FIFTH FIVE-YEAR REVIEW REPORT FOR LEMBERGER LANDFILL, INC. AND LEMBERGER TRANSPORT & RECYCLING SUPERFUND SITES MANITOWOC COUNTY, WISCONSIN

959079

Prepared by

U.S. Environmental Protection Agency
Region 5
CHICAGO, ILLINOIS

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Signed by: DOUGLAS BALLOTTI

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LIST OF ABBREVIATIONS & ACRONYMS

AOC	Administrative Order on Consent
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	contaminant of concern
EMP	Environmental Monitoring Plan
EPA	United States Environmental Protection Agency
EPE/DRC	Environmental Protection Easement and Declaration of Restrictive Covenants
ERC	environmental restrictive covenant
ESD	Explanation of Significant Difference
ESs	enforcement standards
FS	feasibility study
FYR	five-year review
ICs	institutional controls
Lemberger Sites	Lemberger Landfill, Inc. and Lemberger Transport & Recycling Superfund Sites
LL	Lemberger Landfill, Inc. Superfund Site
LSRG	Lemberger Site Remediation Group
LTR	Lemberger Transport & Recycling Superfund Site
MCL	maximum contaminant level
MNA	monitored natural attenuation
NCP	National Contingency Plan
NPL	National Priorities List
O&M	operation and maintenance
OU	operable unit
PALs	preventive action limits
PCOR	Preliminary Close Out Report
PFAS	per- and polyfluoroalkyl substances
PRP	potentially responsible party
RAO	remedial action objective
RI	remedial investigation
ROD	Record of Decision
TCA	trichloroethane
TCE	trichloroethene
UU/UE	unlimited use and unrestricted exposure
VOC	volatile organic compound
WAC	Wisconsin Administrative Code
WDNR	Wisconsin Department of Natural Resources

I. INTRODUCTION

The purpose of a five-year review (FYR) is to evaluate the implementation and performance of a remedy in order to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in FYR reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The United States Environmental Protection Agency (EPA) prepared this FYR pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Contingency Plan (NCP)(40 CFR Section 300.430(f)(4)(ii)), and considering EPA policy.

As has been done in previous FYRs, EPA prepared a combined FYR for the Lemberger Landfill, Inc. (LL) and Lemberger Transport & Recycling (LTR) Superfund sites (Lemberger Sites or Sites) due to the proximity of the two Sites and the common groundwater problem resulting from the Sites. This is the fifth FYR for the Lemberger Sites. The triggering action for this statutory review is the completion date of the previous FYR. The FYR has been prepared due to the fact that hazardous substances, pollutants, or contaminants remain at the Sites above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The LL Site has one operable unit (OU) and the LTR Site has two OUs, all of which are all addressed in this FYR. OU1 for the LL Site addresses both the groundwater contamination resulting from both Sites as well as the source contamination at the LL Site. OU1 for the LTR Site also addresses the groundwater contamination from both Sites. OU2 for the LTR Site addresses the source contamination at the LTR Site.

The Lemberger Sites' FYR was led by Demaree Collier, EPA Remedial Project Manager. Participants included Tauren Beggs of the Wisconsin Department of Natural Resources (WDNR), EPA's contractor Subterranean Research, Inc., and Sue Pastor, EPA's Community Involvement Coordinator. The potentially responsible parties (PRPs), known as the Lemberger Site Remediation Group (LSRG), and WDNR were notified of the initiation of the FYR. The review began on 7/31/2019.

Site Background

The Lemberger Sites are located in the Town of Franklin, Manitowoc County, Wisconsin. The LL Site was used as a township open dump from 1940 to 1969, with a portion of the Site excavated as a gravel quarry prior to 1951. The LL Site was licensed by WDNR as a sanitary landfill in 1969. The LL fence encloses approximately 40 acres of land, of which 21 acres were used for disposal. The LL includes an estimated 479,000 cubic yards of waste, with the waste being approximately 23 feet thick, but the quantity of hazardous or toxic wastes within the LL is unknown. Prior to being used for waste disposal, part of the LTR Site was used as a gravel pit. The LTR Site was licensed by WDNR for industrial waste disposal in 1969 and then operated as an unlined disposal area from 1970 to 1976. The LTR fence also encloses approximately 40 acres, of which 16 acres were used for disposal. Wastes were deposited at the LTR in trenches excavated to a depth of approximately five feet, and the documented total quantity of waste disposed at the LTR is approximately 479,000 cubic yards. Under the WDNR licenses, waste disposal in the LL was supposed to be limited to municipal waste and power plant fly and bottom ash, and industrial waste should have been diverted to LTR. The Lemberger Sites were closed in 1976, with

varying degrees of soil or clay cover placed over the wastes. EPA added the LTR Site to the National Priorities List (NPL) in September 1984, and later added the LL Site to the NPL in June 1986.

Both Sites are located approximately one-quarter mile from each other (see Figure 1). The terrain of the general area is rolling to hilly, with numerous wetlands in the area. The Branch River, which drains into Lake Michigan, is located about 3,000-feet west of the LL and 3,500-feet northwest of the LTR. Farms and wide-spaced rural residences that utilize groundwater for drinking are located near the Sites, and the general area is used for hunting. The Branch River is used for swimming, fishing, and canoeing.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Lemberger Landfill, Inc. and Lemberger Transport & Recycling		
EPA ID: WID980901243 and WID056247208		
Region: 5	**State:** WI	**City/County:** Franklin Township/Manitowoc Co.

SITE STATUS	
NPL Status: Final	
Multiple OUs? No (LL Site) and Yes (LTR Site)	**Has the Site achieved construction completion?** Yes for both Sites

REVIEW STATUS
Lead agency: EPA
Author name (Federal or State Project Manager): Demaree Collier
Author affiliation: EPA
Review period: 7/31/2019 - 4/6/2020
Date of Site inspection: 10/23/2019
Type of review: Statutory
Review number: 5
Triggering action date: 7/13/2015
Due date *(five years after triggering action date)*: 7/13/2020

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

EPA conducted a remedial investigation (RI) and feasibility study (FS) at the Sites from 1988 – 1992. Samples were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds,

pesticides, polychlorinated biphenyls, metals, and cyanide. High concentrations of VOCs were detected in groundwater, particularly near the LTR.

The following contaminants of concern (COCs) were identified in groundwater and/or soils at the Sites:

Methylene Chloride
Acetone
1,1-Dichloroethene
1,1-Dichloroethane
1,2-Dichloroethene
2-Butonone
1,1,1-Trichloroethane
Trichloroethene
4-Methyl-2-Pentanone
Tetrachloroethene
Toluene
Xylene
Bis(2-ethylhexyl)phthalate
Heptachlor
Aldrin
Dieldrin
4,4-DDT
Arochlor-248
Arochlor-254
Barium
Cadmium
Chromium
Lead
Zinc
Arsenic
Beryllium
Manganese
Mercury
Selenium
Silver
Chloroform
Carbon Tetrachloride
Vinyl Chloride

Based on data collected during the RI, EPA determined there were unacceptable human health risks from exposure to contaminated groundwater and soil at the Lemberger Sites. Health risks for each Site were evaluated based on a residential use scenario. The primary exposure pathways of concern for groundwater, as identified in the human health risk assessment, were exposure to drinking water via direct ingestion and via potential dermal contact and inhalation of VOCs (such as when showering). Based on groundwater data collected during the RI, the excess lifetime cancer risk at both Sites exceeded EPA's acceptable risk range.

Soils at the LL and LTR sites were found to contain a variety of the same contaminants found in groundwater. The human health risk assessment assumed a future residential use scenario, with exposure to contaminants through ingestion and dermal contact with surface soils. Based on the surface soil concentrations found at the Sites during the RI, the excess lifetime cancer risk at both Sites was within EPA's acceptable risk range but the non-cancer hazard index was above EPA's acceptable number of 1. In addition to future residents, the other potential exposure pathways of concern were direct contact and/or ingestion of contaminated soils by construction workers and trespassers.

Response Actions

In 1985, in response to complaints from local residents, WDNR sampled 43 residential wells in the area and VOCs were detected in seven residential wells. From 1985 to 1987, these seven residential wells were abandoned and replaced through Wisconsin's Well Compensation Program, with the replacement wells cased to about 250 feet below ground surface.

Based on the findings and results of the RI and FS, and due to the complex conditions at the Sites, EPA divided the work at the Sites into two OUs. OU1 addressed the groundwater contamination resulting from both Sites as well as the source contamination at the LL Site. OU2 addressed the source contamination at the LTR Site.

In September 1991, EPA issued a Record of Decision (ROD) for OU1 of the Lemberger Sites (i.e., for OU1 of the LL Site and OU1 of the LTR Site). The Selected Remedy for OU1 of the Lemberger Sites included the following remedy components:

- installation of groundwater extraction wells and a groundwater treatment system to restore groundwater in the upper and lower aquifers;
- management of treatment residuals;
- construction of a Subtitle D landfill cap for the LL Site in compliance with State of Wisconsin landfill closure regulations;
- construction of a slurry wall around the perimeter of the LL Site;
- installation of leachate withdrawal wells in the interior of the LL Site and a leachate storage system with transport of leachate to a publicly-owned treatment plant;
- construction of an outfall pipe from the on-Site groundwater treatment plant with final discharge to the Branch River;
- construction of a six-foot security fence around the LL Site and the groundwater treatment facility;
- a contingency plan to provide an alternative water supply to any residential well owners whose water supply is disrupted by the pumping;
- deed restrictions;
- monitoring of groundwater to ensure effectiveness of the remedial actions; and
- wetlands investigation and measures designed to prevent damage to wetlands, and mitigation, if necessary.

An LTR Site source control action (i.e., OU2 of the LTR Site) was not included in the September 1991 ROD because EPA decided that further characterization was required, since the LTR Site contained buried drums as well as landfill hotspots. After performing further investigation, EPA and WDNR determined that the condition of the source materials at the LTR Site warranted emergency removal actions to abate conditions that may have presented an imminent and substantial endangerment to the public. In July 1993, EPA and the PRPs entered into an Administrative Order on Consent (AOC) to perform removal activities at the LTR Site. The AOC required the PRPs to conduct the following removal activities:

- construct a Site fence around the perimeter of the LTR;
- perform a land survey to better define the LTR boundaries;
- conduct a geophysical survey to delineate areas that could contain buried drums;
- excavate and dispose of drums;
- use soil vapor extraction to treat contaminated soils adjacent to the drums and in identified landfill hotspots; and
- submit a work plan to install a vapor extraction system for further source removal and, at a minimum, a Subtitle D landfill cap at the LTR per State of Wisconsin landfill closure regulations.

As noted below in the *Status of Implementation* discussion, a soil vapor extraction system was not constructed because it was determined that such a system would not be effective. Following successful completion of the other work required by the 1993 AOC, in September 1994 EPA issued a ROD for OU2 – the LTR source area – which selected "No Further Action" because the removal action that had been conducted addressed the unacceptable risks posed by OU2. Even though the Selected Remedy for OU2 was no further action, the ROD stated that FYRs would be required because hazardous substances remain at the LTR Site. The ROD for OU2 did not require ICs for the LTR landfill source materials.

Following operation of the groundwater pump-and-treat system for nearly 10 years, EPA issued an Explanation of Significant Differences (ESD) in September 2006. The ESD modified the 1991 ROD for OU1 of the Lemberger Sites by allowing a two-year pilot study for the temporary shutdown of the pump-and-treat system in order to evaluate the effectiveness of monitored natural attenuation (MNA) to address the remaining groundwater contamination at the Sites. The ESD noted that the fractured bedrock beneath the Lemberger Sites and the possible existence of dense non-aqueous phase liquid were factors which may be reducing the effectiveness of the current remedy. The 2006 ESD required that groundwater monitoring samples be collected from the monitoring wells and residential wells to monitor the plume behavior under non-pumping conditions and to ensure that any potential migration of contamination would be detected. Further, the ESD required close monitoring of residential well drinking water and also the surface water in the Branch River during the pilot study.

Remedial Action Objectives and Cleanup Levels

The remedial action objective (RAO) for groundwater, as specified in the 1991 ROD for OU1 at the LL Site and LTR Site, remains unchanged and is as follows:

- The objective of the groundwater remedial action is to achieve federal drinking-water standards under the Safe Drinking Water Act and the State of Wisconsin groundwater Rule, Chapter NR 140.

The 1991 ROD also stated, when describing the Selected Remedy, that "The goal of this remedial action is to restore all portions of the aquifer to the waste management boundary, so that it may serve as a drinking water resource."

RAOs for soils were not explicitly identified in either the 1991 ROD (which addressed LL source area soils in addition to groundwater contamination at both Sites) nor the 1994 ROD for the source area soils at the LTR Site. However, the 1991 ROD included the following statement: "The purpose of this remedy is to … reduce the risks associated with exposure to the hazardous substances." The 1991 ROD also indicated that the purpose of the source control remedy at the LL Site was to mitigate contaminant migration from the soil and wastes into the groundwater, and that without such source control/ containment measures, the contaminated soil, leachate, and wastes may continue to contaminate the groundwater and increase the time required to clean up the groundwater. Based on the above information, the RAOs for soils can be inferred to be as follows (and were clarified as such in the 2006 ESD):

- Prevent direct contact, ingestion and inhalation of Site-related contaminants.
- Provide source control of landfill contaminants to prevent further contamination of groundwater.

Table 1 (on next page) shows the selected cleanup levels for the groundwater COCs at the Lemberger Sites as specified in the 1991 ROD. The groundwater cleanup levels were based on either WDNR's preventive action limits (PALs), WDNR's enforcement standards (ESs), federal maximum contaminant levels (MCLs), federal maximum contaminant level goals, or risk-based cleanup numbers. Shading in the table indicates the selected cleanup level for each COC. The 2006 ESD did not change any of the groundwater cleanup levels. Cleanup levels for soil were not selected for either Site due to the nature of the selected response actions for the landfills – namely, containment.

Status of Implementation

In October 1992, the LSRG entered into a Consent Decree with EPA and WDNR to implement the Selected Remedy for OU1 of the LL Site and OU1 of LTR Site. The groundwater pump-and-treat system design included six pumping wells that were intended to capture all the contaminated groundwater present in the lower groundwater system at the Lemberger Sites, along with an air-stripping system to treat the extracted groundwater. The remedial action construction work for OU1 of the Sites was conducted from summer 1995 to fall 1996 and included the following actions taken:

- Installation of groundwater extraction wells;
- Construction of a groundwater treatment system;
- Construction of a solid waste cap over the LL;
- Installation of a slurry wall surrounding the LL Site waste;
- Construction of an outfall pipe from the on-Site groundwater treatment plant with final discharge to the Branch River;
- Contingency plan to provide an alternative water supply to any residential well owners whose water supply is disrupted by the pumping;
- Wetlands investigation and measures designed to prevent damage to wetlands, and mitigation, if necessary;

Table 1: Cleanup Levels for Groundwater Selected in OU1 ROD

GROUND WATER CLEANUP STANDARDS

	Cleanup Standards					
Contaminants of Concern	Risk-Based Cleanup Goals	USEPA Max. Contaminant Level (a)	USEPA Max. Contaminant Level Goal (a)	Wisconsin Enforcement Standard (b)	Wisconsin Preventive Action Limit (b)	Maximum Conc. Detected in Groundwater
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Methylene Chloride	5	5 (c)	0 (c)	150	15	5,000
Acetone	1,000	--	--	--	--	14,000
1,1-Dichloroethene	0.06	7	7	7	0.024	200
1,1-Dichloroethane	0.4	--	--	850	85	2,200
1,2-Dichloroethene	200	70 (c)	--	100	10	4,000
2-Butanone	500	--	--	--	--	21,000
1,1,1-Trichloroethane	900	200	200	200	40	3,200
Trichloroethene	3	5	0	5	0.18	510
4-Methyl-2-pentanone	100	--	--	--	--	2,400
Tetrachloroethene	0.7	5 (c)	0 (c)	1	0.1	200
Toluene	3,000	2,000 (c)	2,000 (c)	343	68.6	400
Xylene	1,000	10,000 (c)	10,000 (c)	620	124	480
Bis(2-ethylhexyl)phthalate	2	--	--	--	--	160
Heptachlor	0.008	0.4 (c)	0 (c)	--	--	0.1
Aldrin	0.002	--	--	--	--	0.46
Dieldrin	0.002	--	--	--	--	0.006
4,4-DDT	0.1	--	--	--	--	0.18
Arochlor-1248	0.005	0.5 (c)	0 (c)	--	--	2.7
Arochlor-1254	0.005	0.5 (c)	0 (c)	--	--	2.5
Barium	0.9	1,000	--	1,000	200	1,580
Cadmium	0.01	10	5 (c)	10	1	14.9
Chromium	0.002	50	--	50	5	53.6
Lead	6	50	0 (c)	50	5	8.9
Zinc	2,000	--	--	5,000(d)	2,500(d)	500
Arsenic	0.001	50	0 (c)	50	5	10.9
Beryllium	0.01	1	0 (c)	--	--	2
Manganese	2	--	--	0.05(d)	0.025(d)	3,280
Mercury	3	2	2 (c)	2	0.2	1.9
Selenium	30	10	50 (c)	10	1	3.5
Silver	30	50	--	50	10	69.7
Chloroform	1.1	100	--	6	0.6	24
Carbon Tetrachloride	0.3	5	0	5	0.5	82
Vinyl Chloride	0.017	2	0	0.2	0.0015	28

(a) Code of Federal Regulations, Chapter 40, Part 241.

(b) Chapter NR 140, Wisconsin Adminisstrative Code

(c) Proposed Standard.

(d) These standards are based only on public welfare, not public health.

-- indicates that no standard is provided.

indicates cleanup standard for use for Lemberger sites remedial action

- Handling of treatment residual sludge;
- Fencing around the LL Site;
- Installation of eight leachate wells through the LL Site cover to remove groundwater contained within the slurry wall and cap; and
- Construction of various sumps to remove groundwater from the LL Site.

EPA issued a Preliminary Close Out Report (PCOR) for the LL Site in September 1996, stating that all construction activities were complete and consistent with the 1991 ROD and remedial design plans and specifications.

As noted above in the *Response Actions* section, the PRPs entered into an AOC with EPA in 1993 for a removal action at the LTR Site. In November 1993, field activities associated with the excavation and removal of drums started at the LTR Site, with completion of this phase of the removal action work in April 1994. A total of 1,380 drums, 180 lab jars, and 226 gas cylinders were excavated from the LTR and disposed of off-site. In 1994, as part of the work required by the AOC for OU2 at LTR, the PRPs submitted a work plan for the design and construction of a soil vapor extraction system and landfill cap. However, prior to constructing the landfill cap, it was determined that the soil vapor extraction system would not be effective in removing VOCs from the source area. EPA then required a composite cover system to be constructed to provide for a greater reduction of infiltration through the source materials. All of the construction work required by the OU2 removal AOC was completed by fall 1996.

EPA issued a PCOR for the LTR Site in October 1996, stating that all construction activities were complete and consistent with the 1994 ROD, the 1993 AOC, and remedial design plans and specifications. The construction activities at the LTR Site associated with OU2 included the following:

- Excavation and off-Site disposal of drums, lab jars, and gas cylinders;
- Construction of a six-foot chain-link fence around the landfill; and
- Construction of a landfill cap exceeding the requirements of Wisconsin Administrative Code (WAC) NR 504.07.

The OU1 groundwater pump-and-treat system for both Sites operated from 1997 until 2006. During this period, approximately 78 kilograms of trichloroethene (TCE) was removed from the groundwater. Per the 2006 ESD, the PRPs performed an initial MNA study from August 2006 through July 2008. The results of this initial study did not indicate that MNA would be effective at the Lemberger Sites, and it was determined that additional data was needed in order to determine if MNA could be a permanent remedy at the Sites. Additional groundwater monitoring data gathered since 2008 indicates that the groundwater plume appears stable in the far down-gradient plume (also called the “far field plume”), subject to seasonal-type variations. Both EPA and WDNR agree that MNA is occurring at the Lemberger Sites based upon sampling data and breakdown products.

Institutional Controls

Institutional controls (ICs) in the form of deed restrictions are required by the 1991 ROD to restrict property use, maintain the integrity of the remedy, and assure long-term protectiveness for areas which do not allow for UU/UE. Specifically, the 1991 ROD required ICs for source materials and groundwater at the LL, and groundwater at the LTR. The 1991 ROD did not require ICs for the LTR landfill source

materials. As part of this FYR, EPA, WDNR, and the LSRG reviewed the ICs in place at the Lemberger Sites. The following summarizes the current ICs in place at the Sites:

- Two environmental restrictive covenants (ERCs), entitled "Environmental Protection Easement and Declaration of Restrictive Covenants" (EPE/DRC), were signed – one on May 20, 2009 and the second on June 10, 2010 – to prevent exposures to and disturbance of wastes and contaminated soils and to prevent any use of groundwater in both the LL and LTR.
- WDNR has declared a Special Casing Zone for the Lemberger Sites, requiring permission from WDNR before installation of new wells and requiring the screened or open portion of any water supply well to occur below 250 feet in depth.
- The LSRG has replaced numerous existing private wells to ensure they satisfy the Special Casing Zone requirements. WDNR also requires special permission to install a groundwater well within 1200 feet of the waste boundaries at LL and LTR.
- Use-restriction agreements were reached between LSRG and landowners for a number of properties, and these use restrictions were recorded with the deeds. These use restrictions included items such as not disturbing the caps at the landfills and regular maintenance of the caps. The groundwater plume body, as defined by the volume that exceeds the MCLs and NR 140 ESs and PALs, lies completely within these controlled properties.
- The Town of Franklin adopted a Unified Development Ordinance on October 14, 2008, which was addressed in the 2009 IC Plan. The Ordinance was revised on January 12, 2011. The Lemberger Sites and neighboring parcels within the Town of Franklin are zoned as "General Agriculture" or "Exclusive Agriculture."

Table 2: Summary of Implemented ICs

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
LL and LTR Landfill Areas	Yes	Yes for LL Landfill Area; No for LTR Landfill Area	See Figure 2 for Landfill Areas	Prevent any disturbance to the cap or landfilled materials	• Two EPE/DRCs: Document 1065459, May 20, 2009, and Document 1083356, June 10, 2010, both filed in Manitowoc County • Ordinance for the Town of Franklin – revised on January 12, 2011 • Use restrictions with easement holders • WAC NR 506.085 and WAC NR 812 • Tracking on WDNR Bureau for Remediation & Redevopment database – implemented 2010

Groundwater Underlying the Sites	Yes	Yes	See Figure 2 for groundwater area under the Sites	Prohibit contact with or any use of groundwater	• Two EPE/DRCs: Document 1065459, May 20, 2009, and Document 1083356, June 10, 2010, both filed in Manitowoc County • Ordinance for the Town of Franklin – January 12, 2011 • Use restrictions with easement holders • WAC NR 506.085 and WAC NR 812 • Tracking on WDNR Bureau for Remediation & Redevelopment database – implemented 2010
Off-site Contaminated Groundwater	Yes	Yes	See Figure 2 for location of Off-Site Groundwater	Prohibit contact with or any use of contaminated groundwater plume off-site	• Protected by Wisconsin Special Casing Zone WAC NR 812.09(4); • Protected by WAC NR 812.10(2); • Protected by deed restrictions; • Protected by purchase and/or long-term lease by PRPs • Tracking on WDNR Bureau for Remediation & Redevelopment database

Figure 2 shows the area in which the ICs apply.

Status of Access Restrictions and ICs - Fencing and signage are in place at both Sites and effectively preventing unauthorized persons from entering the Sites. As listed above in Table 2, all ICs are in place and effective.

Current Compliance - Based on Site inspections and discussions with WDNR and Site maintenance personnel, EPA is not aware of any Site or media uses which are inconsistent with the stated objectives of the ICs. Therefore, the remedy appears to be functioning as intended with respect to the ICs.

Long-Term Stewardship - Since compliance with ICs is necessary to ensure the protectiveness of the remedy, planning for long-term stewardship is important to help ensure that ICs are maintained, monitored, and enforced so the remedy continues to function as intended. Long-term stewardship involves ensuring effective procedures are in place to properly maintain and monitor ICs at the Lemberger Sites.

The July 2009 IC Plan submitted by LSRG includes procedures to ensure long-term IC stewardship, including:

- Regular reviews of ICs for the Sites and annual ICs reports; and
- Review and certification to EPA that ICs remain in place and are effective.

Specifically, the LSRG committed to also perform the following to maintain existing ICs per the 2009 IC Plan:

- Obtain and record additional restrictive covenants when necessary;
- Continue to work with the Town of Franklin Planning Commissions to learn of proposed changes to land use and development plans;

- Continue to work with WDNR on special casing depth area requirements;
- Request information on new and existing wells during resident contacts for well sampling;
- Notify EPA and WDNR as soon as practicable upon discovery of any significant activity that is inconsistent with IC objectives;
- Work with EPA and WDNR to determine a plan of action to rectify problems;
- Ensure the Lemberger Sites are listed on the WDNR database, and the database contains appropriate documents and identifies appropriate and relevant continuing obligations;
- Perform a visual field survey to locate new development or property uses in the area;
- Submit a report to EPA evaluating the effectiveness of the ICs as requested; and
- Evaluate whether a formal petition from a zoning change is necessary prior to deletion from the NPL.

For this FYR, the EPA has reviewed all of the ICs from the 2009 IC Plan for the Lemberger Sites and determined that all of the ICs are in place and functioning as intended.

IC Follow-up Actions Needed - There is currently no decision document that requires ICs for the LTR landfill source materials, even though all appropriate ICs are already in place. The requirement for ICs for the LTR landfill source materials should be included in a future EPA decision document.

Systems Operations/Operation & Maintenance

The LSRG submits annual operation and maintenance (O&M) reports in accordance with the approved 1994 Environmental Monitoring Plan (EMP). In addition to the 1994 EMP, EPA subsequently approved a supplemental 2014 EMP that specifically addresses MNA-evaluation components.

O&M reports are submitted annually and provide groundwater results from quarterly to annual sampling of the Sites' monitoring wells. Residential well sampling also occurs semi-annually at approximately 30 wells in the area surrounding the Sites. The O&M activities conducted by the PRPs at the Sites include quarterly inspection of the landfill caps and monitoring wells, looking for and repairing any erosional areas across the Sites, observing and maintaining vegetation, and conducting groundwater monitoring. As described earlier, the groundwater pump-and-treat system was temporarily shut down in 2006 to evaluate MNA, and the system is still in shutdown mode. In 2014, permanent cessation of the leachate collection system was instituted since the leachate within the slurry wall of the LL was not found to be impacted by surrounding groundwater. No other issues with O&M activities were found during this past FYR period.

III. PROGRESS SINCE THE LAST REVIEW

This section includes the protectiveness determinations and statements from the last FYR as well as the recommendations from the last FYR and the current status of those recommendations.

Table 3: Protectiveness Determinations/Statements from the 2015 FYR

OU #	Protectiveness Determination	Protectiveness Statement
1, 2, Sitewide	Protective	The remedies at both the LTR and the LL sites are protective of human health and the environment. Construction activities are complete, and the landfill covers, fences, and ICs are preventing direct contact with the contaminated wastes and soil. Groundwater underlying the sites is routinely monitored and off-site existing private wells all meet Wisconsin's Special Casing Zone regulation set forth for the sites. Long-term ICs for soil and groundwater have been implemented in the form of ERCs, deed restrictions and State restrictions that will ensure long-term protectiveness of human health and the environment.

No issues affecting the current or long-term protectiveness of the remedy were identified during the last FYR. However, the 2015 FYR made the following recommendations which may improve the effectiveness of the remedies but do not affect current or future protectiveness. An update follows each recommendation.

- Consider how the remedy meets current ROD groundwater standard requirements, which are WDNR PALs at the waste boundary, and consider the possibility of revising those requirements to a less restrictive standard such as the WDNR DMZ *[design management zone]* boundaries and a change from WDNR PALs to ESs.
    - EPA determined that moving the compliance boundaries of the LL and the LTR out to the WDNR DMZ boundaries was not necessary because concentrations of contaminants in monitoring wells at the Sites are stable or trending downward. EPA intends to revise the groundwater cleanup standards (for those COCs where the current cleanup standard is based on a PAL) in a future decision document.

- Evaluate the latest MNA Report (received spring 2015) and determine whether MNA is a viable remedy for the remaining groundwater contamination at the Lemberger Sites.
    - The LSRG submitted a subsequent MNA Report in 2019 based on the collection and evaluation of several more years of groundwater data. Based on an evaluation of all available data, EPA and WDNR believe that MNA is a viable way of addressing the remaining groundwater contamination at the Sites. EPA intends to propose a fundamental change to the OU1 groundwater remedy for both Sites in a future decision document.

- Evaluate supplemental groundwater monitoring data being collected to determine whether the shutdown of the pumping system at the LL had an impact on surrounding groundwater.
    - EPA and WDNR evaluated the supplemental data from the last five years and determined that shutting down the pumping system at the LL had no negative impact on groundwater surrounding the Sites.

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement & Site Interviews

A public notice was made available by publication in the *Manitowoc Herald Times Reporter* on April 2, 2020, stating that there was a FYR and inviting the public to submit any comments to EPA. The results of the review and the FYR report will be made available at the information repositories for the Sites, located at the Manitowoc Public Library, 707 Quay St., Manitowoc, Wisconsin, and the Whitelaw Village Hall, 147 W. Menasha Avenue, Whitelaw, Wisconsin. EPA received no comments from the public during the FYR process. EPA did not conduct interviews for this FYR due to the historically low level of community interest in the Lemberger Sites.

Data Review

Data from the annual O&M reports and residential well sampling reports submitted since the previous FYR were reviewed during this FYR period. The O&M reports summarize the monitoring activities of the completed remedial actions at the Lemberger Sites in accordance with the 1994 and 2014 EMPs, which include groundwater monitoring, maintenance and monitoring of the caps at both the LL and LTR, and regular Site inspections to confirm that all activities and Site/media uses are not inconsistent with the stated objectives of the ICs. During this FYR period, EPA also reviewed the MNA Report submitted by the LSRG in 2019. The MNA Report evaluated and illustrated all groundwater monitoring data collected over the course of the past decade at the Lemberger Sites. The data show that groundwater contaminant concentrations are decreasing or stable across the Lemberger Sites.

In reviewing all the available data from the Sites, described above, the following conclusions can be made which support the conclusion that MNA is a viable alternative at the Lemberger Sites:

- The overall size of the VOC groundwater plume has diminished significantly since the remediation activities commenced and concentrations of VOCs within the impacted area continue to decrease.
- VOCs in the groundwater near the identified LTR source have degraded through anaerobic microbial reductive dechlorination to form primary breakdown products (such as 1,1-dichloroethene). Aerobic conditions downgradient of the LTR inhibited production of alternate degradation compounds (e.g., vinyl chloride and 1,1-dichloroethene). VOCs continue to be degraded via abiotic processes.
- Statistical analysis of the historical groundwater data indicates that the concentrations of most VOC parameters above the ES at most locations in the groundwater contaminant plume will reach the ES in approximately 50 years.

Figure 3 shows the molar concentration (actual concentration of contaminant in solution) of VOCs over time. The findings are that concentrations of parent compounds have decreased or remained stable at most wells and that TCE has substantially decreased at downgradient wells. At one point early in the project all monitoring wells exceeded the ESs.

Figure 4 shows that both trichloroethane (1,1,1-TCA) and TCE data collected have decreasing trends over time, including within the last five years. Concentrations of VOCs at 35 of 37 downgradient monitoring wells exhibit decreasing trends when viewed over the full monitoring history, and the two

exceptions (RM-003I and RM-401XD) are at wells with concentrations below regulatory standards. VOC concentration trends at the wells within the source area and the downgradient plume are generally downward, both before and after the groundwater pump-and-treat system was shut down in 2006, and concentrations of most of the VOCs are predicted to remain below the ES or reach the ES within approximately 50 years. Figure 5 shows various wells trends over time, as follows: wells that are shown as blue dots on Figure 5 represent no ES exceedance and a downward trend, while yellow dots represent ES exceedances and a stable or downward trend.

All available residential groundwater sampling results from this review period also were reviewed. None of the residential wells that were sampled had any COCs detected above drinking water standards. The LSRG mails copies of the results directly to the homeowner, with a copy provided to EPA.

Site Inspection

The inspection of the Lemberger Sites was conducted on 10/23/2019. In attendance were Demaree Collier, EPA; Tauren Beggs, WDNR; and the PRPs and their contractors. The purpose of the inspection was to assess the protectiveness of the remedy.

During the inspection of the Sites it was noted that all appropriate fencing was in place to prevent trespassers from accessing either landfill. Both landfill caps were inspected and looked completely intact with vegetation growing across the surface. All drainage areas looked well covered with rock where needed. All monitoring wells were intact and accessible as needed. The remediation building is still standing and holds all of the remaining equipment associated with the currently-idle groundwater pump-and-treat system. All access roads were drivable and there were no erosional areas noticed. No Site uses that are inconsistent with the implemented ICs or the remedy IC objectives were noted during the inspection. The Site Inspection Checklist and photos taken during the inspection are included as Appendix C.

V. TECHNICAL ASSESSMENT

QUESTION A: Is the remedy functioning as intended by the decision documents?

Yes. Review of the 2015 FYR, site sampling plans and monitoring data, applicable or relevant and appropriate requirements, risk assumptions, and the results of the FYR Site Inspection for the Lemberger Sites indicates the remedies are functioning as intended by the 1991 ROD, 1994 ROD, and 2006 ESD. The waste at both the LL and LTR is safely contained beneath protective caps, the perimeter of both landfills is fenced, a slurry wall surrounds the waste at the LL, the groundwater pump-and-treat system operated effectively for nine years to reduce contaminant concentrations in groundwater, and effective ICs are in place to prevent human exposure to waste materials and contaminated soil and groundwater. Current monitoring activities are being conducted and are adequate to determine the protectiveness of the remedy. Per the 2006 ESD, the pump-and-treat system was shut down in 2006 to evaluate MNA as a potential remedy to address the remaining groundwater contamination at the Sites, and contaminant levels are decreasing or stable. The effectiveness of the remedy is being maintained even with the pump-and-treat system shut down.

EPA has evaluated the supplemental groundwater monitoring data presented in the 2019 MNA Report and believes that MNA is a viable way of addressing the remaining groundwater contamination at the Sites. EPA intends to propose a fundamental change to the OU1 groundwater remedy in a future

decision document. Opportunities to reduce costs of monitoring will be evaluated if a revised groundwater remedy for the Sites is selected.

QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy selection still valid?

No. The exposure assumptions used at the time of the remedy selection are still valid, and there have been no changes in the toxicity factors for any of the COCs. However, an emerging contaminant, per- and polyfluoroalkyl substances (PFAS), needs to be evaluated. PFAS has been encountered at other former landfill sites with VOC contamination, and this FYR recommends that groundwater sampling and analysis for PFAS be conducted at the Sites. The Lemberger caps, access restrictions, and ICs continue to address the direct contact risks from contaminated wastes and soils. There have been no documented releases to the surface soil or surface water near the Sites since construction was completed. There have been no major changes in physical conditions at the Sites or the quality of groundwater at the Sites that would affect the protectiveness of the remedy. The RAOs specified in the decision documents are still valid, and the groundwater remedy is progressing as expected toward achieving groundwater cleanup levels. As noted above in Section III, EPA intends to propose a fundamental change to the groundwater remedy in a future decision document, and also intends to revise the groundwater cleanup standards (for those COCs where the current cleanup standard is based on a PAL) in a future decision document.

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

No. There has been no other information generated during the FYR review process or other information that would call into question the protectiveness of the remedy. There have been no natural disasters near the Sites and there are no impacts from climate change at the Sites.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations
OU(s) without Issues/Recommendations Identified in the Five-Year Review:
None

OU(s): OU1	**Issue Category:** Monitoring			
	Issue: PFAS may be present in groundwater at the Sites, since this emerging contaminant has been found at other landfills with VOC contamination.			
	Recommendation: Samples should be collected and analyzed for PFAS in the next groundwater sampling event.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA/State	10/31/2021

OU(s): OU2	**Issue Category:** Institutional Controls			
	Issue: There is currently no decision document that requires ICs for the LTR landfill source materials, even though all appropriate ICs are already in place.			
	Recommendation: Include the requirement for ICs for the LTR landfill source materials in a future EPA decision document.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	EPA	State	6/30/2021

OTHER FINDINGS

The following recommendations were identified during the FYR but do not affect current or future protectiveness of the remedy:

- EPA should proceed with revising the groundwater cleanup standards (for those COCs where the current cleanup standard is based on a PAL) in an appropriate decision document; and
- EPA should proceed with proposing a fundamental change to the groundwater remedy for the Sites, based on the MNA evaluation which shows that MNA is a viable alternative for addressing the remaining groundwater contamination at the Sites.

VII. PROTECTIVENESS STATEMENT

OU1, OU2, & Sitewide Protectiveness Statement
Protectiveness Determination: Short-term Protective
Protectiveness Statement: The remedies at both the LL and the LTR Sites are currently protective of human health and the environment because they were completed in accordance with the requirements of the decision documents and other documents and are functioning as intended. The landfill covers, fences, and ICs are preventing direct contact with the contaminated wastes and soil. Groundwater underlying the Sites is routinely monitored and off-site existing private wells all meet Wisconsin's Special Casing Zone regulation set forth for the Sites. Private drinking water wells are routinely sampled and meet the drinking water standards. Effective ICs for soil and groundwater have been implemented in the form of EPEs/DRCs, deed restrictions, and governmental controls that will help ensure long-term protectiveness of the remedies. However, in order for the remedies to be protective in the long term, the following actions needs to be taken to ensure protectiveness: groundwater sampling should be conducted for PFAS to ensure that this emerging contaminant is not present at the Sites at levels of concern; and the requirement for ICs for the LTR landfill source materials needs to be included in a decision document.

VIII. NEXT REVIEW

The next FYR report for the Lemberger Sites is within five years from the completion date of this review.

FIGURES

FIGURE 1 – SITE MAP

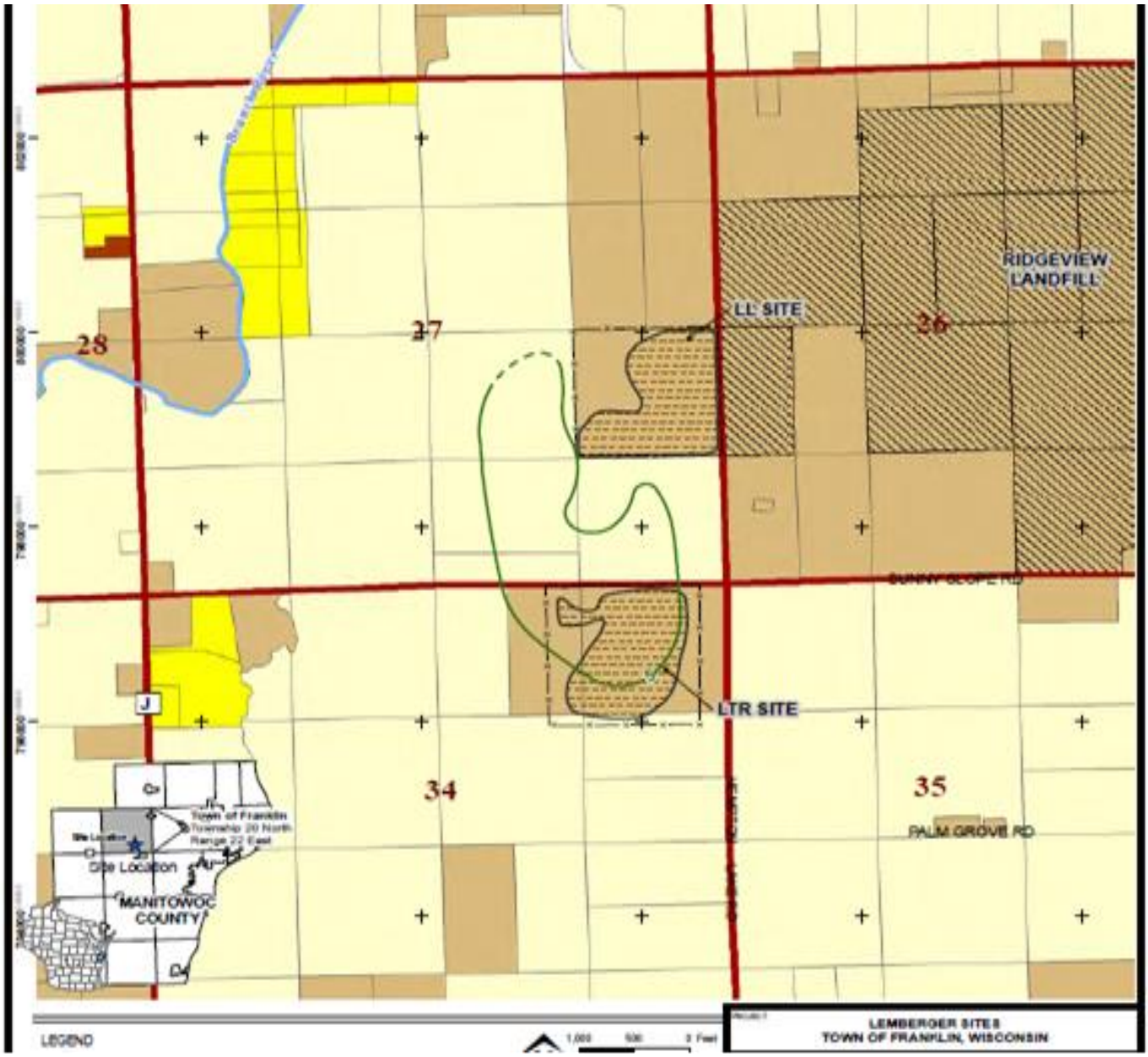


FIGURE 2 – IC MAP

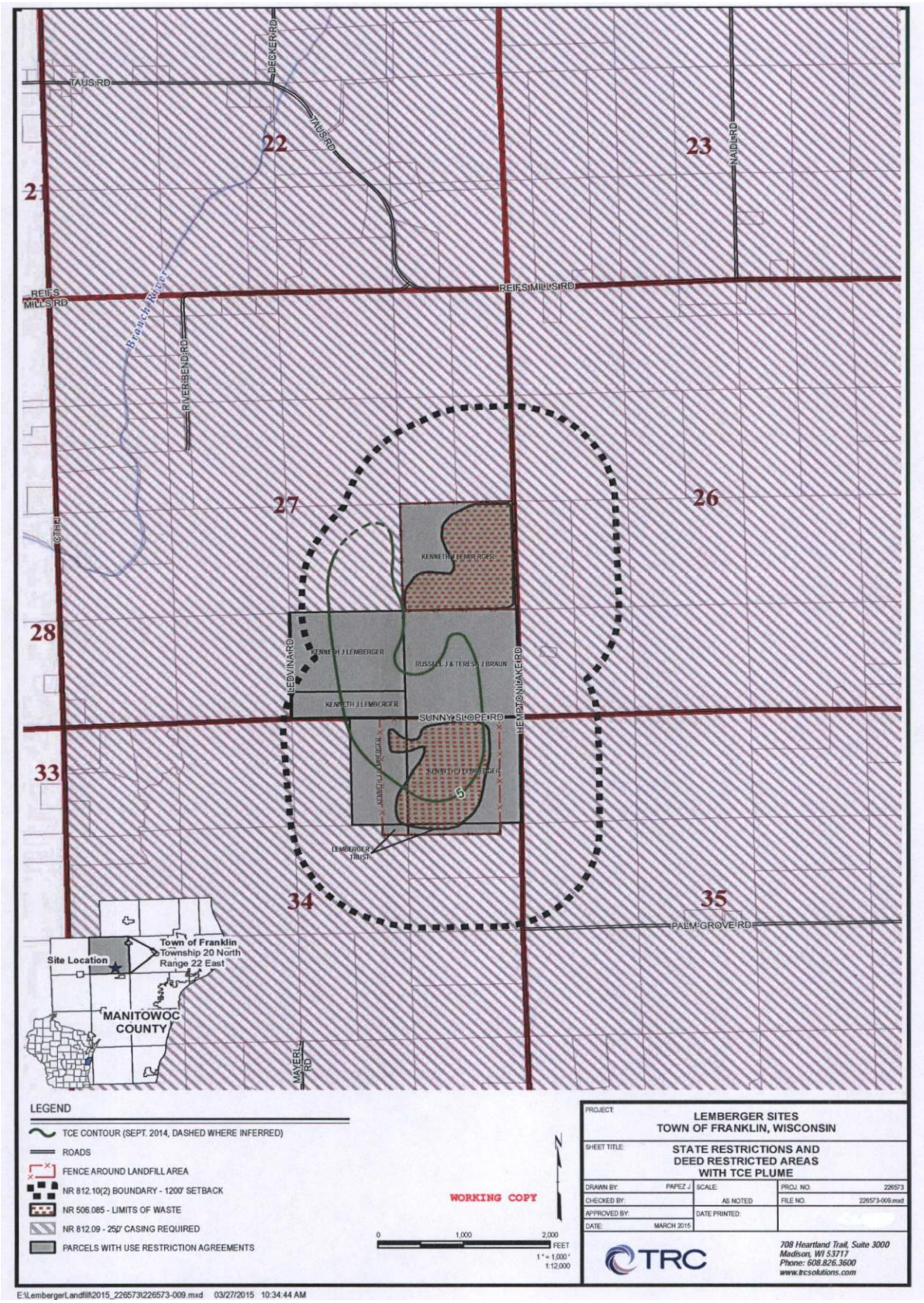


FIGURE 3 – MOLAR CONCENTRATION OVER TIME

FIGURE 4 – TCA AND TCE TRENDS

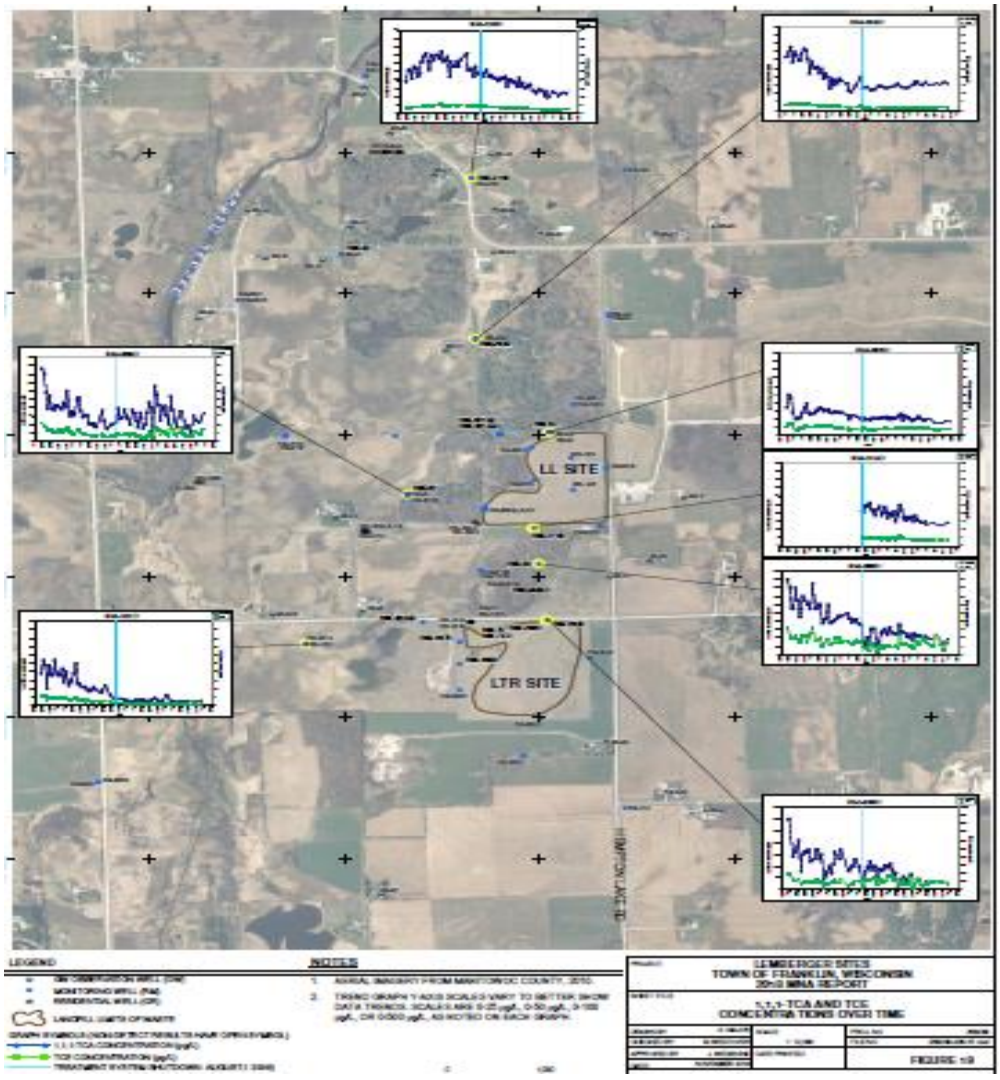
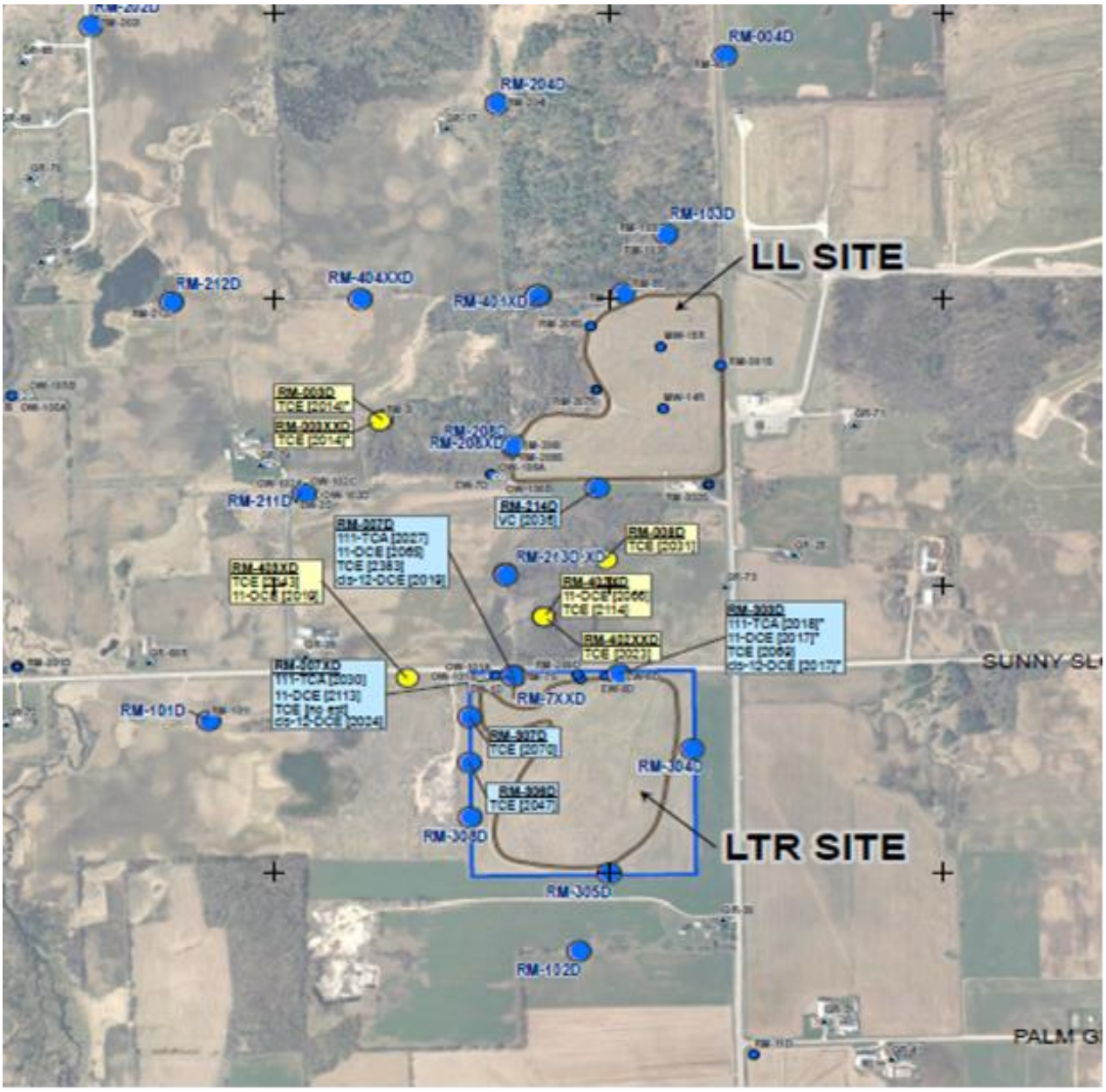


FIGURE 5 – VOC TRENDS OVER TIME



- Blue dots represent no ES exceedance and downward trend
- Yellow dots represent ES exceedance and stable or downward trend

APPENDICES

APPENDIX A – Public Notice Ad

Police say man fired gun during fight, no one hurt

Brandon Reid
Manitowoc Herald Times Reporter
USA TODAY NETWORK – WIS.

MANITOWOC - No one was hurt after a 25-year-old Manitowoc man fired a gun twice during a fight over money Tuesday afternoon at an apartment building in the 1300 block of South 14th Street.

A police report said officers responded to the area for the report of shots fired by a suspect who fled on foot. Responding officers found a man matching the description of the suspect, Dejuan D. Dean, in the 1100 block of South 13th Street.


Dean

Officers learned Dean had fired two shots — not directed at anyone — during a fight over money. According to the police report, Dean told police a man from Chicago came to his residence and threatened to kill him. Dean said he got a .380-caliber semi-automatic handgun from his dresser and fired two shots in a hallway where the man was walking away from him. The police report said Dean told police he just wanted to scare the man and was not trying to shoot him.

Officers found a handgun about 10 feet from where Dean was detained and the gun had bullets in the magazine and one round in the chamber, the police report said. One fired shell casing was found in the hallway and another was found outside the door leading to the hallway. A fired bullet was also found outside the door leading to the hallway and a strike mark was visible on the wall of the hallway where police believe a bullet may have ricocheted. Another strike mark was found in the trim of the back door leading to a lower apartment, which the police report said appeared to be vacant. The bullet, the report said, likely went through the trim, through the door and lodged in the wall of the lower apartment.

Police are recommending Dean be charged with two counts of recklessly endangering safety, carrying a concealed weapon and disorderly conduct.

Contact Brandon Reid at 920-686-2984 or breid@gannett.com. Follow him on Twitter at @breidHTRNews.

Stock Market Report

Closing prices from 4/1/2020

DOW **20,943.51** -973.65 ▼ S&P 500 **2,470.50** -114.09 ▼ NASDAQ **7,360.58** -339.52

Stocks of Local Interest

NAME	TICKER	52-WK RANGE LO	◇CLOSE	HI	CLOSE	CHG	%CHG	YTD %CHG	1YR %RTN	P/E	DIV
AT&T Inc	T	26.08		39.70	**28.05**	**-1.10**	-3.8	-28.2	-0.5	13	2.08f
AbbVie Inc	ABBV	62.55		97.86	**73.42**	**-2.77**	-3.6	-17.1	-0.0	11	4.72
Altria Group	MO	30.95		57.11	**37.61**	**-1.06**	-2.7	-24.6	-26.9	12	3.36
Ameriprise Fncl	AMP	80.01		180.85	**94.31**	**-8.17**	-8.0	-43.4	-17.0	7	3.88
Amgen	AMGN	166.30		244.99	**197.81**	**-4.92**	-2.4	-17.9	+9.8	16	6.40
Apple Inc	AAPL	170.27		327.85	**240.91**	**-13.38**	-5.3	-18.0	+35.5	22	3.08
Associated Banc Cp	ASB	10.23		23.26	**12.35**	**-.44**	-3.4	-44.0	-36.8	7	0.72
BCE Inc	BCE	31.66		49.58	**38.88**	**-1.98**	-4.8	-16.1	+2.7		3.04e
Bank First Corp	BFC	43.64		76.90	**50.82**	**-5.18**	-9.3	-27.4	-3.6		0.80
Best Buy Co	BBY	48.11		91.99	**53.90**	**-3.10**	-5.4	-38.6	-16.9	17	2.20f
Broadwind Energy	BWEN	1.12		2.59	**1.32**	**-.08**	-5.7	-20.5	-16.7	dd	...
Carnival Corp	CCL	7.90		56.04	**8.80**	**-4.37**	-33.2	-82.7	-70.1	2	2.00
Centene Corp	CNC	41.63		68.64	**56.12**	**-3.29**	-5.5	-10.7	+11.9	16	...
Cisco Syst	CSCO	32.40		58.26	**38.33**	**-.98**	-2.5	-19.5	-24.6	15	1.44f
Clorox Co	CLX	144.12		214.26	**174.66**	**+1.41**	+0.8	+13.8	+10.6	29	4.24
Comcast Corp A	CMCSA	31.71		47.74	**32.42**	**-1.96**	-5.7	-27.9	-11.3	16	0.92f
County Bancorp Inc	ICBK	13.55		27.98	**18.47**	**-.03**	-0.2	-27.9	+6.4	9	0.28f
Cracker Barrel	CBRL	53.61		180.93	**73.36**	**-9.86**	-11.8	-52.3	-43.5	8	5.20
Disney	DIS	79.07		153.41	**94.92**	**-1.68**	-1.7	-34.4	-11.4	13	1.76
DuPont de Nemours	DD	28.33		83.71	**32.52**	**-1.58**	-4.6	-49.3	-53.3	3	1.20
Exxon Mobil Corp	XOM	30.11		83.49	**37.53**	**-.44**	-1.2	-46.2	-48.7	9	3.48
Harley Davidson	HOG	14.31		41.40	**17.29**	**-1.64**	-8.7	-53.5	-42.7	6	1.52f
Home Depot	HD	140.63		247.12	**178.63**	**-8.05**	-4.3	-18.2	+0.2	18	6.00f
Intel Corp	INTC	42.86		69.29	**51.88**	**-2.24**	-4.1	-13.3	+3.2	18	1.32
IBM	IBM	90.56		158.75	**105.14**	**-5.79**	-5.2	-21.6	-16.8	11	6.48
Invesco Ltd	IVZ	7.38		22.18	**8.01**	**-1.07**	-11.8	-55.5	-46.6	3	1.24
JPMorgan Chase	JPM	76.91		141.10	**84.36**	**-5.67**	-6.3	-39.5	-7.7	9	3.20
Johnson & Johnson	JNJ	109.16		154.50	**128.81**	**-2.32**	-1.8	-11.7	-3.5	21	3.80
Kohls Corp	KSS	12.85		75.91	**12.94**	**-1.65**	-11.3	-74.6	-74.8	3	2.82f
Manitowoc Co	MTW	7.66		19.37	**8.30**	**-.20**	-2.4	-52.6	-48.2		...
Maxim Integrated Pds	MXIM	41.93		65.73	**46.02**	**-2.59**	-5.3	-25.2	-5.0	10	1.92
McDonalds Corp	MCD	124.23		221.93	**158.17**	**-7.18**	-4.3	-20.0	-10.4	24	5.00
Microsoft Corp	MSFT	118.10		190.70	**152.11**	**-5.60**	-3.6	-3.5	+35.4	30	2.04
Newell Brands Inc	NWL	10.44		20.99	**12.39**	**-.89**	-6.7	-35.5	-7.4	dd	0.92
NextEra Energy	NEE	174.80		283.35	**218.23**	**-22.39**	-9.3	-9.9	+27.1	16	5.60f
Orion Energy Sys	OESX	0.86		6.40	**3.34**	**-.36**	-9.7	-0.3	+317.8	dd	...
Paychex	PAYX	47.87		90.54	**60.61**	**-2.32**	-3.7	-28.8	-18.5	23	2.48
PepsiCo	PEP	101.42		147.20	**118.12**	**-1.98**	-1.6	-13.6	+1.1	13	3.82
Procter & Gamble	PG	94.34		128.09	**109.33**	**-.67**	-0.6	-12.5	+8.6	25	2.98
Southern Co	SO	41.96		71.10	**50.14**	**-4.00**	-7.4	-21.3	+9.6	24	2.48
Southern Copper	SCCO	23.43		44.82	**26.54**	**-1.62**	-5.8	-37.5	-25.0	16	1.50e
Thermo Fisher Sci	TMO	250.21		342.26	**275.20**	**-8.40**	-3.0	-15.3	+3.9	34	0.88f
US Bancorp	USB	28.59		61.11	**31.93**	**-2.52**	-7.3	-46.1	-25.1	8	1.68
WEC Energy Group	WEC	68.01		109.53	**83.52**	**-4.61**	-5.2	-9.4	+14.5	27	2.53f
WalMart Strs	WMT	98.15		128.08	**114.14**	**+.52**	+0.5	-4.0	+18.7	66	2.16f
Welbilt Inc	WBT	3.17		19.81	**4.51**	**-.62**	-12.1	-71.1	-68.7		...
Weyerhaeuser	WY	13.10		31.58	**16.12**	**-.83**	-4.9	-46.6	-30.5	12	1.36

Dividend Footnotes: a - Extra dividends were paid, but are not included. b - Annual rate plus stock. c - Liquidating dividend. e - Amount declared or paid in last 12 months. f - Current annual rate, which was increased by most recent dividend announcement. i - Sum of dividends paid after stock split, no regular rate. j - Sum of dividends paid this year. Most recent dividend was omitted or deferred. k - Declared or paid this year, a cumulative issue with dividends in arrears. m - Current annual rate, which was decreased by most recent dividend announcement. p - Initial dividend, annual rate not known, yield not shown. r - Declared or paid in preceding 12 months plus stock dividend. t - Paid in stock, approximate cash value on ex-distribution date. **PE Footnotes:** q - Stock is a closed-end fund - no P/E ratio shown. cc - P/E exceeds 99. dd - Loss in last 12 months.

State's confirmed cases of coronavirus jump by nearly 200 to 1,550

Matt Piper Appleton Post-Crescent
USA TODAY NETWORK – WISCONSIN

State health officials announced nearly 200 more positive test results for COVID-19 on Wednesday, the largest single-day increase since testing began.

Wednesday's 199 new cases brings the total to 1,550 cases. Twenty-six percent of those, or nearly 400, had resulted in hospitalization, according to the Department of Health Services.

Thirty-one Wisconsin residents had died by early Wednesday afternoon, according to reports from state and county health departments and medical examiners.

State officials have said Wisconsin's coronavirus numbers may continue to

See CASES, Page 6A


Richard Schoenbohm wears a protective mask as he enjoys a walk with his wife Sue Bennett March 21 in Appleton. Many people are taking extra precautions due to the coronavirus.
DAN POWERS/USA TODAY NETWORK-WISCONSIN

Clerk: Absentee ballots must be returned to polls by April 7

From Staff Reports

All absentee ballots for the April 7 election must be received by your municipal clerk's office or at your polling place by 8 p.m. on election day, Manitowoc County Clerk Jessica Backus said on Wednesday.

Absentee voters can visit MyVote Wisconsin to track their absentee ballot. A voter would click "My Voter Info," to view the absentee tracker.

LOTTERY

Numbers selected Tuesday:
Pick 3: 1-9-3
Maximum prize: $500
Pick 4: 8-3-4-4
Maximum prize: $5,000
Badger 5: 2-6-18-27-31
Estimated jackpot: $23,000
All or Nothing: 1-2-4-5-6-7-8-12-14-15-21
Maximum prize: $100,000
SuperCash: 8-10-12-26-32-39
Maximum prize: $350,000
Doubler: N
Mega Millions: 8-17-51-57-70
Mega Ball: 2
Megaplier: 4
Estimated jackpot: $113 million
More info: 608-266-7777 or wilottery.com

APPENDIX B – REFERENCE LIST

- Record of Decision, LL – USEPA 1991
- Record of Decision, LTR – USEPA 1991
- Record of Decision, LTR – USEPA 1994
- Explanation of Significant Differences, LL – USEPA 2006
- Explanation of Significant Differences, LTR – USEPA 2006
- Five Year Review Report for LL and LTR – USEPA 2015
- O&M Progress Report No. 26 (July 2015 – June 2016 Reporting Period) - TRC
- O&M Progress Report No. 27 (July 2016 – June 2017 Reporting Period) – TRC
- O&M Progress Report No. 28 (July 2017 – June 2018 Reporting Period) - TRC
- O&M Progress Report No. 29 (July 2018 – June 2019 Reporting Period) – TRC
- Analytical Results for Residential Wells Sampled by TRC – Semi-annually from 2015 through 2020
- Monitored Natural Attenuation Report for LL and LTR – TRC, 2019

APPENDIX C – Site Inspection Checklist and Photos

Site Inspection Checklist

I. SITE INFORMATION	
Site name: **Lemberger Landfill and Lemberger Transport and Recyling**	**Date of inspection:** **10/23/2019**
Location and Region: **Franklin Township, WI Region 5**	**EPA ID:** WID980901243 and WID056247208
Agency, office, or company leading the FYR: USEPA	**Weather/temperature:** Sunny 55 degrees

Remedy Includes: (Check all that apply)

☒ Landfill cover/containment	☐ Monitored natural attenuation
☒ Access controls	☐ Groundwater containment
☒ Institutional controls	☐ Vertical barrier walls
☒ Groundwater pump and treatment	☐ Other: Click or tap here to enter text.
☐ Surface water collection and treatment	

Attachments:

☐ Inspection team roster attached	☐ Site map attached

Site Inspection Checklist

II. INTERVIEWS (Check all that apply)

1. **O&M Site Manager** **Kris Krause, TRC, 10/23/2019**

Interviewed: ☒ at site ☐ at office ☐ by phone Phone Number: Click here to enter text.

Problems, suggestions: ☐ Report attached

None

2. **O&M Staff** Name , Title , Click or tap to enter a date.

Interviewed: ☐ at site ☐ at office ☐ by phone Phone Number: Click here to enter text.

Problems, suggestions: ☐ Report attached

Click or tap here to enter text.

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: Wisconsin DNR

Contact: Tauren Beggs, Project Manager, 10/23/2019, P: Phone Number

Problems, suggestions: ☐ Report attached

None

Agency: Click or tap here to enter text.

Contact: Name , Title , Click or tap to enter a date., P: Phone Number

Problems, suggestions: ☐ Report attached

Click or tap here to enter text.

Agency: Click or tap here to enter text.

Contact: Name , Title , Click or tap to enter a date., P: Phone Number

Problems, suggestions: ☐ Report attached

Click or tap here to enter text.

Agency: Click or tap here to enter text.

Contact: Name , Title , Click or tap to enter a date., P: Phone Number

Problems, suggestions:

Click or tap here to enter text.

4. **Other Interviews (optional):** ☐ Report attached

Click or tap here to enter text.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)			
1. O&M Documents			
☐ O&M manual	☐ Readily available	☐ Up to date	☒ N/A
☐ As-built drawings	☐ Readily available	☐ Up to date	☒ N/A
☐ Maintenance logs	☐ Readily available	☐ Up to date	☒ N/A
Remarks: Click or tap here to enter text.			
2. Site-Specific Health and Safety Plan		☒ Readily available	
☐ Contingency Plan/Emergency Response Plan		☐ Readily available	
Remarks: Click or tap here to enter text.			
3. O&M and OSHA Training Records			
	☐ Readily available	☐ Up to date	☒ N/A
Remarks: Click or tap here to enter text.			
4. Permits and Service Agreements			
☐ Air discharge permit	☐ Readily available	☐ Up to date	☒ N/A
☐ Effluent discharge	☐ Readily available	☐ Up to date	☒ N/A
☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	☒ N/A
☐ Other permits: Click or tap here to enter text.			
Remarks: Click or tap here to enter text.			
5. Gas Generation Records			
	☐ Readily available	☐ Up to date	☒ N/A
Remarks: Click or tap here to enter text.			
6. Settlement Monument Records			
	☐ Readily available	☐ Up to date	☒ N/A
Remarks: Click or tap here to enter text.			
7. Groundwater Monitoring Records			
	☒ Readily available	☐ Up to date	☐ N/A
Remarks: Click or tap here to enter text.			
8. Leachate Extraction Records			
	☒ Readily available	☐ Up to date	☒ N/A
Remarks: Click or tap here to enter text.			

9. Discharge Compliance Records

☐ Air	☐ Readily available	☐ Up to date	☒ N/A
☐Water (effluent)	☐ Readily available	☐ Up to date	☒ N/A

Remarks: Click or tap here to enter text.

10. Daily Access/Security Logs

☐ Readily available	☐ Up to date	☒ N/A

Remarks: Click or tap here to enter text.

IV. O&M COSTS

1. O&M Organization

☐ State in-house	☐ Contractor for State
☐ PRP in-house	☒ Contractor for PRP
☐ Federal Facility in-house	☐ Contractor for Federal Facility

Remarks: Click or tap here to enter text.

2. O&M Cost Records

☒Readily available ☐ Up to date ☐ Funding mechanism/agreement in place

Original O&M cost estimate Click or tap here to enter text. ☐ Breakdown attached

Total annual cost by year for review period if available

From	To	Total cost	
Click or tap to enter a date.	Click or tap to enter a date.	Click or tap here to enter text.	☐ Breakdown attached
From Click or tap to enter a date.	To Click or tap to enter a date.	Total cost Click or tap here to enter text.	☐ Breakdown attached
From Click or tap to enter a date.	To Click or tap to enter a date.	Total cost Click or tap here to enter text.	☐ Breakdown attached
From Click or tap to enter a date.	To Click or tap to enter a date.	Total cost Click or tap here to enter text.	☐ Breakdown attached
From Click or tap to enter a date.	To Click or tap to enter a date.	Total cost Click or tap here to enter text.	☐ Breakdown attached

3. Unanticipated or Unusually High O&M Costs During Review Period

Describe costs and reasons:

Click or tap here to enter text.

V. ACCESS AND INSTITUTIONAL CONTROLS

☐ Applicable ☐ N/A

1. Fencing Damaged ☐ Location shown on site map ☒ Gates secured ☐ N/A

Remarks: Click or tap here to enter text.

2. Other Access Restrictions ☐ Location shown on site map ☐ Gates secured

Remarks: Click or tap here to enter text.

3. Institutional Controls (ICs)

A. Implementation and Enforcement

Site conditions imply ICs not properly implemented	☐ Yes	☒ No	☐ N/A
Site conditions imply ICs not being fully enforced	☐ Yes	☒ No	☐ N/A
Type of monitoring (*e.g.*, self-reporting, drive by)	groundwater		
Frequency	Quarterly to annual		
Responsible party/agency	PRP		
Contact: Kris Krause, Project Manager, Click or tap to enter a date., P: Phone Number			
Reporting is up-to-date	☒ Yes	☐ No	☐ N/A
Reports are verified by the lead agency	☒ Yes	☐ No	☐ N/A
Specific requirements in deed or decision documents have been met	☒ Yes	☐ No	☐ N/A
Violations have been reported	☐ Yes	☒ No	☐ N/A

Other problems or suggestions:

Click or tap here to enter text.

B. Adequacy ☒ ICs are adequate ☐ ICs are inadequate ☐ N/A

Remarks: Click or tap here to enter text.

4. General

A. Vandalism/Trespassing ☐ Location shown on site map ☒ No vandalism evident

Remarks: Click or tap here to enter text.

B. Land use changes on site ☒ N/A

Remarks: Click or tap here to enter text.

C. Land use changes off site ☒ N/A

Remarks: Click or tap here to enter text.

VI. GENERAL SITE CONDITIONS

1. Roads ☒ Applicable ☐ N/A

A. Roads damaged ☐ Location shown on site map ☒ Roads adequate ☐ N/A

Remarks: Click or tap here to enter text.

B. Other Site Conditions

Remarks: Click or tap here to enter text.

VII. LANDFILL COVERS

1. Landfill Surface ☒ Applicable ☐ N/A

A. Settlement (Low Spots) ☐ Location Shown on Site Map ☒ Settlement Not Evident

Areal Extent: Click or tap here to enter text. Depth: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

B. Cracks ☐ Location Shown on Site Map ☒ Cracking Not Evident

Lengths: Click or tap here to enter text. Widths: Click or tap here to enter text. Depths: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

C. Erosion ☐ Location Shown on Site Map ☒ Erosion Not Evident

Areal Extent: Click or tap here to enter text. Depth: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

D. Holes ☐ Location Shown on Site Map ☒ Holes Not Evident

Areal Extent: Click or tap here to enter text. Depth: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

E. Vegetative Cover ☒ Grass ☒ Cover Properly Established

☐ Tress/Shrubs (indicate size and locations on a diagram ☒ No Signs of Stress

Remarks: Click or tap here to enter text.

F. Alternative Cover (armored rock, concrete, etc.) ☒ N/A

Remarks: Click or tap here to enter text.

G. Bulges ☐ Location Shown on Site Map ☒ Bulges Not Evident

Areal Extent: Click or tap here to enter text. Height: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

H. Wet Areas/Water Damage ☒ Wet Areas/Water Damage Not Evident

☐ Wet Areas	☐ Location Shown on Site Map	Areal Extent: Click or tap here to enter text.
☐ Ponding	☐ Location Shown on Site Map	Areal Extent: Click or tap here to enter text.
☐ Seeps	☐ Location Shown on Site Map	Areal Extent: Click or tap here to enter text.
☐ Soft Subgrade	☐ Location Shown on Site Map	Areal Extent: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

I. Slope Instability ☐ Location Shown on Site Map ☒ Slope Instability Not Evident

☐ Slides Areal Extent: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

2. Benches ☐ 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.)

A. Flows Bypass Bench ☐ Location Shown on Site Map ☐ N/A or Okay

Remarks: Click or tap here to enter text.

B. Bench Breached ☐ Location Shown on Site Map ☐ N/A or Okay

Remarks: Click or tap here to enter text.

C. Bench Overtopped ☐ Location Shown on Site Map ☐ N/A or Okay

Remarks: Click or tap here to enter text.

3. Letdown Channels ☐ 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.)

A. Settlement ☐ Location Shown on Site Map ☐ Settlement Not Evident

Areal Extent: Click or tap here to enter text. Depth: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

B. Material Degradation ☐ Location Shown on Site Map ☐ Degradation Not Evident

Material Type: Click or tap here to enter text. Areal Extent: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

C. Erosion ☐ Location Shown on Site Map ☐ Erosion Not Evident

Areal Extent: Click or tap here to enter text. Depth: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

D. Undercutting ☐ Location Shown on Site Map ☐ Undercutting Not Evident

Areal Extent: Click or tap here to enter text. Depth: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

E. Obstructions ☐ Location Shown on Site Map ☐ Undercutting Not Evident

Type: Click or tap here to enter text.

Areal Extent: Click or tap here to enter text. Size: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

F. Excessive Vegetative Growth ☐ Location Shown on Site Map ☐ Excessive Growth Not Evident

Areal Extent: Click or tap here to enter text. ☐ Vegetation in channels does not obstruct flow

Remarks: Click or tap here to enter text.

4. Cover Penetrations ☒ Applicable ☐ N/A

A. Gas Vents ☐ Active ☐ Passive

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled

☐ Good condition ☐ Evidence of leakage at penetration

☐ Needs Maintenance ☐ N/A

Remarks: Click or tap here to enter text.

B. Gas Monitoring Probes

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled

☐ Good condition ☐ Evidence of leakage at penetration

☐ Needs Maintenance ☐ N/A

Remarks: Click or tap here to enter text.

C. Monitoring Wells

☒ Properly secured/locked ☒ Functioning ☒ Routinely sampled

☒ Good condition ☐ Evidence of leakage at penetration

☐ Needs Maintenance ☐ N/A

Remarks: Click or tap here to enter text.

D. Leachate Extraction Wells

☒ Properly secured/locked ☐ Functioning ☐ Routinely sampled

☒ Good condition ☐ Evidence of leakage at penetration

☐ Needs Maintenance ☐ N/A

Remarks: Click or tap here to enter text.

E. Settlement Monuments ☐ Located ☐ Routinely Surveyed ☐ N/A

Remarks: Click or tap here to enter text.

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

A. Gas Treatment Facilities

☐ Flaring ☐ Thermal Destruction ☐ Collection for Reuse

☐ Good condition ☐ Needs Maintenance

Remarks: Click or tap here to enter text.

B. Gas Collection Wells, Manifolds, and Piping

☐ Good condition ☐ Needs Maintenance ☐ N/A

Remarks: Click or tap here to enter text.

C. Gas Monitoring Facilities (e.g. gas monitoring of adjacent homes or buildings)

☐ Good condition ☐ Needs Maintenance ☐ N/A

Remarks: Click or tap here to enter text.

6. Cover Drainage Layer ☐ Applicable ☒ N/A

A. Outlet Pipes Inspected ☐ Functioning ☐ N/A

Remarks: Click or tap here to enter text.

B. Outlet Rock Inspected ☐ Functioning ☐ N/A

Remarks: Click or tap here to enter text.

7. Detention/Sediment Ponds ☐ Applicable ☒ N/A

A. Siltation ☐ Siltation Not Evident ☐ N/A

Areal Extent: Click or tap here to enter text. Depth: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

B. Erosion ☐ Erosion Not Evident

Areal Extent: Click or tap here to enter text. Depth: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

C. Outlet Works ☐ Functioning ☐ N/A

Remarks: Click or tap here to enter text.

D. Dam ☐ Functioning ☐ N/A

Remarks: Click or tap here to enter text.

8. Retaining Walls ☐ Applicable ☒ N/A

A. Deformations ☐ Location Shown on Site Map ☐ Deformation Not Evident

Horizontal Displacement: Click or tap here to enter text.

Vertical Displacement: Click or tap here to enter text.

Rotational Displacement: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

B. Degradation ☐ Location Shown on Site Map ☐ Deformation Not Evident

Remarks: Click or tap here to enter text.

9. Perimeter Ditches/Off-Site Discharge ☐ Applicable ☒ N/A

A. Siltation ☐ Location Shown on Site Map ☐ Siltation Not Evident

Areal Extent: Click or tap here to enter text. Depth: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

B. Vegetative Growth ☐ Location Shown on Site Map ☐ N/A

☐ Vegetation Does Not Impede Flow

Areal Extent: Click or tap here to enter text. Type: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

C. Erosion ☐ Location Shown on Site Map ☐ Erosion Not Evident

Areal Extent: Click or tap here to enter text. Depth: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

D. Discharge Structure ☐ Functioning ☐ N/A

Remarks: Click or tap here to enter text.

VIII. VERTICAL BARRIER WALLS

☐ Applicable ☒ N/A

1. Settlement ☐ Location Shown on Site Map ☐ Settlement Not Evident

Areal Extent: Click or tap here to enter text. Depth: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

2. Performance Monitoring Type of Monitoring: Click or tap here to enter text.

☐ Performance Not Monitored ☐ Evidence of Breaching

Frequency: Click or tap here to enter text. Head Differential: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

IX. GROUNDWATER/SURFACE WATER REMEDIES

☒ Applicable	☒ N/A

1. Groundwater Extraction Wells, Pumps, and Pipelines ☒ Applicable ☐ N/A

A. Pumps, Wellhead Plumbing, and Electrical ☐ N/A

☐ Good Condition ☐ All Required Wells Properly Operating ☐ Needs Maintenance

Remarks: no longer in use

B. Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances

☐ Good Condition ☐ Needs Maintenance

Remarks: no longer in use

C. Spare Parts and Equipment ☐ Needs to be Provided

☐ Readily Available ☐ Good Condition ☐ Requires Upgrade

Remarks: no longer in use

2. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ☒ N/A

A. Collection Structures, Pumps, and Electrical

☐ Good Condition ☐ Needs Maintenance

Remarks: Click or tap here to enter text.

B. Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances

☐ Good Condition ☐ Needs Maintenance

Remarks: Click or tap here to enter text.

C. Spare Parts and Equipment ☐ Needs to be Provided

☐ Readily Available ☐ Good Condition ☐ Requires Upgrade

Remarks: Click or tap here to enter text.

3. Treatment System ☒ Applicable ☐ N/A

A. Treatment Train (Check components that apply)

☐ Metals removal ☐ Oil/Water Separation ☐ Bioremediation

☒ Air Stripping ☐ Carbon Absorbers

☐ Filters Click or tap here to enter text.

☐ Additive (e.g. chelation agent, flocculent) Click or tap here to enter text.

☐ Others Click or tap here to enter text.

☐ Good Condition ☐ Needs Maintenance

☐ Sampling ports properly marked and functional

☐ Sampling/maintenance log displayed and up to date

☐ Equipment properly identified

☐ Quantity of groundwater treated annually Click or tap here to enter text.

☐ Quantity of surface water treated annually Click or tap here to enter text.

Remarks: no longer in use

B. Electrical Enclosures and Panels (properly rated and functional)

☐ N/A ☐ Good Condition ☐ Needs Maintenance

Remarks: no longer in use

C. Tanks, Vaults, Storage Vessels ☐ N/A

☐ Proper Secondary Containment ☐ Good Condition ☐ Needs Maintenance

Remarks: no longer in use

D. Discharge Structure and Appurtenances

☐ N/A ☐ Good Condition ☐ Needs Maintenance

Remarks: no longer in use

E. Treatment Building(s)

☐ N/A ☒ Good condition (esp. roof and doorways)

☐ Needs repair ☐ Chemicals and equipment properly stored

Remarks Click or tap here to enter text.

F. Monitoring Wells (Pump and Treatment Remedy) ☐ N/A

☒ Properly secured/locked ☐ Functioning

☒ Routinely sampled ☐ All required wells located

☐ Good condition ☐ Needs Maintenance

Remarks Click or tap here to enter text.

4. Monitoring Data

A. Monitoring Data:

☒ Is Routinely Submitted on Time ☒ Is of Acceptable Quality

B. Monitoring Data Suggests:

☒ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining

5. Monitored Natural Attenuation

A. Monitoring Wells (natural attenuation remedy) ☐ N/A

☒ Properly secured/locked ☒ Functioning ☒ Routinely sampled

☒ All required wells located ☐ Needs Maintenance ☒ Good condition

Remarks: Click or tap here to enter text.

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

1. 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.).

Cover is intact and is properly vegetated. Remedy is functioning as designed.

2. 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.

There are no issues related to the implementation of the O&M

3. 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.

None

4. Early Indicators of Potential Remedy Problems

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

Click or tap here to enter text.

Photo from top of LTR landfill showing thick cover that is well maintained and mowed properly.

Photo showing remediation building where the out-of-service groundwater treatment machinery is housed and where the leachate from the LL was stored.

Photo along Sunny Slope Road showing an extraction well and the fence surrounding the landfill.