommends discussing and selecting additional institutional controls in this ROD amendment.

The PRP Group developed a draft of the IC Plan called for by the second five-year review and submitted it to the agencies in December 2010. This plan was finalized and conditionally approved by WDNR on April 13, 2011. The PRP Group has established, recognized, and implemented the following controls and restrictions, which also will be discussed as ICs in the proposed ROD amendment:

1. Chapter NR 504.07(9) of the Wis. Admin. Code prohibits certain activities at solid waste disposal landfills which are no longer in operation.

2. WDNR imposed controls through two memoranda dated July 15, 2004, to Wisconsin licensed well drillers. These memoranda, issued pursuant to Section NR 812.12(3) of the Wis. Admin. Code, impose a "Special Well Casing Pipe Depth Area" for the described area surrounding and containing the landfill that covers approximately 1.5 square miles. In this Area there are certain requirements specified that apply to the construction of new wells and the

reconstruction of existing wells. Sampling for VOCs is also specified.

3. Agreements between the homeowners that hook up to the municipal water supply (alternative water supply) and the PRP Group include requirements to have their water supply well abandoned or converted to a groundwater monitoring well.

4. The FF/NN Landfill is identified on the WDNR GIS Registry site map as a site with ongoing cleanup that has continuing obligations.

The PRP Group additionally identified zoning ordinance requirements that, although not ICs that specifically restrict activities affecting the aquifer, could assist the PRP Group's efforts to notify affected landowners of potential impacts of construction activities on exposure to aquifer contaminants. Section 13.2 of Article XIII of the Town of Ripon zoning ordinance requires a permit for any building, structure or mobile home. Also, Sections 6.4 and 11.2 of the Town of Ripon zoning ordinance require a permit when requesting a use not permitted by an Ordinance in a Zoning District. The PRP Group is requesting that the Town of Ripon notify the PRP Group of any applications for construction permits in the vicinity of the landfill so that it may provide comments on a permit which may impact the remedy.

Moreover, the PRP Group has requested a notice from the WDNR Bureau of Watershed Management whenever the Department receives a Notice of Intent Information Summary for Nonmetallic Mining Operations (Form 3400-179) for any parcel within the Sections near the landfill. There are two sand and gravel quarries currently operating near the Site which are subject to the nonmetallic mining operation requirements. An owner or operator of a nonmetallic mining operation must apply for a permit in accordance with 40 C.F.R. Part 122 or Chapter 283, Wisconsin Statutes, and submit a completed Notice of Intent Information Summary for Nonmetallic Mining Operations (Form 3400-179) to WDNR. The information in this notice would allow the PRP Group to consider and evaluate the potential impact such an operation might have on the groundwater plume flow, and to establish an appropriate monitoring system to promptly document any impacts, as well as allowing the PRP Group to address its concerns with the operator, WDNR, USEPA, and the public.

Based on current information, the IC Plan should ensure the protectiveness of the remedy and minimize the potential for human and environmental exposure to contaminants from the aquifer, provided the instruments and controls are effective, monitored, and modified or supplemented as necessary. The IC plan will be reviewed periodically to determine if any modifications become necessary as new information becomes available. Neither WDNR nor USEPA are aware of Site or media uses which are inconsistent with the stated objectives of the ICs.

Work Done After Remedy Implementation

The first and second five-year review documents outline the work done up until May 2006. These activities include installing additional monitoring wells, additional groundwater investigations, installing an interim active gas extraction system, providing municipal water to residents with affected or threatened private wells, and implementing additional institutional controls.

The additional investigations of the groundwater, the provision of an alternative water supply,

and the evaluation of an active gas extraction system were necessary because, during a normal monitoring event after the first five-year review was completed, concentrations of VC in excess of the requirements were found in the private wells at two of the nearby residences.

V. Progress since the Last Five-Year Review

The previous five-year review found the remedy to be protective in the short-term because there was no evidence of exposure to Site-related contaminants. Since the completion of the Second Five-Year Review Report in September 2006, work has continued to define the extent of the contaminated groundwater plume and determine what measures might be appropriate to address it. The PRP Group submitted a Focused Feasibility Study to WDNR in October 2005 by the PRP Group. Active gas extraction was selected as an interim action to address the off-site landfill gas migration which may be introducing VC into the groundwater. Work has gone forward on an IC study and an IC plan.

To further evaluate active gas extraction as a remedial alternative, pilot testing was performed in June 2005. The pilot test demonstrated that conversion of the passive gas control system and leachate wells into an active gas extraction system was feasible and effective for gas control. Based upon the results of the pilot test, the PRP Group proposed active gas extraction as an interim action. The design for this remedial system was submitted to WDNR for review and was conditionally approved in October 2005.

The interim active gas extraction system was installed and started up at the Site in March 2006 using temporary above ground piping to connect the existing gas vents and leachate head wells to a blower. In January 2007, the piping was buried to prevent condensate freezing and facilitate year-round operation. In the report, *Performance Evaluation, Interim Gas Extraction System, Highway FF/NN Landfill, Ripon, Wisconsin*, dated July 5, 2007, the PRP Group's contractor reported that the system was performing well and achieving desired affects. Specifically, the contractor noted the following improvements in the evaluation of the monitoring data:

- System operation has reduced the landfill methane gas concentrations outside the limits of fill to below 25 percent of the LEL in the gas probes except for one which is sometimes higher,
- Methane concentrations measured within the landfill have been reduced from an average of approximately 52 percent methane in 2006 down to 11.4 percent in June 2007,
- Vinyl chloride concentrations within the landfill gas have been reduced in nearly all gas extraction vents and leachate wells, and
- Vinyl chloride concentrations in groundwater have shown decreasing or stable trends in nearly all groundwater monitoring wells.

Based on the results of the performance evaluation the PRP Group recommended that the interim active gas extraction system be selected as the final remedy for source control for the FF/NN Landfill (Alternative C1 of the Focused Feasibility Study modified to include the leachate head wells as part of the gas extraction system). The WDNR found in October 2007 that the landfill gases have been contained within the landfill boundary and are no longer escaping from the sides of the landfill meaning the landfill had returned to compliance with Chapter NR 507 of the Wisc. Admin. Code. Regarding the groundwater, WDNR recommended that additional groundwater sampling should be performed through the April 2008 sampling event. The PRP Group

submitted an updated performance evaluation in July 2008 which demonstrated that since the start-up of the interim active gas extraction system, vinyl chloride concentrations in groundwater had decreased in all wells where it was detected except one.

WDNR and USEPA believe the active gas extraction system has been effective as a source control to help minimize the introduction of VOCs to the groundwater.

In August 2009, the PRP Group submitted a revised groundwater monitoring plan at the request of the WDNR that included the addition of natural attenuation analytical parameters to demonstrate MNA as a remedial option for the deeper groundwater plume. The revised plan also included a request to reduce monitoring frequency from quarterly to semiannually. In an October 2009 letter, WDNR conditionally approved the MNA monitoring plan but denied the request for a reduction in monitoring frequency.

Reduction of VC in groundwater has occurred as the interim landfill gas extraction system removes landfill gas containing VC. The following is a comparison of the VC detections in April 2006 when active gas extraction was started to the most recent data from October 2010. Layer refers to the separate hydrostratigraphic soil and/or bedrock layers or units, each having unique flow characteristics, downgradient from the landfill. There are four separate layers being monitored, with layer 4 being the deepest. Concentrations are in micrograms per liter (µg/L); concentrations marked with a 'J' flag are estimated values, below the laboratory quantification level. ND stands for non-detection; meaning, the concentration of VC is below laboratory detection levels.

Well	Layer	Date	Conc.	Date	Conc.	PRP Group Interpreted Trend
MW-103	1	04/25/2006	1.8	10/04/2010	ND	Decreased to ND
MW-104	1	04/25/2006	1.1	10/05/2010	ND	Decreased to ND
MW-112	1	04/25/2006	2.8	05/20/2010	0.33J	Decreasing
P-103	2	04/25/2006	2.9	10/05/2010	0.41J	Decreasing
P-107	2	04/25/2006	0.79	10/05/2010	0.94J	Sporadic detections
P-103D	3	04/25/2006	2.6	10/05/2010	0.71J	Decreasing
P-111D	3	04/24/2006	11	10/05/2010	4.7, 4.7	Decreasing
P-114	3	04/24/2006	7.6, 7.9	10/06/2010	5.4, 5.4	Decreasing
P-115	3	04/24/2006	0.62	10/05/2010	1.2	Stable
P-107D	4	04/25/2006	7.7	10/05/2010	1.6	Decreasing

As can be seen in the table above, VC was detected in ten wells and in each of the hydrostratigraphic units at the beginning of the current five-year review period when the start-up of active gas extraction began in 2006. By comparison, VC is now detected in eight of the ten wells where it was previously detected. Based on the PRP Group's interpretation of the data trends, in six of those wells that still contain detectable VC, the concentrations have been decreasing and in the other two wells the VC concentrations are sporadic or stable.

The MW wells listed above are water table wells that are located near the landfill. In the two well nests (107 and 111) located some distance from the landfill toward the residences where VC has been detected (see Figure 1), VC has not been detected in MW-107 or in MW-111, going back to the time of the RI, which shows that VC is not present in the upper part of the aquifer away from the landfill. Wells P-114 and P-115 are former water supply wells at two residences.

These two wells and well P-103D are screened in the sandstone and well P-107D is screened in granite. The other wells are screened in sand, sand and gravel, or silt.

VC can biodegrade in aerobic (oxygen containing) environments in the groundwater. Given that the active gas extraction has been an effective source control measure to minimize the addition of VOCs to the groundwater, the question remains as to whether the remaining VC contamination can degrade naturally over time to meet groundwater standards and be protective of human health and the environment or if some type of active remedy would be needed to meet those remedial goals. WDNR and USEPA have performed their own review of the groundwater data and have determined that:

1. Additional VC data over time is needed to determine if the trends are showing that natural degradation of VC is occurring at an adequate rate to meet remedial goals and prevent further expansion of the VC plume. Additional monitoring over time should provide this information.
2. The dissolved oxygen levels in the affected layers appear to be low, but might be high enough to allow natural degradation to occur. However, the dissolved oxygen data in several wells in the affected layers has appeared to be inconsistent, possibly due to problems with sampling methods. A review of sampling methods along with additional collection of dissolved oxygen data should help resolve this question.

In the previously mentioned October 2009 WDNR letter, it was stated that WDNR and USEPA have determined that in order to evaluate natural attenuation as a potential component of the remedy that is needed for the groundwater at the Site, additional time was needed to collect and evaluate the data which would support the use of natural attenuation as part of the remedy. Therefore, the submittal of an updated FS and the preparation of a planned ROD Amendment were postponed. In subsequent WDNR correspondence in October 2010, the schedule for the submittal of the revised FS was again postponed to July 31, 2011.

This planned ROD Amendment, which will follow the issuance and circulation for comments of a proposed plan, is expected to cover: 1) the alternative water supply, which has already been installed and is being used by the residents in the area of the contaminated water plume; 2) an active landfill gas extraction system to address the off-site landfill gas migration which may have been introducing contaminants into the groundwater; 3) a means to address the remaining contamination in the groundwater so that groundwater standards are met; and 4) a monitoring program that will provide the data needed to assess the effectiveness of the remedial components.

As mentioned above, the second five-year review contained a recommendation that an IC plan that includes or is based on a study to verify the effectiveness and enforceability of the implemented ICs be developed. The PRP Group developed such a plan, which was finalized and conditionally approved by WDNR on April 13, 2011.

VI. Five-Year Review Process

Administrative Components

WDNR drafted and finalized the First Five-Year Review Report, which was approved by USEPA. USEPA completed the Second Five-Year Review Report with support from WDNR.

WDNR drafted this Third Five-Year Review Report, which USEPA will finalize.

This review consisted of: document review; data review; community notification; Site inspection; and report development and review.

Community Notification and Involvement

On October 27, 2010, WDNR placed an advertisement in the *Ripon Commonwealth Express* and on October 28, 2010 in the *Ripon Commonwealth Press* announcing that the five-year review was in progress. The ads indicated that questions and comments may be directed to the State Project Manager. Copies of the ads are included in Attachment 1. No comments have been received.

USEPA will inform the public of the completion of the review and the availability of the report once the report is signed.

Document Review

GeoTrans, Inc., of Brookfield, Wisconsin prepared the report, *Third Five-Year Review Report, Ripon FF/NN Landfill, Ripon, Wisconsin*, dated February 1, 2011 for the PRP Group. This report was used extensively for this five-year review. Some of the periodic PRP Group reports that document the monitoring results and additional work that has been done were also reviewed. Other documents consulted included the ROD and the previous five-year review report.

Data Review

USEPA and WDNR reviewed the data from the monitoring that has been performed since the completion of the construction of the original remedy. The monitoring program obtains data on groundwater, both from monitoring wells and from residential wells, landfill gas, and leachate. After it was discovered that the groundwater contamination had spread into other areas, the monitoring program was expanded beyond the scope that was established immediately after construction completion. The PRP Group has installed an active gas extraction system at the landfill. The information reviewed has been discussed in various sections above.

Site Inspection

WDNR conducted an inspection on October 13, 2010 for this third five-year review. At that time, the State Project Manager found the landfill cover, wells, and active gas extraction system to be in good condition and in operating order. There was little odor and a low noise level. The

cover had been recently mowed and in good condition. No obvious settlement or vegetative bare spots were noted. There is a fence around some of the landfill which also appeared to be in good condition; the more visible sides are fenced. Photographs were taken around the Site.

The completed inspection form with the photographs is included as Attachment 2.

The property south of the landfill is being used as a dog park, and at the time of the inspection, several people and dogs were in the park. Across South Koro Road on the west side of the landfill is R & R Wash Materials, a quarry operation. Across County Highway FF, opposite the dog park, is another active quarry operation, Northeast Asphalt, Inc. At the quarry fence is a warning sign about deep water. To the north of this quarry is the Ripon Rifle and Pistol Club.

The WDNR has informed the operator of the Northeast Asphalt, Inc. quarry on County Highway FF, in an October 14, 2008 non-compliance letter regarding its Nonmetallic Mining Operations General Permit, that if its pumping of water alters the groundwater flow near the Site and causes contaminated water to move into new areas, it could become a responsible party for the Site. No groundwater lowering has been detected since the incident in 2008.

VII. Technical Assessment

Question A. Is the remedy functioning as intended by the decision documents?

No, the original ROD did not consider that the groundwater contaminant plume might expand and this will need to be addressed through a ROD Amendment.

USEPA has no information on the costs of operation and maintenance at this time.

Question B. Are the exposure assumptions, toxicity data, clean-up levels, and remedial action objectives used at the time of the remedy selection still valid?

No.

The ROD stated, "The groundwater contamination that has migrated from this landfill is not severe enough to warrant active groundwater remedial measures to restore groundwater quality." Although a NR 140 ES and a USEPA MCL had been exceeded 400 or 500 feet downgradient of the Site, the contamination was deep enough in the aquifer and far enough from water supply wells at the time that it was not considered a threat to human health and the environment. However, this exposure pathway did become complete when contaminated groundwater with a concentration of VC greater than the ES migrated to two residential wells. This exposure pathway has been eliminated with the provision of an alternative water supply to the area.

There have been no major changes in the physical conditions at the Site that would affect the protectiveness of the remedy. There are no new applicable or relevant and appropriate requirements (ARARs) that will require a change in the remedy or additional remedial action. Additional remedial action may be required to address the unanticipated expansion of the area containing groundwater with unacceptable contamination. The provision of an alternative water

supply ensures continued protectiveness.

Question C. Has any other information come to light that could call into question the protectiveness of the remedy?

Yes.

The discovery of exceedances of the ES for VC in some residential wells has already resulted in additional actions being taken to ensure continued protectiveness of the remedy (alternative water supply, active gas collection, and expanded groundwater monitoring).

Technical Assessment Summary

Since the initial remedy construction to implement the ROD remedy, the remedy has required two enhancements which have already been implemented (the provision of an alternative water supply for affected residences and an active gas extraction system). Based on the review of the analytical data collected for the Site over the last five years and discussions with the PRP Group's contractor, the remedial components that are in place are providing a remedy that is currently protecting human health and the environment. Further enhancements will depend on the results of the monitoring program.

VIII. Issues

1. Groundwater contamination has expanded since the completion of the construction of the remedy selected in the 1996 ROD.
2. Long-term stewardship of the Site must be assured.

IX. Recommendations and Follow-Up Actions:

1. Continue groundwater monitoring to provide the data necessary for the selection of additional remedy components; issue a ROD Amendment to cover the alternative water supply, an active landfill gas extraction system, a means to address the remaining contamination in the groundwater, the additional ICs that are needed, and the groundwater monitoring program needed; and implement the remedy.
2. Implement the IC plan to ensure effective ICs are in place and long-term stewardship procedures are followed to maintain, monitor, and enforce ICs.

Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness? (Y/N)	
					Current	Future
Groundwater contamination expansion	Continue groundwater monitoring	PRPs	WDNR	July 2012	N	Y
Groundwater contamination	Issue a ROD Amendment for	WDNR	USEPA	Sept. 2012	N	Y

Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Mile-stone Date	Affects Protectiveness? (Y/N)	
					Current	Future
expansion	alternative water supply, active landfill gas extraction, addressing groundwater contamination, additional ICs that are needed, and a monitoring program					
Groundwater contamination expansion	Implement revised remedy	PRPs	WDNR	Begin Sept. 2012	N	Y
ICs	Implement the IC Plan and ensure long-term stewardship for the Site	PRPs/WDNR	USEPA	June 2016	N	Y

X. Protectiveness Statement

For the source control operable unit, OU 1, the remedy is protective in the short-term because there is no evidence of exposure to Site-related contaminants. To be protective in the long-term, enhanced gas extraction must be adopted through a decision document and implemented to maintain gas control. For the groundwater operable unit, OU 2, the remedy is protective in the short-term because there is no evidence of exposure to Site-related contaminants. A remedy to address the contaminated plume in addition to the alternative water supply and the active gas extraction system that have already been provided must be selected and implemented through a decision document. Long-term protectiveness of the groundwater will be achieved when the groundwater reaches cleanup levels. For the entire Site, the remedy is protective in the short-term because there is no evidence of exposure to Site-related contaminants. Site-wide long-term protectiveness will be achieved when the additional remedy components are selected and implemented and the groundwater reaches cleanup levels. Long-term protectiveness requires compliance with effective ICs which will be ensured by implementing effective ICs and through long-term stewardship to monitor, maintain, and enforce them as well as maintaining the Site remedy components.

XI. Next Review

The next five-year review for the Ripon City Landfill is required in September 2016, five years from the date of this review.

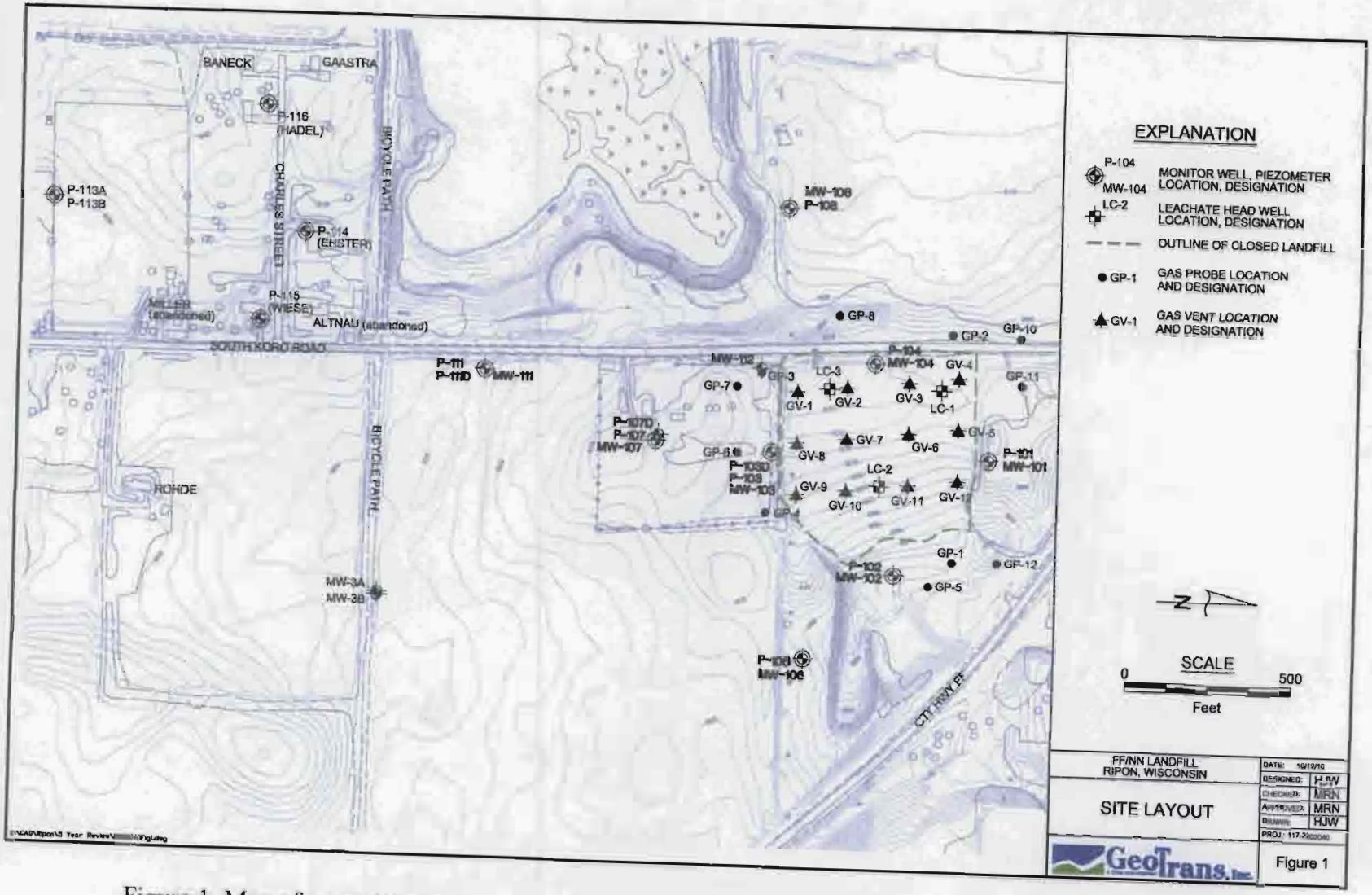

Figure 1. Map of area of the Ripon City Landfill site showing sampling locations (source: GeoTrans, Inc.)

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Attachment 1.

Five Year Review Announcement Ad – Ripon Commonwealth Express

OFFICIAL NOTICE

Notice of PUBLIC BUDGET HEARING
Town of Rosendale, Fond du Lac County

[illegible]

BUDGET SUMMARY FOR TOWN OF ROSENDALE

[illegible]

Notice of SPECIAL TOWN MEETING OF THE ELECTORS of the Town of Rosendale, Fond du Lac County

[illegible]

Notice of TOWN BOARD MEETING of the Town of Rosendale, Fond du Lac County

[illegible]

OFFICIAL NOTICE

TOWN OF METOMEN
2011 BUDGET
NOTE NEW DATE:

[illegible]

NOTICE OF A SPECIAL TOWN MEETING OF THE ELECTORS OF THE TOWN OF METOMEN

[illegible]

NOTICE OF MONTHLY BOARD MEETING

[illegible]

FALL DECORATING

HOUNSELL'S

FOR RENT

DO YOU NEED to store a car, boat, camper or other equipment? We have storage space available at Equity Propane, Ripon. 748-[illegible]

DOWNTOWN OFFICE SPACES for rent in Ripon. [illegible] Call Andy at 920-710-[illegible]

Why I attend the First Congregational Church of Ripon...

"My mom, my sister, my grandparents and my friend Tony go here. Also, I was baptized here."
— Mitchell Raddatz

There is one thing missing from our 10:30 a.m. worship service:

YOU!

Visit us once. We'll be the better for it.

First Congregational Church of Ripon

A Congregation of the United Church of Christ

220 Ransom Street • Ripon, WI 54971

Pastor [illegible]

WDNR and EPA to Review Ripon FF/NN Landfill Superfund Site

Ripon, Wisconsin

The Wisconsin Department of Natural Resources (WDNR) and the U.S. Environmental Protection Agency (EPA) are conducting a status review of the Ripon FF/NN Landfill Superfund site, Ripon, Wis. The Superfund law requires regular reviews of sites (at least every five years) where the cleanup has been conducted but hazardous materials remain managed on site. These reviews are done to ensure that the cleanup continues to protect human health and the environment.

The review will include an evaluation of site background information, cleanup requirements, effectiveness of the cleanup and any anticipated future actions. It will also look at ways for WDNR to operate the site cleanup more efficiently.

WDNR selected several cleanup actions for the site that were implemented. The landfill cleanup included placing a new cover on the landfill, installing a passive landfill gas extraction system, which was later modified to be an active extraction system, providing municipal water to affected residences with contaminated private wells, fencing the site and monitoring the groundwater and soil gas near the site.

This is the third five-year review report for the Ripon FF/NN Landfill. The last five-year review report was completed for the site on September 27, 2006.

The five-year review report, which is planned to be available by June, 2011, will detail the site's progress.

Further information about this review can be obtained by contacting:

Gary A. Edelstein, P.E., Waste Management Engineer
Wisconsin Department of Natural Resources
(608)267-7563
Internet E-Mail ->- Gary.Edelstein@wisconsin.gov

Site-related documents are available for review at:
Wisconsin Department of Natural Resources Area Office
625 E. County Rd. Y, Suite 700
Oshkosh, WI 54901-9731
(920) 424-3050

AFFORDABLE TWO BEDROOM [illegible]

DOWNTOWN ONE BEDROOM [illegible] Call Andy 920-710-[illegible] or visit www.RiponApartments.com

FIRST MONTH FREE. Longfellow House Apartments. 2 bedroom apartment with porch. Indoor parking available. [illegible] 811 Union St., Ripon. 920-279-[illegible]

FOR RENT [illegible] Property Management, LLC. 920-[illegible]

www.RiponPress.com

The latest local news online!

NEWS ACCESS 24/7

Get Results!

MAIL your ad to us at: 656 Douglas St. P.O. Box 344 Ripon, WI 54971

PHONE us at: 920-748-3017

FAX your ad to us at: 920-748-[illegible]

E-MAIL your ad to us at: [illegible]

Place your ad today!

Ripon Commonwealth Press

Express

Page 10 - Thursday October 28, 2010

Education

RHS class of 1960 celebrates 50th anniversary

RIPON HIGH SCHOOL'S class of 1960 met for a [illegible] ... Tim Miller, Diane [illegible] ... [illegible]

submitted photo

Ripon students recognized by School Board

THE RIPON AREA School Board recognized eighth [illegible] ... who plays the trumpet, was in attendance at the meeting and presented a certificate of [illegible] from the board.

Got three hours? You can present art to students

The Ripon Art Presenter Program has plenty of art to share with [illegible]

It just needs volunteers to present it.

[illegible] with a love for children [illegible] — just three hours per year — to enrich the lives of Ripon's elementary students.

A volunteer gives a 30-minute presentation to a class six times during the school year. During the time, students ask questions and discuss what they are looking at.

Presenters don't have to have an art background; most presenters don't.

A packet of information about the painting, artist and more is available to those who choose to use it. [illegible] to [illegible] the work in a way most comfortable to them.

Volunteers enjoy the experience, and often find they are as enriched as the children they teach.

To volunteer, call Jack Frank at 748-6347.

WDNR and EPA to Review Ripon FF/NN Landfill Superfund Site

Ripon, Wisconsin

The Wisconsin Department of Natural Resources (WDNR) and the U.S. Environmental Protection Agency (EPA) are conducting a status review of the Ripon FF/NN Landfill Superfund site [illegible] ... These reviews are done to ensure that the cleanup continues to protect human health and the environment.

The review will include an evaluation of [illegible] ... effectiveness of the cleanup [illegible] ... WDNR to operate the site cleanup more efficiently.

WDNR selected several cleanup actions for the site that were implemented. The landfill cleanup included placing a new cover on the landfill, installing a passive landfill gas extraction system, which was later modified to be an active extraction system, [illegible] ... and monitoring the groundwater and soil gas near the site.

This is the third five-year review report for the Ripon FF/NN Landfill. The last five-year review report was completed for the site on September 21, 2006.

The five-year review report, which is planned to be available by June, 2011, will detail the site's progress.

Further information about the review can be obtained by contacting:

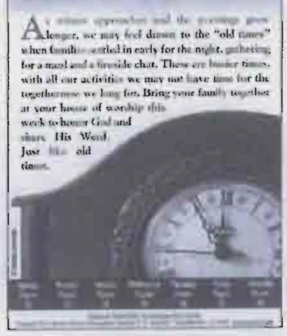
Gary A. Edelstein, P.E., Waste Management Engineer
Wisconsin Department of Natural Resources
[illegible]
Internet E-Mail — Gary.Edelstein@wisconsin.gov

Site-related documents are available for review at:
Wisconsin Department of Natural Resources Area Office
[illegible] E. County Rd Y, Suite 700
Oshkosh, WI 54901 [illegible]
([illegible]) 424-3050

WORSHIP AT THE CHURCH OF YOUR CHOICE THIS WEEK

Back to Old Times

As autumn approaches and the evenings grow longer, we may feel drawn to the "old times" when families settled in early for the night, gathering for a meal and a fireside chat. These are busier times, with all our activities we may not have time for the togetherness we long for. Bring your family together at your house of worship this week to honor God and share His Word. Just like old times.



Attachment 2

Inspection Form

Photo Key

Inspection Photos

Please note that "O&M" is referred to throughout this checklist. At sites where Long-Term Response Actions are in progress, O&M activities may be referred to as "system operations" since these sites are not considered to be in the O&M phase while being remediated under the Superfund program.

Five-Year Review Site Inspection Checklist (Template)

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: Ripon FF/NN Landfill	**Date of inspection:** 10/13/10
Location and Region: Tn. of Ripon, WI Reg 5	**EPA ID:** WID980610190
Agency, office, or company leading the five-year review: Wisconsin DNR G Edelstein	**Weather/temperature:** Mostly Clear; 50's/60's °F

Remedy Includes: (Check all that apply)

- [X] Landfill cover/containment
- [X] Access controls Fence
- [X] Institutional controls
- [ ] Groundwater pump and treatment
- [ ] Surface water collection and treatment
- [ ] Other Active gas extraction (interim retrofit), extension of municipal water to residents with contaminated private wells
- [ ] Monitored natural attenuation
- [ ] Groundwater containment
- [ ] Vertical barrier walls

Attachments: [ ] Inspection team roster attached [X] Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Jack Wendler (Name) POTW operator (Title) 10/13/10 (Date)
   Interviewed [X] at site [ ] at office [ ] by phone Phone no. 920-748-4902
   Problems, suggestions; [ ] Report attached

2. **O&M staff** Mike Noel (Name) Consultant (Title) 10/13/10 (Date)
   Interviewed [X] at site [ ] at office [ ] by phone Phone no.
   Problems, suggestions; [ ] Report attached Took us around site and pointed out features

D-7

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency / Contact (Name)	Title	Date	Phone no.
Wisconsin DNR / Gary Edelstein	Engineer	10/13/10	608-267-7563
Problems; suggestions; G Report attached: Prepared this report			
City of Ripon / Steve Barg	City Administrator	10/13/10	920 748 4914
Problems; suggestions; G Report attached:			
Agency / Contact (Name)	Title	Date	Phone no.
Problems; suggestions; G Report attached:			
Agency / Contact (Name)	Title	Date	Phone no.
Problems; suggestions; G Report attached:			

4. **Other interviews** (optional) G Report attached.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**
   - ☒ O&M manual — ☒ Readily available — G Up to date — G N/A
   - G As-built drawings — G Readily available — G Up to date — G N/A
   - ☒ Maintenance logs — ☒ Readily available — G Up to date — G N/A

   Remarks: Kept at POTW some document also at City Hall. Current gas system documents at POTW

2. **Site-Specific Health and Safety Plan** — ☒ Readily available — G Up to date — G N/A
   - ☒ Contingency plan/emergency response plan — ☒ Readily available — G Up to date — G N/A

   Remarks: Kept at POTW for gas system

3. **O&M and OSHA Training Records** — G Readily available — G Up to date — G N/A

   Remarks:

4. **Permits and Service Agreements**
   - G Air discharge permit — G Readily available — G Up to date — G N/A
   - G Effluent discharge — G Readily available — G Up to date — G N/A
   - G Waste disposal, POTW — G Readily available — G Up to date — G N/A
   - G Other permits: _____ — G Readily available — G Up to date — G N/A

   Remarks:

5. **Gas Generation Records** — ☒ Readily available — G Up to date — G N/A

   Remarks: At POTW, Failed to consultant

6. **Settlement Monument Records** — G Readily available — G Up to date — ☒ N/A

   Remarks:

7. **Groundwater Monitoring Records** — ☒ Readily available — G Up to date — G N/A

   Remarks: Kept by Consultant and

8. **Leachate Extraction Records** — G Readily available — G Up to date — ☒ N/A

   Remarks:

9. **Discharge Compliance Records**
   - G Air — G Readily available — G Up to date — ☒ N/A
   - G Water (effluent) — ☒ Readily available — G Up to date — G N/A

   Remarks: Condensate hauled to POTW records kept at POTW

10. **Daily Access/Security Logs** — ☒ Readily available — G Up to date — G N/A

    Remarks: Kept at POTW
    Site Inspected every Friday

IV. O&M COSTS

1. **O&M Organization**
   - G State in-house
   - G Contractor for State
   - X PRP in-house
   - G Contractor for PRP
   - G Federal Facility in-house
   - G Contractor for Federal Facility
   - G Other_____

2. **O&M Cost Records**
   - X Readily available G Up to date Steve will send later
   - G Funding mechanism/agreement in place
   - Original O&M cost estimate_____ G Breakdown attached

   Total annual cost by year for review period if available

   From_____ To_____ _____ G Breakdown attached
   Date Date Total cost

   From_____ To_____ _____ G Breakdown attached
   Date Date Total cost

   From_____ To_____ _____ G Breakdown attached
   Date Date Total cost

   From_____ To_____ _____ G Breakdown attached
   Date Date Total cost

   From_____ To_____ _____ G Breakdown attached
   Date Date Total cost

3. **Unanticipated or Unusually High O&M Costs During Review Period**
   Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS G Applicable G N/A

A. Fencing

1. **Fencing damaged** G Location shown on site map X Gates secured G N/A
   Remarks Site not fenced on portion of N side of site. Fence that is present in good condition

B. Other Access Restrictions

1. **Signs and other security measures** G Location shown on site map G N/A
   Remarks Signs noted. No evidence of trespass or problems

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented G Yes G No G N/A
Site conditions imply ICs not being fully enforced G Yes G No G N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date G Yes G No G N/A
Reports are verified by the lead agency G Yes G No G N/A

Specific requirements in deed or decision documents have been met G Yes G No G N/A
Violations have been reported G Yes G No G N/A
Other problems or suggestions: G Report attached

2. **Adequacy** G ICs are adequate G ICs are inadequate G N/A
Remarks _____

D. General

1. **Vandalism/trespassing** G Location shown on site map ☒ No vandalism evident
Remarks Although site not fully fenced, no evidence of trespass or problems

2. **Land use changes on site** ☒ N/A
Remarks None

3. **Land use changes off site** ☒ N/A
Remarks None recently

VI. GENERAL SITE CONDITIONS

A. Roads G Applicable ☒ N/A No roads, short driveways

1. **Roads damaged** G Location shown on site map G Roads adequate ☒ N/A
Remarks No damage to driveways

B. Other Site Conditions

Remarks_____

_____

_____

_____

_____

_____

VII. LANDFILL COVERS G Applicable G N/A

A. Landfill Surface

1. **Settlement** (Low spots) G Location shown on site map G Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

2. **Cracks** G Location shown on site map G Cracking not evident
   Lengths_____ Widths_____ Depths_____
   Remarks_____
   _____

3. **Erosion** G Location shown on site map G Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

4. **Holes** G Location shown on site map G Holes not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

5. **Vegetative Cover** G Grass G Cover properly established G No signs of stress
   G Trees/Shrubs (indicate size and locations on a diagram)
   Remarks_____
   _____

6. **Alternative Cover (armored rock, concrete, etc.)** G N/A
   Remarks_____
   _____

7. **Bulges** G Location shown on site map G Bulges not evident
   Areal extent_____ Height_____
   Remarks_____
   _____

8. **Wet Areas/Water Damage** ☒ Wet areas/water damage not evident
- G Wet areas — G Location shown on site map — Areal extent_____
- G Ponding — G Location shown on site map — Areal extent_____
- G Seeps — G Location shown on site map — Areal extent_____
- G Soft subgrade — G Location shown on site map — Areal extent_____

Remarks_____

9. **Slope Instability** G Slides G Location shown on site map ☒ No evidence of slope instability
Areal extent_____
Remarks_____

B. Benches G Applicable ☒ N/A
(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

1. **Flows Bypass Bench** G Location shown on site map ☒ N/A or okay
Remarks_____

2. **Bench Breached** G Location shown on site map ☒ N/A or okay
Remarks_____

3. **Bench Overtopped** G Location shown on site map ☒ N/A or okay
Remarks_____

C. Letdown Channels G Applicable ☒ N/A
(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. **Settlement** G Location shown on site map ☒ No evidence of settlement
Areal extent_____ Depth_____
Remarks_____

2. **Material Degradation** G Location shown on site map ☒ No evidence of degradation
Material type_____ Areal extent_____
Remarks_____

3. Erosion G Location shown on site map ☒ No evidence of erosion
Areal extent_____ Depth_____
Remarks_____

4. **Undercutting** G Location shown on site map G No evidence of undercutting
Areal extent_____ Depth_____
Remarks_____

5. **Obstructions** Type_____ G No obstructions
G Location shown on site map Areal extent_____
Size_____
Remarks_____

6. **Excessive Vegetative Growth** Type_____
G No evidence of excessive growth
G Vegetation in channels does not obstruct flow
G Location shown on site map Areal extent_____
Remarks_____

D. Cover Penetrations G Applicable G N/A

1. **Gas Vents** G Active G Passive
G Properly secured/lockedG Functioning G Routinely sampled G Good condition
G Evidence of leakage at penetration G Needs Maintenance
G N/A
Remarks_____

2. **Gas Monitoring Probes**
G Properly secured/lockedG Functioning G Routinely sampled G Good condition
G Evidence of leakage at penetration G Needs Maintenance G N/A
Remarks_____

3. **Monitoring Wells** (within surface area of landfill)
G Properly secured/lockedG Functioning G Routinely sampled G Good condition
G Evidence of leakage at penetration G Needs Maintenance G N/A
Remarks_____

4. **Leachate Extraction Wells**
G Properly secured/lockedG Functioning G Routinely sampled G Good condition
G Evidence of leakage at penetration G Needs Maintenance G N/A
Remarks_____

5. **Settlement Monuments** G Located G Routinely surveyed G N/A
Remarks_____

E. Gas Collection and Treatment ☒ Applicable ☐ N/A

1. **Gas Treatment Facilities**
   ☐ Flaring ☐ Thermal destruction ☐ Collection for reuse
   ☒ Good condition ☐ Needs Maintenance
   Remarks Considered an interim system, no permanent blower house, Gas is vented w/o treatment

2. **Gas Collection Wells, Manifolds and Piping**
   ☒ Good condition ☐ Needs Maintenance
   Remarks

3. **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)
   ☒ Good condition ☐ Needs Maintenance ☐ N/A
   Remarks Gas probes

F. Cover Drainage Layer ☐ Applicable ☐ N/A

1. **Outlet Pipes Inspected** ☐ Functioning ☒ N/A
   Remarks

2. **Outlet Rock Inspected** ☐ Functioning ☒ N/A
   Remarks

G. Detention/Sedimentation Ponds ☐ Applicable ☒ N/A

1. **Siltation** Areal extent_____ Depth_____ ☐ N/A
   ☐ Siltation not evident
   Remarks

2. **Erosion** Areal extent_____ Depth_____
   ☐ Erosion not evident
   Remarks

3. **Outlet Works** ☐ Functioning ☐ N/A
   Remarks

4. **Dam** ☐ Functioning ☐ N/A
   Remarks

H. Retaining Walls G Applicable G N/A

1. **Deformations** G Location shown on site map G Deformation not evident
   Horizontal displacement_____ Vertical displacement_____
   Rotational displacement_____
   Remarks_____

2. **Degradation** G Location shown on site map G Degradation not evident
   Remarks_____

I. Perimeter Ditches/Off-Site Discharge G Applicable G N/A

1. **Siltation** G Location shown on site map G Siltation not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Vegetative Growth** G Location shown on site map G N/A
   G Vegetation does not impede flow
   Areal extent_____ Type_____
   Remarks_____

3. **Erosion** G Location shown on site map G Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____

4. **Discharge Structure** G Functioning G N/A
   Remarks_____

VIII. VERTICAL BARRIER WALLS G Applicable G N/A

1. **Settlement** G Location shown on site map G Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Performance Monitoring** Type of monitoring_____
   G Performance not monitored
   Frequency_____ G Evidence of breaching
   Head differential_____
   Remarks_____

IX. GROUNDWATER/SURFACE WATER REMEDIES G Applicable ☒ N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines G Applicable G N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   G Good condition G All required wells properly operating G Needs Maintenance G N/A
   Remarks_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   G Good condition G Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   G Readily available G Good condition G Requires upgrade G Needs to be provided
   Remarks_____

B. Surface Water Collection Structures, Pumps, and Pipelines G Applicable ☒ N/A

1. **Collection Structures, Pumps, and Electrical**
   G Good condition G Needs Maintenance
   Remarks_____

2. **Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   G Good condition G Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   G Readily available G Good condition G Requires upgrade G Needs to be provided
   Remarks_____

C. Treatment System G Applicable X N/A

1. **Treatment Train** (Check components that apply)
   G Metals removal G Oil/water separation G Bioremediation
   G Air stripping G Carbon adsorbers
   G Filters_____
   G Additive (*e.g.*, chelation agent, flocculent)_____
   G Others_____
   G Good condition G Needs Maintenance
   G Sampling ports properly marked and functional
   G Sampling/maintenance log displayed and up to date
   G Equipment properly identified
   G Quantity of groundwater treated annually_____
   G Quantity of surface water treated annually_____
   Remarks_____

2. **Electrical Enclosures and Panels** (properly rated and functional)
   G N/A G Good condition G Needs Maintenance
   Remarks_____

3. **Tanks, Vaults, Storage Vessels**
   G N/A G Good condition G Proper secondary containment G Needs Maintenance
   Remarks_____

4. **Discharge Structure and Appurtenances**
   G N/A G Good condition G Needs Maintenance
   Remarks_____

5. **Treatment Building(s)**
   G N/A G Good condition (esp. roof and doorways) G Needs repair
   G Chemicals and equipment properly stored
   Remarks_____

6. **Monitoring Wells** (pump and treatment remedy)
   G Properly secured/lockedG Functioning G Routinely sampled G Good condition
   G All required wells located G Needs Maintenance G N/A
   Remarks_____

D. Monitoring Data

1. Monitoring Data
   G Is routinely submitted on time G Is of acceptable quality

2. Monitoring data suggests:
   G Groundwater plume is effectively contained G Contaminant concentrations are declining

D. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)
☒ Properly secured/locked ☒ Functioning ☒ Routinely sampled ☒ Good condition
G All required wells located G Needs Maintenance G N/A
Remarks_____

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

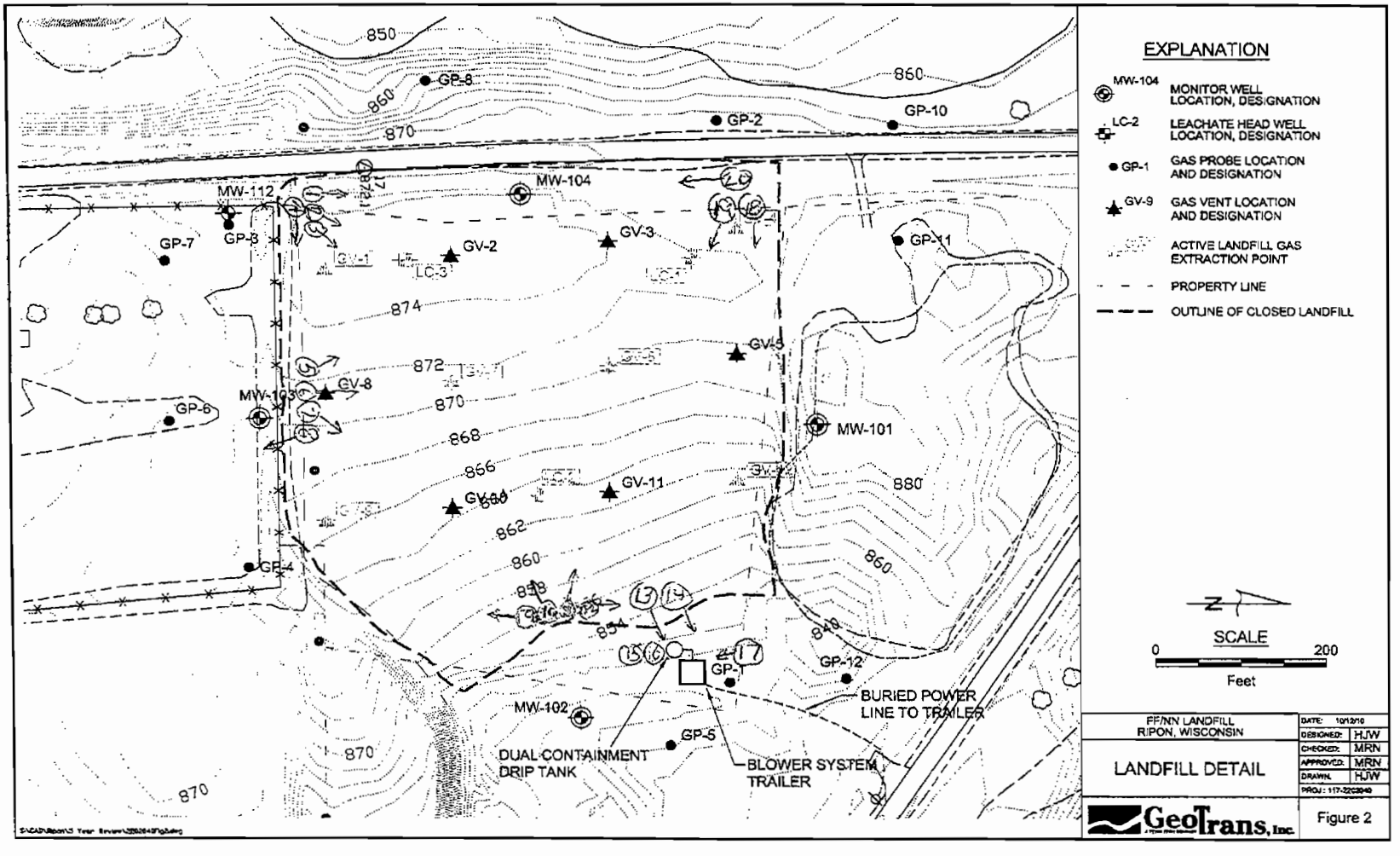
B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

October 13, 2010
Inspection Photo Key



Ripon FF/NN Landfill
Five Year Review Inspection Photos
Taken October 13, 2010

See Inspection photo key for locations where the photos were taken from

Photo 1 Looking N along fence line from SW corner

Photo 2 Looking NE onto LF from SW corner; shows gas piping from leachate well LC-3

Photo 3 Looking NE onto LF from SW corner

Photo 4 Looking E onto LF from SW corner

Photo 5 Looking NNW onto LF from S side

Photo 6 Looking N onto LF from S side

Photo 7 Looking E from S side

Photo 8 Looking S from S side towards well MW-103

Photo 9 Looking S from E side of LF

Photo 10 Looking W towards LF from E side of LF

Photo 11 Looking WNW towards LF from E side of LF

Photo 12 Looking N towards gas venting equipment from E side of LF

Photo 13 Active gas venting equipment; foreground drip tank, background is blower system trailer

Photo 14 Active gas venting equipment; foreground is manifold box then behind that is the drip tank then behind that blower system trailer

Photo 15 Manifold box with insulation added in bags and on underside of cover

Photo 16 Drip tank

Photo 17 Electrical meter and blower trailer

Photo 18 Looking E towards LF from NW corner

Photo 19 Looking SE towards LF from NW corner

Photo 20 Looking S along fence line from NW corner