SUPERFUND SITE REASSESSMENT

Quic Frez
City of Fond du Lac, Wisconsin
U.S. EPA ID: WIN000508296
WDNR FID #: 998314900
WDNR BRRTS #: 02-20-118383

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1.0 INTRODUCTION

Under authority of the Comprehensive Environmental Response Compensation Liability Act of 1980 (CERCLA), and the Superfund Amendments and Reauthorization Act of 1986 (SARA), the Wisconsin Department of Natural Resources (WDNR) was tasked by the U.S. Environmental Protection Agency (EPA) to conduct a Site Reassessment (SR) of the former Quic Frez facility (QF or "Site") in the City of Fond du Lac, Fond du Lac County, Wisconsin as part of the fiscal year 2020 – 2021 Cooperative Agreement. The EPA conducted a Removal Action in 2002; a Preliminary Assessment (PA) was completed in November 2003; and a Site Reassessment was completed in June 2011.

The purpose of this SR was to evaluate whether residual contaminated soil and groundwater at the QF site may pose threats to human health and the environment, flowing addition of the Subsurface Intrusion (SsI) component to the Hazard Ranking System (HRS) Soil Exposure Pathway in 2017, and to determine the need for additional action under CERCLA/SARA or other appropriate authority and, if necessary, support site evaluation using the HRS for proposal to the National Priorities List (NPL) or, conversely, archive the site in the Superfund Enterprise Management System (SEMS) as "no further remedial action planned" (NFRAP). The scope of the SR included reviewing previous site data and information collected to date, especially since 2011, sampling environmental media to test the SsI hypotheses, collecting additional non-sampling information, and ultimately evaluating and documenting HRS factors.

Photographs taken during the SR sampling event are included in Appendix A. Information referenced throughout this SR report are presented in Appendix B, and a copy of the laboratory analytical data reports are provided in Appendix C.

2.0 SITE BACKGROUND

2.1 Location

The Quic Frez site is in the SE ¼ of the NW ¼ of Section 15, Town 15 North, Range 17 East in the City of Fond du Lac, Fond du Lac County, Wisconsin and is centered at approximately 43.77238 North latitude and 88.45186 West longitude (**Figure 1**). The Site is located on the east bank of the East Branch Fond du Lac River in a mixed residential and commercial area with city and county municipal offices near the center of the city (**Figure 2**). The property address is 105 Oak Place, Fond du Lac, WI 54935.

To reach the QF site from the WDNR Northeast Region-Oshkosh Service Center, 625 E. County Rd. Y #700, proceed west on E. County Rd. Y (E. Sunnyview Rd.) for 0.8 mile, turn right onto WI-76 N and head north 1.0 mile, turn left to merge onto Interstate I-41/US-41 S toward Fond du Lac. Travel south on I-41/US-41 S for 25.7 miles and take Exit 98 for Military Rd. Continue 1.8 miles northeastward to the site using the detailed directions in Reference 1.

2.2 Site Description

According to the 2011 SR report, the QF site is part of a 4.1-acre property that included lots 6-18, Darlings Subdivision Block R, Original Plat of the City of Fond du Lac (Reference 2). The former QF property is currently vacant and vegetated by trees and shrubs along the river and mostly grass over areas away from the river. A chain-link fence surrounds an ~3,000 square yard remediation area at the north-central portion of the Site.

The Site is bounded to the north by the East Branch Fond du Lac River and the Fond du Lac County Medical Examiners facility, to the west by the river and commercial establishments to the northwest and

residences to the southwest, to the south by one residence on South St. the Fond du Lac School District's Furth (track and football) Field and maintenance buildings, and to the east by a multi-unit commercial building with several residential apartments, Oak Street, and a block of residential properties (**Figure 2**).

The climate of Fond du Lac County is continental and characterized by cold to very cold winters and mild to warm summers (Reference 3). Average high and low January temperatures range from 11^{o} to 27^{o} F, average high and low July temperatures range from 61^{o} to 82^{o} F, and average annual precipitation is approximately 32 inches (Reference 4). Prevailing wind directions vary throughout the year but are most commonly from the west (Reference 5).

2.3 Operational History and Waste Characteristics

As discussed in the 2011 SR Report, the QF site was originally developed with residential dwellings by about 1884, and included a furniture manufacturing company on the north side of Oak Place by 1899 until at least 1915. By 1927, the Sanitary Refrigerator Company had established operations, including paint booths. From 1955 until 1969, the property was owned and operated by Quic Frez Incorporated. Operations included painting and use of solvents. From 1969 to at least 1976, if not later, the property was operated by Kiekhaefer Mercury Sign as a factory and warehouse (including paint booth) and later by Mercury Marine Corp., Hayward Tires, and a paint and body shop. During the 1990s, the Site was used for storage by the First & Portland Corporation. (Reference 2)

In 1997, the site consisted of a three story main production building on the north side of the property, a two level metal sided warehouse on the southwest side of the property and a two-story concrete block building on the southeast side of the property. On September 28, 2000, the property was acquired by condemnation during a City of Fond du Lac Council meeting and is currently still owned by the city. In October 2000, a fire broke out in the main building and the massive amount of water used in fighting the fire is suspected to have caused a section of river retaining wall to collapse. By October 2002, all Site buildings had been demolished and the property had become vacant. (Reference 2)

2.4 Regulatory Status

The QF site is an open WDNR Environmental Repair Program (ERP) case assigned Bureau for Remediation and Remediation and Redevelopment Tracking System (BRRTS) No. 02-20-118383 and Facility ID No. 998314900 (Reference 6). The case file is large and consists of the activities and documents listed on the BRRTS summary (Reference 6), many of which are discussed in the 2011 SR Report (Reference 2). The WDNR has managed the investigation and remediation of the Site as a state-funded (a.k.a. state-lead) response since the City obtained possession in 2002.

The WDNR Bureau of Waste and Materials Management's Solid and Hazardous Waste Information Management System (SHWIMS) database tracks the former QF facility as a HW Generator -Very Small, HW Generator – Small and Solid Waste Transporter, all inactive, as well as the ERP case (Reference 7).

In SEMS, the QF site status is listed as "*Other Cleanup Activity: State-Lead Cleanup*" (Reference 8). And the RCRAInfo system only reports the WDNR's disposal of wastes associated with investigation and remediation of the Site, under EPA ID WIR000116129 (Reference 9).

2.5 Past Environmental Investigations

In February 2002, the WDNR reported a release of petroleum to the East Branch Fond du Lac River to EPA. Subsequently, the EPA conducted a CERCLA removal action on the Quic Frez property, which

entailed the excavation and offsite disposal of ~750 tons of soil contaminated by petroleum and chlorinated solvents – primarily trichloroethylene (TCE) and its breakdown products cis- and trans-1,2-dichloroethene (cis- & trans-DCE), 1,1-dichloroethene (1,1-DCE) and vinyl chloride (VC) – from the east bank of the river to a depth of ten feet bgs and ~220 tons highly solvent-contaminated soil from the northeast corner of the property to a depth of four feet bgs. An additional ~194 tons of "apparent fuel-oil" contaminated soil were excavated from the southwest portion of the property to a depth of 15 feet bgs under state-lead oversight and landfilled offsite in late October 2002. No hazardous process wastes remain on the property and the shallow contaminated soil was excavated. Further remediation of the site involved the installation and operation of an *in-situ* electrokinetic treatment (Lasagna™) system from November 2006 to May 2009. However, high chlorinated contaminant levels remained in soil and in groundwater, based on post-system sampling in mid-2009. (Reference 2)

In March 2020, the WDNR conducted a vapor intrusion assessment of the building at 224 Oak St., which abuts the northeast portion of the former QF property. At that time, sub-slab vapor and indoor air concentrations of Site-related volatile organic compounds (VOCs) were all below vapor risk screening levels (VSLs). Periodic groundwater monitoring of contaminant concentrations and natural attenuation parameters is ongoing.

3.0 SAMPLING ACTIVITIES

As previously stated, with addition to the HRS the SsI component of the SESI Pathway became a sub-pathway of concern at the QF site because of its potential for contaminant migration and threat to human health and the environmental surrounding the former facility. The strategy was to install and sample shallow groundwater monitoring wells around the residential neighborhood to the east of the former QF facility to determine if a continuous source of volatile contamination (i.e., a groundwater contamination plume) extends beneath the neighborhood. The preliminary SsI sub-pathway assessment was to be based on the groundwater sampling results for volatile organic compounds (VOCs).

3.1 Drilling and Monitoring Well Installation

The 2020 SR work plan (SRWP) called for the drilling and installation of five shallow monitoring wells (MW-12 and MW-22 through MW-25, **Figure 3**). On December 15, 2020, MW-12 was installed near existing well MW-12C to sample background groundwater quality, while MW-22 through MW-25 were installed in the neighborhood to the east of the Site. The well borings were drilled with a track-mounted Geoprobe® rotary drill rig using 8¼-inch out-side diameter hollow-stem augers (HSA). The borings were continuously sampled using stainless-steel split-spoon samplers, and a MultiRAE Pro photo-ionization detector (PID) was used to measure and record possible VOCs in the soil borings. The soil cores were geologically logged by WDNR staff and recorded on WDNR borehole log forms (Reference 10).

The five new wells were each constructed of 2-inch inside diameter, schedule 40 PVC casing flush-threaded to one 10-foot section of 0.010-inch slotted PVC screen positioned to straddle the water table. The open boreholes around the screens were filled with filter-pack sand and then the boreholes were topped off with bentonite chips to about one foot of the ground surface. The last foot of each well was completed with a locking flush-mount-style, aluminum protective vault held in place by a concrete pad. Each PVC well casing was sealed with an expandable cap to keep foreign materials from falling into the well. (Reference 10)

On April 7, 2021, the five new monitoring wells were developed by hand-bailing groundwater until the visible effects of drilling (turbidity) were reduced. All the wells bailed dry. On April 13, 2021, the five new and five of six selected existing monitoring wells were purged and samples collected for analysis. The sixth selected existing well, MW-7, was not sampled because the well's protective pipe was bent and the casing was crimped. Furthermore, a black, "swampy" smelling biofilm coating was observed on

pump tubing left in the well, indicating that the well had not been sampled for a long time and the water quality in the well may be compromised. A Photographic Log of the SR well installation and sampling locations and activities is included in Appendix A.

On the day of sampling, skies were cloudy, winds were 7-9 miles/hour, and temperatures were in the mid-40s.

3.2 Groundwater Sampling

Because all the sampled wells hand-bailed dry, low-flow pumping and water quality monitoring methods were not used to purge the wells. Furthermore, MW7, a stickup-style monitoring well, was damaged (significantly bent) and found to contain a black organic slime and, therefore, was not sampled. MW15, which was sampled, is more directly positioned between the contaminant source area on the former Quic Frez property and the four new monitoring wells installed around the residential neighborhood to the east.

Following bailing, the monitoring wells were allowed to partially recover and then groundwater samples for VOC analysis were collected and placed into laboratory containers purchased from Environmental Sampling Supply, Inc. (ESS). The VOC samples were collected by completely filling, tightly sealing and then bubble-bagging three pre-preserved (dilute HCL), 40-ml glass vials using disposable bailers (one per well) with bottom-emptying devices. The bagged sample containers were then placed in a sample cooler and preserved by cooling to 4^{o} C with water ice.

All the groundwater samples were shipped under chain-of-custody protocol via FedEx to Pace Analytical Services, LLC, a Contract Laboratory Program (CLP) laboratory in West Columbia, SC, for analysis of Target Compound List (TCL) volatile organic compounds (54 VOCs).

Disposable groundwater sampling supplies (bailers and rope) were used during the sampling event, thereby reducing in-field decontamination efforts. Reusable sampling equipment (the water level probe) used at each well was thoroughly rinsed with deionized water between wells.

4.0 GROUNDWATER PATHWAY

4.1 Hydrogeology

Geographically, Fond du Lac and, therefore, the QF site are located within the Rock River Lowlands of the Eastern Ridges and Lowlands Province, which is dominated by broad, relatively flat plains between long parallel ridges, or cuestas. The lowland plains were formed by continental glaciation, and the cuestas are the surface expression of the eastward-dipping, resistant limestone and dolomite formations beneath the overlying glacial deposits. Reference 11.

Geologically, the QF site is located on a large (3- to 8-mile wide) flat plain that extends southwestward from Lake Winnebago to near the Dodge County line. The City of Fond du Lac is roughly bounded to the east and south by the west-facing escarpment of Silurian-age Niagara dolomite. West of the plain the ground surface is gently rolling. (Reference 12).

Surficial glacial deposits near the QF site are identified as Pleistocene-age till of the Kirby Lake Member of the Kewaunee Formation. The till is described as red clayey sit with some gravel deposited by the Green Bay Lobe during its first readvance. Near the site the till may be covered with thin patches of lake sediment. Reference 13.

Historical water well drillers' logs describe the glacial materials surrounding the QF site as 32-105 feet of "till," "drift," "clay," or "red clay" with varying amounts of sand to boulders. The unconsolidated deposits are thinner to the south and west of the QF site and thickets to the north, east and southeast. Reference 14.

Bedrock deposits beneath the QF site include the following formations (from youngest to oldest): the Ordovician-age Galena and Platteville dolomites, the St. Peter sandstone, and then the Prairie du Chien Group of mostly dolomite, which are in turn underlain by Cambrian-age formations of mostly sandstone and then Precambrian sandstone formations. Beneath the sedimentary formations is Precambrian crystalline basement rock. The principal aquifers beneath the City of Fond du Lac are Cambrian- and Ordovician-age sandstones and Silurian-age dolomite of the Niagara Escarpment to the east. Where present and of adequate thickness, unconsolidated glacial sand and gravel deposits are water bearing. Reference 12.

Locally, shallow groundwater flow is variable but appears to be generally towards the rivers, as would generally be expected. Farther from the rivers, shallow groundwater flow appears to be influenced by underground utility trenches and structures, based on groundwater elevation data and flow maps generated for nearby environmental restoration sites (Reference 15). During the SR, depth to groundwater at the QF site was between approximately four and 13 feet bgs in the sampled shallow monitoring wells and was approximately 48 feet bgs in piezometer MW4C. The vertical groundwater gradient at source area wells MW4R (water table) and MW4C (piezometer) was large, approximately one foot/foot in a downward direction, reflecting the very low hydraulic connection between the layers of glacial deposits. Historically, groundwater flow across the QF site has been west- to northwestward towards the East Branch Fond du Lac River.

4.2 Groundwater Targets

No public water supply (PWS) wells are located within 0.25 mile of the QF site, while a high-capacity (hi-cap) well used for manufacturing is located between 0.25 and 0.5 mile and two municipal community (MC) wells and a non-transient non-community (NTNC) well are located between 0.5 and 1.0 mile from the Site (**Table 1**). Thirty-four additional PWS wells and six non-potable private wells (five used for irrigation and one to fill a pond) are located between 1.0 and 4.0 miles from the QF site. The PWS wells include 17 MC, two OTM, 12 transient non-community (TNC) and three non-transient non-community (NTNC) wells. Codified definitions of the well/water system types are presented in Reference 16.

The population within four miles of the former QF property is approximately 52,330 people living in 21,720 homes (Reference 17). A summary of the 2010 census population data is shown in **Table 2**. Additional people more than four miles from the former QF property are supplied by City water drawn from wells within four miles of the Site. The number of additional people, however, was not determined for this SR because of the conclusions presented in Section 4.4 below.

4.3 Groundwater Analytical Results

The groundwater TCL-VOC results for the ten sampled monitoring wells are presented in **Table 3** and compared to U.S.EPA drinking water MCLs and Wisconsin groundwater enforcement standards (ESs). To determine if an observed release attributable to the QF site exists, the results for nine of the wells were compared to background well MW12 and elevated analyte concentrations (i.e., ≥3 times background concentrations or greater than background detection limits if background is below detection) are indicated in the table. Laboratory-reported concentrations that were qualified (e.g., "J" flagged) were adjusted, as applicable and appropriate, in accordance with EPA OSWER Directive 9285.7-14FS and Quick Reference Fact Sheet EPA 540-F-94-028.

Five chlorinated VOCs (CVOCS) – TCE, cis- and trans-DCE, 1,1-DCE and VC – exhibited elevated concentrations ranging from 590(J) µg/L to 280,000 µg/L in source area well MW4R (water table), while no VOCs (chlorinated and unchlorinated) were detected in MW4C, the deepest piezometer nested with MW4R. TCE at 5.7 µg/L in well MW6 was slightly above its contract required quantitation limit (CRQL) and maximum contaminant level (MCL) of 5.0 µg/L, while trace concentrations (below CRQLs) of several other CVOCs were detected in the well and in MW15 and MW20. Wells MW6, MW15 and MW20 are located between the contamination source area and new wells MW22-MW25, installed around the residential neighborhood to the east of the QF site (**Figure 3**). Other than a possible trace of benzene in MW23, no VOCs were detected in MW22-MW25, indicating that the groundwater contaminant plume does not extend eastward to, let alone under, the residential neighborhood.

The latest TCE sampling results for source area well MW4R are comparable to historical spring sampling results dating back to at least May 2010, before which concentrations were higher, while breakdown products such as cis-DCE and VC remain higher than before May 2010, but relatively stable (Reference 18a-b). TCE and cis-DCE, the only CVOCs historically detected, in source area piezometer MW4C have been decreasing since 2010. Similarly, CVOCs in source area perimeter wells MW6, MW15 and MW20 also continue to exhibit decreasing concentration trends.

4.4 Groundwater Conclusions

As concluded in the 2011 SR Report, the QF site still does not appear to pose a substantial threat to the Groundwater Pathway. Overall, the CVOC groundwater plume does not appear to be expanding (migrating) towards the bedrock units that supply the area's potable water wells.

5.0 SOIL EXPOSURE AND SUBSURFACE INTRUSION (SESI) PATHWAY

5.1 Physical Conditions

All buildings on the former QF property were razed by late 2002 after a fire several years earlier. The property is currently vacant and covered with grass, brush and trees, and the remediation area is secured with a seven-foot tall chain-link fence and locked gate. Contaminated surface soil was removed by the U.S.EPA in 2002 during a time-critical removal action, thereby reducing the potential soil exposure (direct-contact) threat (Reference 2). However, residual VOC contamination at greater depths remains a source of vapors for the subsurface migration component of the SESI Pathway.

5.2 Soil Exposure and Subsurface Intrusion Targets

Roughly 16,323 people in 6,823 households live within one mile of the QF site, based on a 2010 census population data (**Table 2** and Reference 17). The Site is surrounded by residential, commercial and municipal structures. There are no schools or daycare facilities on the former QF property. The closest school or daycare is Riverside Elementary School, located approximately 0.28 mile (1,500 feet) to the southeast (Reference 19). Chlorinated contaminant vapors have been detected below vapor screening levels (VSLs) beneath the slab and in indoor air of the two-story building abutting the east side of the former QF property (Reference 20).

There are no known terrestrial sensitive environments, including critical habitats for endangered species, near the Site.

5.3 Soil Analytical Results

No soil samples were collected for laboratory analysis this SR. Soil cores were collected, geologically logged and field-screened with a PID for ionizable VOCs during installation of the five new monitoring wells in 2020. No significant VOC measurements were observed.

5.4 Soil Exposure and Subsurface Intrusion Conclusions

Overall, the SESI Pathway does not appear to pose a significant threat to the regularly-occupied structures (residences, schools/daycares, commercial establishments, municipal offices, etc.) surrounding the QF site. As concluded in the 2011 SR, the QF site does not pose a significant soil exposure (direct-contact) threat to residents living near the former facility and nearby workers, including those occupying the building abutting the east side of the former QF property. A large amount of highly contaminated soils were excavated to a depth of four feet during the 2002 U.S.EPA Removal, thus mitigating the direct-contact threat. The remaining contaminated soil is currently capped with clean soil and mowed grasses, and the property has restricted access. .

Subsurface intrusion of vapors, in particular, and/or groundwater contamination poses potential threat to the building abutting the east side of the former QF property, based on detection of several CVOCs at concentrations below VSLs beneath the building slab and inside the building. However, the Subsurface Intrusion component of the SESI Pathway does not appear to pose a significant threat to regularly-occupied structures in the broader neighborhoods surrounding the Site, based on the lack of VOCs in groundwater samples collected from shallow (water table) monitoring wells located between the Site and the neighborhood to the east of the former QF facility and surrounding the neighborhood (Section 4.3).

6.0 SURFACE WATER PATHWAY

6.1 Hydrologic Setting

The QF site lies within the far northeast portion of the Fond du Lac River Watershed. The Site abuts the East Branch Fond du Lac River approximately 1.1 miles upstream of its convergence with the West Branch Fond du Lac River to form the Fond du Lac River. The Fond du Lac River drains into Lake Winnebago approximately 1.5 miles farther to the north (Reference 21).

Local topography across the QF site is relatively flat, ranging from ~757-758 feet above mean sea level (MSL) along the east boundary of the Site to ~755 feet above MSL along the top of the riverbank, and then sloping sharply to the river at ~745-746 feet above MSL (Reference 22). Overland drainage from the Site, that doesn't infiltrate, flows to the river or into storm sewers beneath the surrounding streets. The East Branch Fond du Lac River at Fond du Lac had an average annual discharge rate of approximately 32 cubic feet per second (cf/s) from 1940-1954, with minimum and maximum annual rates of 5.4 cf/s and 58 cf/s (Reference 23). More recently, the Fond du Lac River has had an average annual discharge rate of approximately 146 cf/s from 2009-2011, with minimum and maximum annual rates of 116 cf/s and 215 cf/s (Reference 23).

The surficial soils across the QF site and neighborhoods to the east are mapped primarily as Kewaunee silty clay loam (KoB), 2 to 6 percent slopes, with Poygan silty clay loam (Py), 0 to 2 percent slopes, along northern edge of the Site across the river, and Depere silty clay loam (DcA), 0 to 3 percent slopes, to the south of the Site and toe the west of the river. The vertical profiles for these soil units consist of 0-10 inches of silty clay loam over clay and/or silty clay beneath. The KoB and DcA soils are "well drained" to "moderately well drained" and the Py soil is "poorly drained." (Reference 24).

The QF site is located within a 100-year flood plain (Reference 25).

6.2 Surface Water Targets

The probable point of entry (PPE) for stormwater draining and groundwater discharging from the QF site is the East Branch Fond du Lac River, which flows along the entire western edge of the site. The river flows northward ~1.1 miles to meet with the West Branch Fond du Lac River to form the Fond du Lac River, which in turn flows another ~1.53 miles northward before discharging into 215 square mile Lake Winnebago. There are no drinking water intakes located in the East Branch Fond du Lac River, Fond du Lac River and Lake Winnebago within 15 downstream miles of the QF site. Reference 26.

Fish, including walleye, catfish, bass, northern pike and panfish, are caught for consumption from the East Branch Fond du Lac River, Fond du Lac River and Lake Winnebago up- and/or downstream of the QF site, and Lake Winnebago is renowned for its sturgeon spearing season (References 27-28).

There is one ~0.2-mile section of Freshwater Forested/Shrub Wetland where the East and West branches of the Fond du Lac River meet downstream of the QF site and a large mostly Freshwater Emergent Wetland, the Supple Marsh, that borders both sides of an ~1.1-mile long side channel near the mouth of the Fond du Lac River. In addition, there are disconnected sections of wetland scattered along the east and west sides of Lake Winnebago. (Reference 29)

Two federally-designated endangered species (Whooping Crane, Rusty Patched Bumble Bee) and two endangered species (Eastern Prairie Fringed Orchid, Northern Long-Eared Bat) may be found in Fond du Lac County, but no critical habitats are reported for the county (References 30a-b). There are no sensitive environments near the QF site, other the above-referenced wetlands located within 15 downstream miles of the site.

6.3 Surface Water Analytical Results

No surface water or sediment samples were collected for this SR.

6.4 Surface Water Conclusions

There are no indications of a current release of surficial contaminants from the QF site to the Surface Water Pathway, i.e., the East Branch Fond du Lac River and downstream water bodies. The former facility property is well-covered with vegetation, thereby limiting or preventing possible erosion and transport of contaminated soil into nearby storm sewers and the river. Groundwater contaminated with aqueous-phase chemicals may be seeping into the river. However, the chemicals of concern in groundwater at the QF site are chlorinated VOCs, which would not remain for long within the river water due to natural degradation processes. Furthermore, there are no drinking water intakes within 15 miles downstream of the Site.

There are a couple of wetland areas along the East Branch Fond du Lac River, Fond du Lac River and Lake Winnebago and fish are caught and consumed from both water bodies. However, the Site's VOCs are not considered a threat the fish and the environment.

7.0 AIR PATHWAY

7.1 Physical Conditions

As previously discussed, the former QF property and surrounding areas are developed and well-covered by vegetation, residential and commercial structures, and pavement. No exposed wastes or

notable areas of bare soil or distressed vegetation indicative of significant surficial contamination were observed during the 2020-21 SR activities.

7.2 Air Targets

No potential outdoor Air Pathway targets affected by residual VOCs contamination associated with the QF site soils are anticipated.

7.3 Air Analytical Results

No outdoor air samples were collected for this SR.

7.4 Air Conclusions

The Air Pathway is unlikely to pose a threat to the residents living near the QF site. Ongoing releases to outdoor air from possible contaminated surface soil are not suspected because the QF site is currently well-covered. No indication of the potential for blowing dust under normal weather conditions was observed during the SR sampling activities.

8.0 SUMMARY AND CONCLUSIONS

The Quic Frez site is a former manufacturing facility that released chlorinated solvents, primarily trichloroethylene (TCE), and other volatile organic compounds (VOCs) to soil and groundwater. The Site has undergone *in-situ* electrokinetic (Lasagna^{TM}) remediation; however, residual chlorinated VOCs (CVOCs) concentrations remain high (e.g., TCE at 69,000 µg/L in shallow source area well MW4R). The primary purpose of the Quic Frez SR was to gather data necessary to evaluate the Subsurface Intrusion (SsI) component (or sub-pathway) of the SESI Pathway and, secondarily, reassess the Groundwater Pathway to determine if the Site is a potential candidate for the NPL. Four new groundwater monitoring wells were installed across the near-surface water table at locations surrounding a residential neighborhood immediately to the east of the former QF property. In addition, a new shallow monitoring well was installed across the river for background sampling purposes. Groundwater samples were collected from the five new monitoring wells and five selected existing site monitoring wells and analyzed for VOCs.

TCE and its breakdown products, 1,1-dichloroethene, cis- and trans-1,2- dichloroethene, and vinyl chloride, remain elevated (2-5 orders-of-magnitude above background) in shallow source area well MW4R, the historically most impacted well. Conversely, no VOCs were detected in the new shallow monitoring wells surrounding the residential neighborhood or in the background well. TCE was slightly elevated and slightly above its MCL in one of three shallow wells located between the source area and the new wells in the residential neighborhood. No VOCs were detected in MW4C, the deepest piezometer nested with source area well MW4R.

Overall, the current monitoring well analytical results continue to support stable to decreasing VOC concentration trends in groundwater at the site, indicating that the contaminant plume is not expanding and does not appear to pose a significant subsurface intrusion threat to the neighborhoods surrounding the QF site or to the underlying bedrock aquifer.

The Soil Exposure component of the SESI Pathway and the Surface Water and Air Pathways were not sampled for this SR because existing site conditions do not appear to pose a significant threat to those pathways, based on past investigation results and remediation activities.

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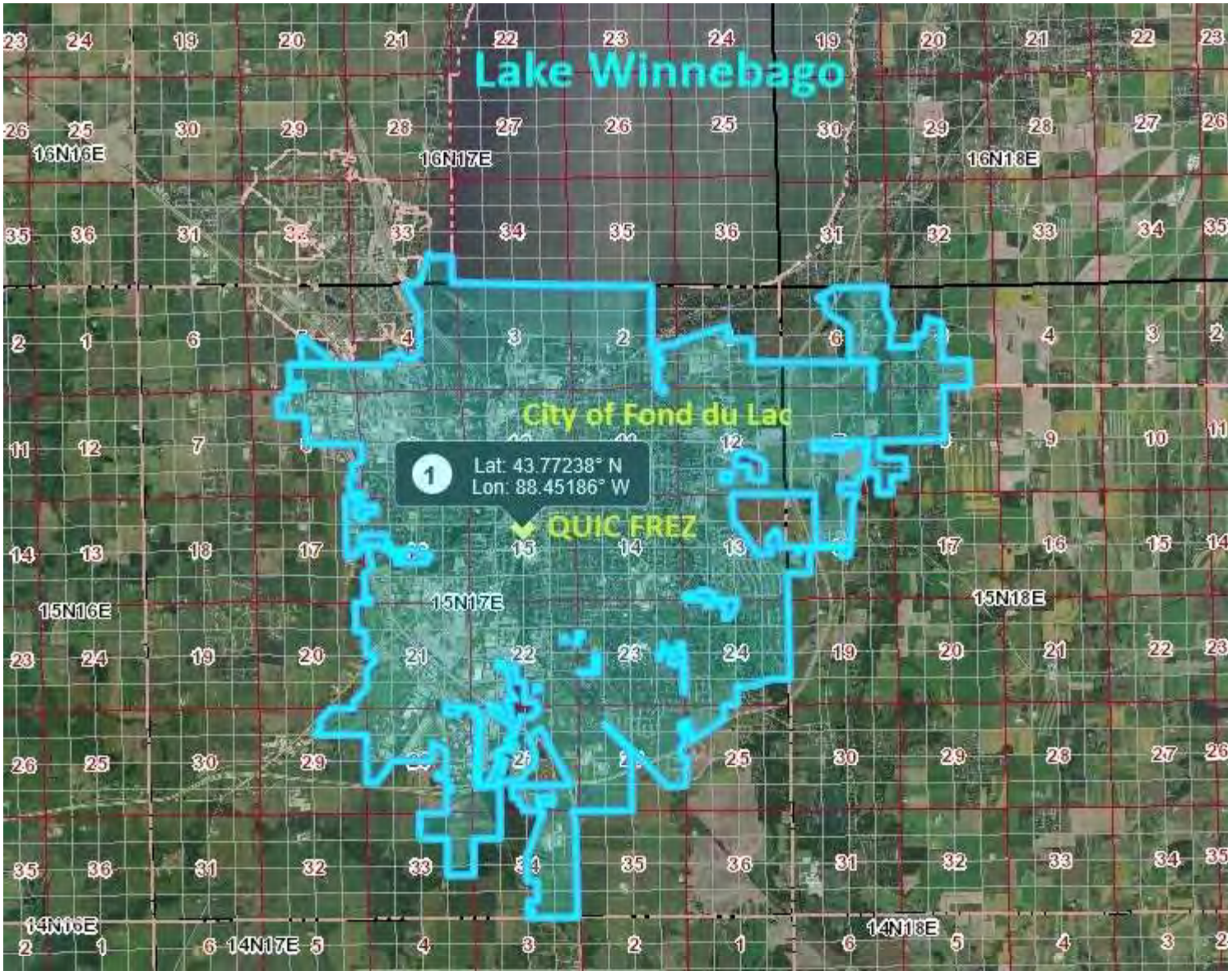
FIGURES

Figure 1. Location Map - Quic Frez Site



Legend

- PLSS Townships
- PLSS Sections
- PLSS Q-Q Sections

3.0 0 1.50 3.0 Miles

NAD_1983_HARN_Wisconsin_TM

1: 95,040

Note: Not all sites are mapped.

Notes

WISCONSIN DEPT. OF NATURAL RESOURCES

FIGURE 2. Quic Frez Site & Surroundings

Legend

0.1 0 0.03 0.1 Miles

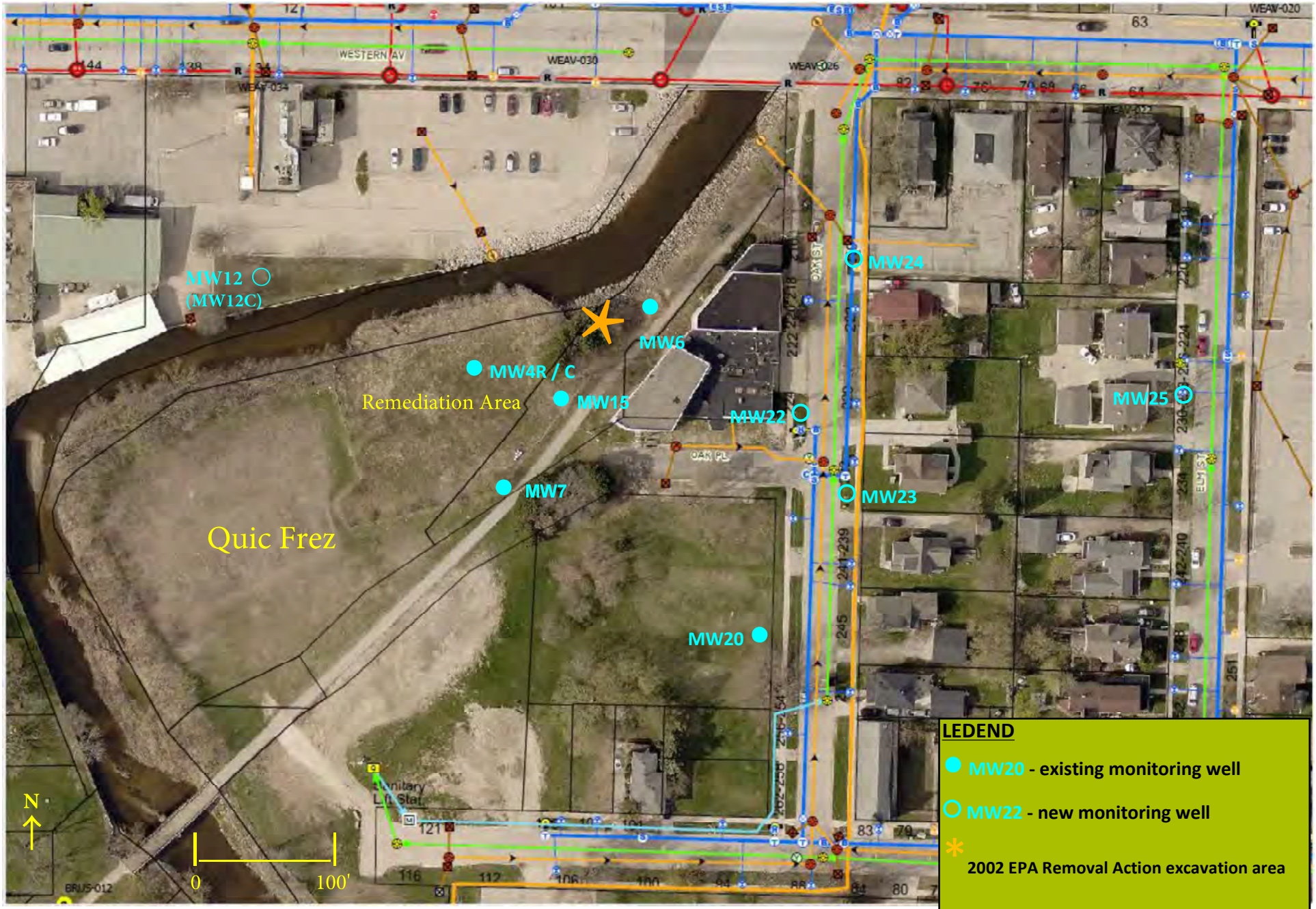
NAD_1983_HARN_Wisconsin_TM

1: 1,980

Note: Not all sites are mapped.

Notes

FIGURE 3. Monitoring Well Sampling Locations - Quic Frez Site



Underground utilities map obtained from City of Fond du Lac
(blue - water lines, green - sanitary sewers, orange w/ arrows - storm sewers, thick orange & red - fiber optic & electric lines).

FIGURE 4. Public Water Supply Well Locations - Quic Frez Site

[Not For Public Viewing; submitted to the USEPA as a separate document]

TABLES

Table 1. Water Supply Wells near the Quic Frez Site

Zone (miles)	Number of Wells	WUW #	Hi-Cap. Well #	Owner	Well Classification	Pumping Capacity	Status
0 - 0.25	**0**	--	--	--	--	--	--
0.25 - 0.5	**1**	BF064	71141	Manufacturing company	NPP / Indust.	H	A
0 - 1.0	**3**	BF798	78467	Municial well	MC	H	A
		BF797	78466	Municial well	MC	H	A
		HJ164	46808	Food processing company	NTNC	H	A
1.0 - 2.0	**7**	BF799	78468	Municial well	MC	H	A
		BF801	78470	Municial well	MC	H	A
		BF796	78465	Municial well	MC	H	A
		BF800	78469	Municial well	MC	H	A
		YJ236	74117	Municial well	MC	H	A
		YN107	92045	Municial well	MC	H	A
		BF802	78471	Municial well	MC	H	A
2.0 - 3.0	**18**	MM022	--	Gas station & convenience store	TNC	L	A
		PR793	--	Bar & grill	TNC	L	A
		FD244	--	Bar	TNC	L	A
		RP405	3946	Subdivision pond	NPP	H	A
		XZ329	92748	Apartment complex	NTNC	L	A
		ZW818	92749	Apartment complex	NPP / Irrig.	L	A
		BF804	78473	Municial well	MC	H	A
		YB944	--	Aqua park	TNC	L	A
		BO919	--	Financial company	NTNC	L	A
		IW536	--	Gas station & convenience store	TNC	L	A
		TE975	68006	Golf course	NPP / Irrig.	H	A
		BC066	9404	Golf course	NPP / Irrig.	H	A
		BF805	78474	Municial well	MC	H	A
		YP877	78476	Municial well	MC	H	A
		BP041	--	Mobile home park	OTM	L	A
		UT257	--	Mobile home park	OTM	L	A
		BF811	78479	Municial well	MC	H	A
		BF810	78480	Municial well	MC	H	A
3.0 - 4.0	**15**	GO172	--	Bar	TNC	L	A
		BP024	--	Bar & grill	TNC	L	A
		BP039	--	Park	TNC	L	A
		BF808	?	Municial well	MC	H	A
		BF803	78472	Municial well	MC	H	A
		AY377	1062	Municial well	MC	H	A
		BF806	78475	Municial well	MC	H	A
		GO185	--	Sports complex	TNC	L	A
		DP067	--	Bar	TNC	L	A
		GQ037	--	Golf course	TNC	L	A
		--	9409	Golf course	NNP / Irrig.	L	A
		CW956	9408	Golf course	NNP / Irrig.	H	A
		BF820	78489	Municial well	MC	H	A
		BO918	--	Railroad company	NTNC	L	A
		HS715	--	Bar	TNC	L	A

Notes: **Source: WDNR Water Withdrawal Location Viewer (5/13/21)**

WUW # = Wisconsin unique well number

PWS = public water supply

MC = municipal community

OTM = other-than-municipal commununity

NTNC = non-transient non-community

TNC = transient non-community

NPP - non-potable private

Irrig. = irrigation; Indust. = industrial

H = Hi-Cap. = high-capacity well; >70 gallons/minute

L = Low-capacity well; <70 gpm.

Table 2. Population Distribution within a 4-Mile Radius of the Quic Frez Site

Radius	0-0.25 Mile	0.25-0.5 Mile	0.5-1 Mile	1-2 Miles	2-3 Miles	3-4 Miles	Total
Residential Population	1202	3,258 / 4,460	11,863 / 16,323*	21,546 / 37,869*	7,625 / 45,494*	6,836 / 52,330*	52,330
Residential Households	408	1,391 / 1,799*	5,024 / 6,823*	9,263 / 16,086*	3,165 / 19,251*	2,469 / 21,720*	21,720

* Accumulating total.

Source: MCDC (Reference __)

Table 3. Groundwater Analytical Results - Volatile Organic Compounds (VOCs), Quic Frez Site

VOCs	CAS #	CRQL	MW04R	MW04C	MW06	MW07	MW15	MW20	MW22	MW101	MW23	MW24	MW25	MW102	TB01	MW12	U.S. EPA Maximum Contaminant Level (MCL)	Wisconsin Enforcement Standard (ES)	Adjusted (1) Maximum Release Concentration	Adjusted (1) Maximum Background Concentration	Ratio: Adj. Max. Release Conc. to Adj. Max. Background (1)
			release	release	release	release	release	release	release	release	release	release	release	release	trip blank	background					
			4/13/21	4/13/21	4/13/21	4/13/21	4/13/21	4/13/21	4/13/21	4/13/21	4/13/21	4/13/21	4/13/21	4/13/21	4/13/21	4/13/21					
			E4543	E4544	E4545	E4546	E4548	E4549	E4550	E4551	E4552	E4553	E4554	E4555	E4556	E4547					
Vinyl chloride	75-01-4	5.0	4400	5.0 U	5.0 U	ns	~~1.5~~ ~~J~~	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	2	0.2	4400	nd	>Bg CRQL
1,1-Dichloroethene	75-35-4	5.0	2500 U	5.0 U	5.0 U	ns	5.0 U	~~0.60~~ ~~J~~	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	7	7	*	nd	*
Acetone	67-64-1	10.0	5000 U	10 U	10 U	ns	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	**7.8 J**	10 U			--	0	---
trans-1,2-Dichloroethene	156-60-5	5.0	**590 J**	5.0 U	5.0 U	ns	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	100	100	**59**	nd	>Bg CRQL
cis-1,2-Dichloroethene	156-59-2	5.0	**280000**	5.0 U	5.0 U	ns	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	70	70	**280000**	nd	>Bg CRQL
Chloroform	67-66-3	5.0	2500 U	5.0 U	~~2.5~~ ~~J~~	ns	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	--	6	*	nd	*
Carbon tetrachloride	56-23-5	5.0	2500 U	5.0 U	~~4.4~~ ~~J~~	ns	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5	5	*	nd	*
Benzene	71-43-2	5.0	2500 U	5.0 U	5.0 U	ns	~~0.58~~ ~~J~~	5.0 U	5.0 U	5.0 U	~~0.58~~ ~~J~~	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5	5	*	nd	*
Trichloroethene	79-01-6	5.0	**69000**	5.0 U	**5.7**	ns	~~1.7~~ ~~J~~	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5	5	**69000**	nd	>Bg CRQL
Toluene	108-88-3	5.0	2500 U	5.0 U	5.0 U	ns	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**0.61 J**	5.0 U	1000	800	--	nd	---
1,2,4-Trichlorobenzene	120-82-1	5.0	2500 U	5.0 U	~~0.56~~ ~~J~~	ns	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	70	70	*	nd	*

Notes:

Concentrations in micrograms/liter (ug/L).

CRQL - contract required quantitation limit.

CAS # - chemical abstracts service number

release monitoring well in or near contaminant source area.

background shallow (water table) monitoring well on opposite side of river.

MCL - U.S.EPA National Primary Drinking Water Regulations (https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations).

ES -§NR140, Wis. Administrative Code.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J - The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

~~1.5 J~~ - Purple & strikethrough indicates that the J-qualified value was less than the analyte's CRDL and cannot be used to document an observed release, per the EPA Quick Reference Fact Sheet "Using Qualified Data to Document an Observed Release and Observed

ns - not sampled.

(1) - Laboratory-qualified results were adjusted upward or downward, if/as applicable, by the analyte-specifc facors and procedures in U.S.EPA quick reference fact sheet EPA 540-F-94-028.

>Bg CRQL - Dashed border & ">Bg CRQL" indicate the adjusted (if applicable) analyte release concentration is greater than the analyte background concentration, which is below the CRQL.

***** Adjusted maximum concentration less than background CRQL and not used to establish an observed release.

APPENDIX A

Monitoring Well Installation

And

Groundwater Sampling Photographs

EPA ID: WIN000508296		
FID #: 998314900		
Page		**1 of 6**
1	**Date:**	**12/15/20**

Photograph of monitoring well MW22 installation, looking southwest.

2	**Date:**	**12/15/20**

Photograph of monitoring well MW22, looking north.

3	**Date:**	**12/15/20**

Photograph of monitoring well MW23, looking west-northwest. Quic Frez fenced remediation area is at end of road and behind 2-story building.

EPA ID: WIN000508296		
FID #: 998314900		
Page		**2 of 6**
4	**Date:**	**12/15/20**

Photograph of monitoring well MW23, looking east-northeast.

5	**Date:**	**12/15/20**

Photograph of monitoring well MW24 installation, looking northeast.

6	**Date:**	**12/15/20**

Photograph of soil core from monitoring well MW24; typical geology of all the new wells drilled.

EPA ID: WIN000508296		
FID #: 998314900		
Page		**3 of 6**
7	**Date:**	**12/15/20**

Photograph of monitoring well MW24 installation, looking southeast.

8	**Date:**	**12/15/20**

Photograph of monitoring well MW25 installation, looking northwest.

9	**Date:**	**12/15/20**

Photograph of monitoring well MW25, looking west.

EPA ID: WIN000508296		
FID #: 998314900		
Page		**4 of 6**
10	**Date:**	**4/13/2021**

Photograph of sampling trailer and staging area, looking northwest. Drums inside Quic Frez remediation area fence (left-center of photograph) contain drilling soil & well purge water.

11	**Date:**	**4/13/2021**

Photograph of monitoring well MW4R sampling, looking northwest.

12	**Date:**	**4/13/2021**

Photograph of monitoring well MW4C sampling, looking northwest.

EPA ID: WIN000508296		
FID #: 998314900		
Page		**5 of 6**
13	**Date:**	**4/13/2021**

Photograph of monitoring well MW6 sampling, looking northwest.

14	**Date:**	**4/13/2021**

Photograph of monitoring well MW15 sampling, looking northwest.

15	**Date:**	**4/13/2021**

Photograph of monitoring well MW20 sampling, looking south.

EPA ID: WIN000508296		
FID #: 998314900		
Page		**6 of 6**
16	**Date:**	**4/13/2021**

Photograph of monitoring well MW23 sampling, looking east.

17	**Date:**	**4/13/2021**

Photograph of monitoring well MW24 sampling, looking southwest.

18	**Date:**	**4/13/2021**

Photograph of monitoring well MW25 sampling, looking south.

APPENDIX B

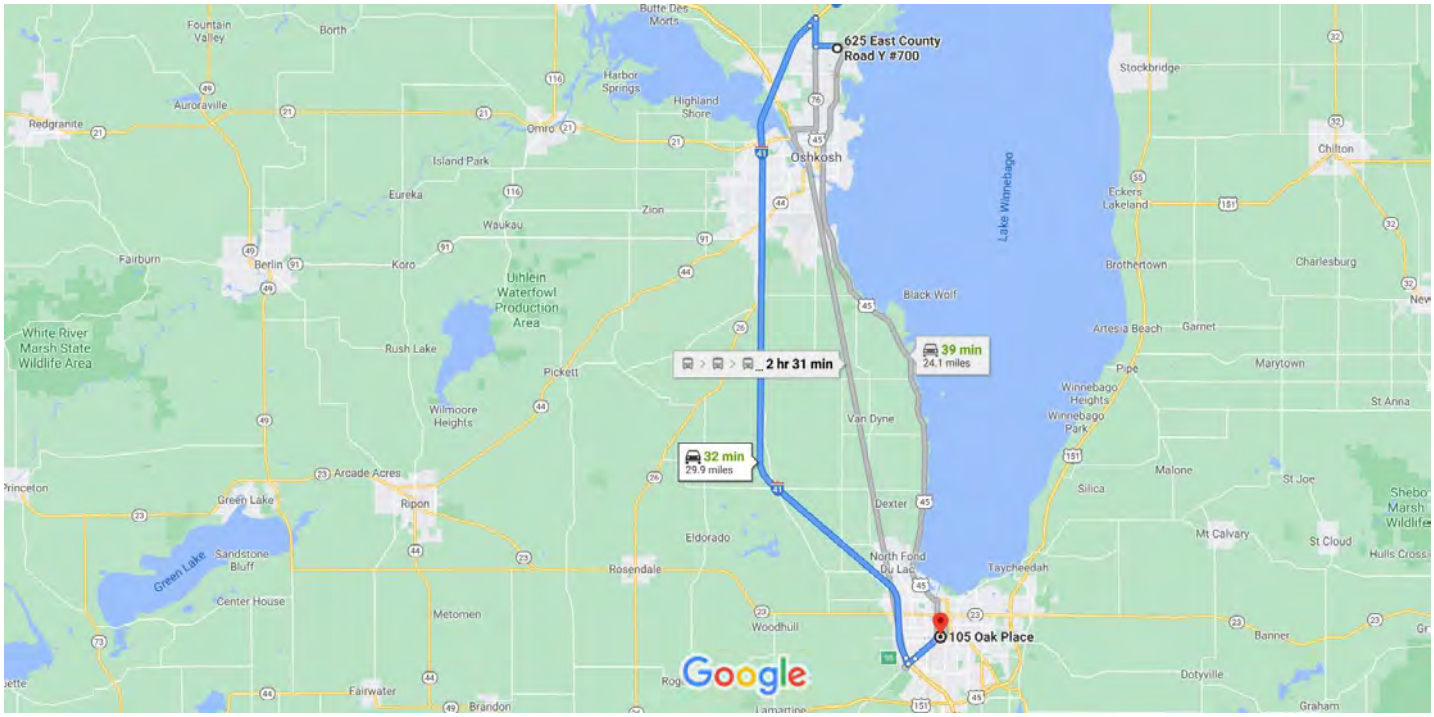
Reference Documents
(or portions of)

Reference 1

Google Maps

625 E County Rd Y #700 to 105 Oak Place, Fond du Lac, WI

Drive 29.9 miles, 32 min



Map data ©2021 2 mi

625 E County Rd Y #700

Oshkosh, WI 54901

Get on I-41 from E County Rd Y/E Sunnyview Rd and WI-76 N

5 min (2.2 mi)

1. Head northwest toward E County Rd Y/E Sunnyview Rd

381 ft

2. Turn left onto E County Rd Y/E Sunnyview Rd

0.8 mi

3. Turn right onto WI-76 N

1.0 mi

4. Turn left onto the I-41 S ramp to Milwaukee

0.4 mi

Follow I-41 to S Military Rd in Fond du Lac. Take exit 98 from I-41

22 min (25.9 mi)

5. Merge onto I-41

25.7 mi

6. Take exit 98 for Military Rd

0.2 mi

Continue on S Military Rd. Drive to Oak Pl

5 min (1.8 mi)

7. Turn left onto S Military Rd

0.3 mi

8. At the traffic circle, take the 2nd exit and stay on S Military Rd

1.2 mi

9. Turn right onto Western Ave

0.2 mi

10. Turn right onto Oak St

328 ft

11. Turn right onto Oak Pl

171 ft

105 Oak Pl

Fond du Lac, WI 54935

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Reference 2

SUPERFUND SITE REASSESSMENT REPORT

QUIC FREZ
City of Fond du Lac, Wisconsin
EPA ID WI~~D~~N 000508296

Prepared by:
Wisconsin Department of Natural Resources
Northeast Region

January 2011

Prepared by: Date: June 2, 2011

Kathleen M. Sylvester, Hydrogeologist
Oshkosh Service Center
Wisconsin Department of Natural Resources

Reviewed by: Date: June 2, 2011

Annette Weissbach, Hydrogeologist
WDNR Site Assessment Team
Northeast Region Office – Green Bay

Approved by: _____ Date: _____

David Brauner
Site Assessment Manager
Division of Superfund
U.S. Environmental Protection Agency

TABLE OF CONTENTS

APPENDICES

Appendix A Figures

Appendix B Tables

Abbreviations/Acronyms:

bgs = below ground surface
cfs = cubic feet per second
cisDCE = cis 1,2 Dichloroethene
EPA = U.S. Environmental Protection Agency
ES = NR 140 Enforcement Standard
GEMS = Groundwater Environmental Monitoring System
mg/kg = milligrams/kilogram
OCA = Other Clean-up Action
PA/SSI = Preliminary Assessment/Screening Site Inspection
PAL = NR 140 Preventative Action Limit
PCE = Tetrachloroethene (aka Perchloroethene)
ppbV = Parts per billion by volume
QF = Quic Frez
RSL = Risk Screening Level
SR = Site Reassessment
SSRCL = Site Specific Residual Contaminant Level
TCE = Trichloroethene
ug/kg = micrograms per kilogram
ug/L = micrograms per Liter
VOCs = Volatile Organic Compounds
WAC = Wisconsin Administrative Code
WDHFS = Wisconsin Department of Health & Family Services
WDNR = Wisconsin Department of Natural Resources

1.0 INTRODUCTION

Under authority of the Comprehensive Environmental Response Compensation Liability Act of 1980 (CERCLA), and the Superfund Amendments and Reauthorization Act of 1986 (SARA), the Wisconsin Department of Natural Resources (WDNR) was tasked by the United States Environmental Protection Agency (EPA) to conduct a Site Reassessment (SR) as part of the FY '10-11 Cooperative Agreement of the former Quic Frez Site (EPA ID #WI~~D~~N 000508296). A Site Reassessment is performed for the purpose of gathering and evaluating new information on a facility previously assessed under the Federal Superfund Program to determine whether future Superfund actions are warranted.

The intent of the Site Reassessment action is to document the use of Superfund resources on older facilities where the EPA has received new information or learned that facility conditions have changed. This new action is also used to record further assessment decisions made after reviewing the new facility information. The purpose of this Site Reassessment is to assess the regulatory decisions made to date, make determinations regarding future response actions, and a review of the facility status under the Federal Superfund Program. The scope of this Site Reassessment included a file review, facility reconnaissance, groundwater sampling, decision-making, and report writing.

A Preliminary Assessment (PA) was submitted to EPA on November 18, 2003 (Reference 1).

2.0 PROPERTY OWNERSHIP AND OPERATOR

The former Quic Frez Site (QF) was owned and operated by Quic Frez Incorporated until 1969. The property is currently owned by the City of Fond du Lac. More detailed information is provided in Section 4.

3.0 PROPERTY DESCRIPTION

3.1 Physical Features

Quic Frez is part of a 4.1 acre parcel of land located in part of section 15, T15N, R17E, City of Fond du Lac in Fond du Lac County, Wisconsin. The regional location of the site is shown on Figure 1 in addition to an aerial view of the site (Reference 2). The site address is 105 Oak Place in the City of Fond du Lac and includes lots 6 through 18, Darlings Subdivision Block R, Original Plat of the City of Fond du Lac (Reference 3). The site is physically bounded on the north, west and southwest by the East Branch of the Fond du Lac River and on the east and southeast sides by Oak Street and South Street respectively (Figure 2).

As described in a "Removal Action Summary Report, Quic Frez Site" document prepared by TN & Associates, Inc., for the U.S. Environmental Protection Agency (EPA) and dated July 8, 2002, the Coordinates for the site are 43° 46' 18.0" North latitude and 88° 27' 08.0" West longitude (Reference 1).

The climate of Fond du Lac County is continental and characterized by cold to very cold winters and mild to warm summers. The average winter temperatures are 15º to 30º F and average summer temperatures range from 67º to 72º F (Reference 4). The average annual precipitation is 31 inches. The prevailing winds are from the west in the winter and the southwest for the remaining seasons.

3.2 Surrounding Land Use

The site was zoned commercial and is located in the City of Fond du Lac on the very south end of Lake Winnebago. The east Branch of the Fond du Lac River flows along the north and west sides of the property. Residential and commercial properties are located to the north, a sewerage pump house and residential properties are located to the south and commercial properties are located to the east (with residential properties located beyond).

In 1997, the site consisted of a three story main production building on the north side of the property, a two level metal sided warehouse on the southwest side of the property and a two-story concrete block building on the southeast side of the property (Reference 1). Currently the property is vacant except for the small remediation shed (Figure 1 - aerial).

3.3 Geology/Hydrogeology

The QF site is located near the south end of Lake Winnebago (within two miles) and adjacent to the East Branch of the Fond du Lac River. Glacial drift as much as 100 feet thick or more exists in the area. The Quic Frez site lies near the western margin of the pre-glacial Fox River Valley. Bedrock likely lies between 50 and 100 feet deep at the site. Bedrock in the area typically is overlain by 40 to 60 feet of brown to blue-gray clay and silt with much gravel and cobbles (Horicon Formation). A red-brown clay and silt of the Kewaunee Formation (Kirby Lake Member) overlies the Horicon Formation and varies from 20 to 50 feet thick. Potable water in the area is generally obtained from the Cambrian-Ordovician sandstone and dolomite units that are hydraulically connected and are called the sandstone aquifer found below the glacial undifferentiated soils above.

Shallow groundwater within the glacial drift is found between 4 to 6 feet below ground surface and probably flows to the north towards the East Branch of the Fond du Lac River. Shallow groundwater in the entire area is locally influenced by natural and man-made structures (rivers and sewers). Horizontal groundwater gradients are relatively flat. Vertical groundwater gradients are large measuring from 60 to 120 percent in a negative direction (downward) (Reference 1).

4.0 PROPERTY HISTORY

The following history of the site is contained in References 1 and 5.

1884 through 1892: During this time, residential dwellings existed on the property.

1899 through 1908: During this time, properties south of Oak Place were occupied by residential dwellings and the property north of Oak Place was operated by Bowen Manufacturing Company (furniture manufacturer). An outside lumber storage area, dry kilns, woodworking shops, power house, furniture set room machine shop, tin shop and glue room were located on the north side of the river. The Company's warehouse was located on the south side of the river. By 1908, Bowen Manufacturing Company was non-operational.

1915: A Sanborn Map for this timeframe indicates the QF site was operated by the Fond du Lac Furniture Company which was located on the north side of the railroad and Oak Place. The plant was similar in layout to the Bowen Company except there were no buildings across the river.

1927 through 1950: Sanborn Maps indicate the site was operated by the Sanitary Refrigerator Company. At this time an additional finished product warehouse was constructed south of the railroad, along the river. Surrounding properties as of 1921 were residential. Two paint booths were added in 1950.

1955: Sanitary Refrigerator became Quic Frez Incorporated which made refrigeration units. Operations included painting and use of solvents.

1965: The property is listed as vacant in City directories.

1969: The property was operated by Kiekhaefer Mercury Sign as a factory and warehouse.

1971: A portion of the warehouse was used as a paint booth.

1976: The buildings on the QF site were occupied by Mercury Marine Corporation, Hayward Tires, and a paint and body shop.

1997: The QF site was used for storage by First & Portland Corporation.

5.0 REGULATORY HISTORY AND PREVIOUS INVESTIGATIONS

February 4, 1997: Miller Engineers Scientists (Miller) submits a "Phase I and II-Environmental Assessment Quic Frez Complex" report to the City of Fond du Lac (Reference 5). Five areas of concern were noted in the report:

- pipes in the building are likely to contain asbestos: testing and proper removal was recommended,
- a railroad crossing on the property was a concern because of the likely potential for spills and leaks,
- ash in the chimney of the north production building was likely hazardous material,
- soil and groundwater samples from the northeast corner of the production building indicated that contamination exists in that area and,
- contamination might exist in the northwest area of the production building as well.

February 28, 1997: The Wisconsin Department of Natural Resources (WDNR) sent the responsible party (RP) a letter indicating that the WDNR had been notified about contamination on the property and identified the RP's legal responsibilities and what steps to take to investigate and clean up the site (Reference 6).

September 30, 1999: Miller prepared a report entitled "*Remedial Investigation/Remedial Action Plan Report* Former Quic Frez Complex". The report notes that eight soil borings were completed and four of the borings were converted into water table observation wells. Sampling activities noted the presence of petroleum compounds, chlorinated solvents and metals. There was a low risk to potential receptors; therefore, it was proposed to excavate shallow contaminated areas and to backfill with clay. Installation of two more monitoring wells (upgradient and down gradient) along with natural attenuation was proposed as a cleanup remedy (Reference 7).

September 28, 2000: The City of Fond du Lac acquires the property by condemnation during a City Council meeting (Reference 8).

October, 2000: Fire breaks out at the main facility. The massive amounts of water used in fighting the fire was suspected of causing a river retaining wall to collapse (Reference 9).

December 11, 2001: Miller prepares "Emergency Action/Site Investigation" report and proposes (to WDNR) to install eight soil borings along the river with temporary wells in each boring and to collect samples from monitoring wells MW-1, MW-1A and MW-2. Miller also proposed is to excavate shallow (contaminated) soils and backfill with two feet of clean clay fill (Reference 10).

December 12, 2001: Miller meets with WDNR to discuss sampling results (Reference 10), riverbank stabilization approaches, plus additional site investigations.

February 22, 2002: Miller proposes (to WDNR) to install 18 additional borings (15 well nests [six water table wells, five piezometers to 30 feet below ground surface, four piezometers to 45 feet below ground surface, plus three water table wells to be located on the east side of the facility (Reference 11).

February 28, 2002: WDNR notified EPA about a petroleum spill on the East Branch of the Fond du Lac River. EPA and a Superfund Technical Assessment and Response Team (START) mobilized to the site on February 28, 2002.

March 1, 2002: EPA obligated funds for removal work (Reference 9).

March 5, 2002: Draft EPA Pollution Report is issued (Reference 9).

March 6, 2002: WDNR formally requested EPA removal assistance for QF (Reference 12).

March 25, 2002: EPA Pollution Report. Site soils were removed and replaced on March 14th and 15th, 2002 (Reference 13).

May 22, 2002: Final EPA Pollution Report. Seven hundred fifty tons of contaminated soil removed from the riverbank area and disposed of at the Hickory Meadows Landfill in Hilbert, WI. Two hundred twenty tons of contaminated soils were removed from the northeast side of the property and disposed of at the Hickory Meadows Landfill (Reference 14).

July 8, 2002: TN & Associates submits "Removal Actions Summary Report" to EPA. Reiterates and formally presents what was indicated in the May 22, 2002 Pollution Report (Reference 15).

August 2, 2002: WDNR begins a state-funded remedial action at the QF site.

December 13, 2002: Miller submits (to WDNR) a "Remedial Action Options Report". Evaluated; a) Source Area Excavations, b) Groundwater Recovery Trenching, c) Dual Phase High Vacuum Extraction, d) Electro-Thermal Dynamic Stripping Process (ET-DSP™), and
e) Electroosmosis with Permeable Reactive Barriers (LASAGNA™) techniques. Final recommendation was to implement the LASAGNA™ technique (Reference 16).

January 31, 2003: Miller presents (to WDNR) "Exploration for Tank - Southwest Petroleum Area" report. Test pits were performed around borings B-27, B-33 and B-37 to look for a buried tank. None was found. One hundred ninety four tons of contaminated soil was removed and taken to Hickory Meadows Landfill for disposal (Reference 17).

July 23, 2003: Miller presents (to WDNR) "Site Investigation Report, Former Quic Frez Complex" report. This report summarizes all previous investigative activities at the site and notes that there are three general areas of soil contamination (from west to east) on the Quic Frez property adjacent to the river on the side of the site; a) mixed generally shallow petroleum (fuel oil) and moderate levels of TCE contamination, b) very high levels of TCE at depth and, c) high levels of TCE within four feet of the surface and decreasing with depth (Reference 18).

November 10, 2003: WDNR submits PA to EPA. EPA approves the PA on December 3, 2003 (Reference 1).

November 2003: WDNR finalizes the "Additional Site Investigation Scope of Work" and contracts with Miller for implementation (Reference 19).

March 17, 2004: WDNR approves a Grading Permit for implementation of work at the QF site (Reference 20).

March 22, 2004: WDNR Water Resources staff, Tom Janisch, provides comments to RR program regarding sediment work at the site (Reference 21).

April 2004: Additional site investigation is performed by Miller. Twenty-one soil borings and sixteen new monitoring wells are installed. Sediment samples from the river were also collected. Very high levels of TCE and degradation products were detected in groundwater at locations MW-1, MW-4, MW-5, and MW-13 (Reference 22).

July 1, 2004: Per State Funded Response requirements, a NR 722.13 Wis. Adm Code (WAC) Remedial Action Options Report is prepared by the WDNR's Project Manager for approval by WDNR's upper Management (Reference 23).

July 21, 2004: Waiver for Bidding is requested from the Governor's Office to allow for implementation of remedial option #2 Expanded Lasagna™ (Reference 24).

August 30, 2004: On behalf of the WDNR, Miller submits the "Remedial Design Proposal" for the cost estimate to WDNR (Reference 25).

October 2004 – July 2005: Well monitoring, sampling, site preparation, and design plans continue (Reference 27).

October 3, 2005: WDNR receives the Construction Design Plans for the Lasagna™ system installation (Reference 28).

April 10, 2006: WDNR sends a letter of Liability Exemption to Robert and Connie Gross for groundwater impacts to their property located at 224 Oak Street, Fond du Lac, WI (Reference 29).

May 30, 2006: Construction work on installation of Lasagna™ system begins (Reference 30). WDNR contracts directly with Terran for the construction phase.

November 8, 2006: Lasagna™ system is turned on. Operation and Maintenance of the system begins (Reference 31) and Miller is contracted for this phase of remediation.

February 21, 2007: WDNR receives construction documentation from Terran (Reference 32).

June 6, 2007: WDNR received Remediation Status Report #1 from Miller (Reference 33) documenting a total of 31,523 gallons of groundwater infiltrated the system during the first quarter (November 8, 2006 to February 13, 2007). The most highly contaminated monitoring wells are MW-4R, MW-5R, MW-13R and MW-21; all exhibiting high concentrations of TCE, cisDCE, and vinyl chloride. The Lasagna™ system is operating well.

September 12, 2007: Status Report #2 is received and indicates the system is operating as expected (Reference 34).

November 1, 2007: Construction Report is received which included complete documentation of all aspects of the system installation, shoreline and river work, and monitoring operations (Reference 35).

November 14, 2007: Repair work done on the south anode and documented in a Technical Memorandum from Miller dated November 28, 2007 (Reference 36).

December 12, 2007: "Draft Remediation Status Report No. 4" documents the operation and maintenance of the system from August 15 through October 14, 2007 (Reference 37).

December 26, 2007: Technical Memorandum from Miller documenting the repair of the north anode (Reference 38).

March 5, 2008: WDNR receives "Remediation System Status Report No. 3" from Miller, which documents work and monitoring at QF from June through August 14, 2007. Soils were tested August 14-16 for verification and showed no consistent trends at this time (Reference 39).

March 20, 2008: "Remediation System Status Report No. 5" submitted to WDNR. It documents system operation and maintenance from November 7, 2007 through February 9, 2008. Groundwater concentrations generally show a decrease of contaminants in the Lasagna™ area (Reference 40).

June 12, 2008: Significant rains cause major flooding in the region. The QF site is inundated and surface repairs are planned.

July 16, 2008: Round 2 of the verification soil sampling was performed in June. Results indicate that concentrations are generally decreasing in soils (Reference 41).

July 29, 2008: Anode plates are again corroded and require additional repair work similar to 2007. Documentation is recorded in Technical Memorandum dated August 5, 2008 (Reference 42).

November 20, 2008: Additional repairs to the south anode are made (Reference 43).

December 19, 2008: Modifications to the system are proposed to enhance remediation in the hot spot area around monitoring well MW-4R (Reference 44).

February 4, 2009: WDNR staff meet to review and evaluate the remedial alternatives for the QF site (Reference 45).

May 7, 2009: Another corrosion issue with the south anode and Lasagna™ system had to be shut down. WDNR staff again review the alternatives and a decision is made to decommission the Lasagna™ system and monitor groundwater for another year (Reference 46).

May 27, 2009: Final verification soil sampling plan is submitted to WDNR (Reference 47).

June 30, 2009: Lasagna™ system is decommissioned.

July 14-21, 2009: Verification soil sampling is performed.

August 5, 2009: Air and water samples are taken from a sump in the building located at 224 Oak Street. Results indicate some groundwater exceedances of trichloroethene, vinyl chloride and carbon tetrachloride. No exceedances of vapor guidelines were found (Reference 48).

September 15, 2009: WDNR receives "Remediation System Status Report No. 6" from Miller. The report documents activities from February 9, 2008 through November 8, 2008 including groundwater monitoring, site repairs after flooding, anode repairs, and system maintenance. Total groundwater infiltrated by the system since startup is 218,000 gallons. The highest concentration of TCE in groundwater is still found in monitoring well MW-4R (Reference 49).

May 2, 2010: WDNR received final report from Miller titled "Operation and Maintenance Final Report – Lasagna™ Remediation System". The report includes site background, remedial design overview, construction, operational history, yearly summaries of the system and site activities, system decommissioning, sampling, and remedial evaluation. Terran calculated that approximately 2/3 of the original 6600 pounds of TCE has been destroyed (Reference 50).

June 29, 2010: WDNR receives Status Report No. 1 from BT Squared (BT2) which contains the quarterly groundwater data for the May 26-27, 2010 monitoring event, and also documents the sub-slab vapor work performed in the basement of the Bob Gross property (Reference 51). Except for a leased area on the first floor, the Gross property is a vacant commercial building with a basement below only two portions of the building. The results of this sub-slab vapor sampling indicate exceedances of the screening levels for TCE and Carbon Tetrachloride. [Note: this sub-slab work was performed as a recommendation based on the original sump air and water results of August 5, 2009.]

October 6, 2010: WDNR receives Status Report No. 2 from BT2 which contains the quarterly groundwater data for the August 25, 2010 monitoring event (Reference 52).

6.0 REVISED PATHWAY ANALYSIS

The purpose of this section is to conduct a revised pathway analysis to include new information regarding site conditions obtained since the Preliminary Assessment was conducted in 2003 (Reference 1). Environmental sampling conducted by the WDNR and its contractors in 2003 through 2010 established the presence of several exceedances of NR 140 WAC groundwater standards on the property. Impacts to targets have been identified and trends in groundwater contaminant concentrations over time have been established.

In 2006, the Lasagna™ remediation system was constructed in the area of highest contaminant levels. The system consisted of a central cathode row with an anode row 40' on either side (up- and downgradient) (Figure 7). This technology uses a direct current electric field to move contaminated groundwater through vertical "reactive treatment walls" containing iron filings in a kaolinite slurry. The system was started on November 8, 2006 and was originally planned to operate for 21 months. Actual operation time was approximately 30 months, and during that time the system failed four times due to extreme corrosion of various anodes in the array. The anodes were repaired and the system operated until spring 2009 when the system failed again. WDNR evaluated the long term repair and maintenance costs and determined that the system be decommissioned. After decommissioning of the system in 2009, the WDNR is continuing the groundwater monitoring in order to evaluate the post-remedial contaminant characteristics.

6.1 Analytical Results

Groundwater

The site is currently being monitored by sampling thirty groundwater monitoring wells (MW-1RR, MW-1A, MW-1B, MW-2, MW-4R, MW-4C, MW-5R, MW-5A, MW-5B, MW-6, MW-6A, MW-6B, MW-7, MW-7A, MW-7B, MW-8, MW-8A, MW-8B, MW-9, MW-10B, MW-11A, MW-11B, MW-12C, MW-13R, MW-14, MW-14A, MW-15, MW-15A, MW-16, and MW-16A) and one sump. The location of the monitoring wells and sump are shown on the site plan (Figure 2).

Historical groundwater analytical data (Tables 1 & 2) indicate the presence of volatile organic compounds (VOCs), semi-volatile organic compounds and metals at levels that are above the DNR Ch. NR 140 WAC Enforcement Standards (ES). These standards are similar, if not exactly equivalent to the Federal Drinking Water Standards for most compounds. The following is a summary of contaminants that have exceeded the ES in one or more monitoring wells at the site during the 2003 through 2010 sampling periods (Reference 53):

VOCs		Metals
Benzene	Chloroform	Lead
Carbon Tetrachloride	1,1 Dichloroethene	
cis- 1,2 Dichloroethene	trans-1,2 Dichloroethene	
Tetrachloroethene	1,1,2 Trichloroethane	
Trichloroethene	Vinyl Chloride	
Methylene Chloride	Trichloroethane	
Naphthalene		

In general, the Lasagna™ remediation system did reduce the concentrations of contaminants and/or enhanced reductive dechlorination; however, contaminant levels are still significantly higher than the acceptable standards. As an example, the pre- to post-remedial sample results for MW-13R (ug/L) (which is located in the hot spot) are as follows:

MW-13R	Pre-11/03/2006	During 09/10/08	Post-08/06/2009	Post-05/26/2010	Post-08/25/2010	Post-11/30/2010
TCE	58,000	14,000	9100	2400	180	<160
cisDCE	29,000	9200	5900	44,000	44,000	32,000
Vinyl Chloride	4000	310	145	550	390	14,000

These concentrations indicate that significant contaminants still remain and that there are still chemical reductions occurring at the site due to remaining active iron filings still present. The groundwater concentrations from various depths identified as Water Table (10′ screen from approximately 740′ – 750′ above mean sea level), A Zone (5′ screen from approximately 726′ to 731′ above mean sea level), B Zone (5′ screen from approximately 712′ to 717′ above mean sea level), or C Zone (5′ screen from approximately 704′ to 709′ above mean sea level) wells are shown on Figures 11, 12, 13, and 14. It is the shallow water table that is most impacted. Note that the degradation of TCE, cisDCE usually results in increasing concentrations of Vinyl Chloride which will attenuate eventually depending upon chemical, biological, and physical characteristics of the environment. Because the overall reduction in total VOCs levels may not correlate to decreased toxicity, additional groundwater monitoring is continuing at the site in order to evaluate natural attenuation and any other remedial efforts in the future.

Surface Water

Four surface samples were collected from the Fond du Lac River (adjacent to the site). Sample RS3 is located at the main site nearest MW-21, while RS1 is the furthest downstream and RS4 is the furthest upstream sample. No samples detected any contaminants of concern in the surface water (Table 3, Reference 52).

Soils

Trichloroethene (TCE) concentrations at the site are most highly concentrated in an area defined by borings B71, B73, and B91; where levels were as high as 1,000,000 to 3,000,000 µg/kg at depths between 5 and 15 feet BGS (Reference 50). These levels are indicative of residual TCE free product. A Soil Data Comparison Table depicting pre-remedial and post-remedial results is shown in Table 5 (Reference 50). [Note: Table 5 attempts to show pre-remedial borings adjacent to the post-remedial borings by depths. When comparing you need to compare similar depths against each other.]

The following is a summary of the significant contaminants present in soil:

Benzene	Xylene	Trichloroethene (TCE)
Ethylbenzene	Naphthalene	cis 1,2 – Dichloroethene (cisDCE)
Toluene	Tetrachloroethene (PCE)	Vinyl Chloride

Of all the VOCs present in soils and groundwater, the highest concentrations are those of the chlorinated VOCs (PCE, TCE, cisDCE, and vinyl chloride). The Lasagna™ system was effective at reducing the concentrations of these contaminants in soil. For example, the soils near monitoring well MW-13R show the following reductions of TCE (ug/kg):

Depth	B54 (pre-remedial 2007)	B83 (post-remedial 2009)
10′	1,300,000	220,000
15′	570,000	39,000
20′	58,000	109

During installation of MW-4C, which is a piezometer constructed to 60-foot depth, soils were highly contaminated from approximately 20′ to 50′ (Figure 15). After the on-going groundwater monitoring is performed for an additional year, further evaluation of additional remediation efforts will be completed.

Air

Subslab vapor samples were collected in the vacant basement located in the southwest corner of the property identified as the Former Gross Construction at 224 Oak Street (Figure 2 & 4). Results are shown in Table 6 (Reference 51). TCE concentrations at vapor probe VP-1, VP-2, and VP-3 exceed the USEPA Risk Screening Levels (RSLs) for non-residential occupancy. Carbon Tetrachloride at VP-3 exceed the USEPA RSLs for non-residential occupancy.

6.2 Groundwater Pathway

The results of past investigations of the QF site have documented major impacts to groundwater. The highest organic contaminant concentrations are found in monitoring wells MW-1, MW-4/4R, MW-4A (abandoned), MW-4B (abandoned), MW-5/5R, MW-5A, MW-13/13R, and MW-21 (Table 1). Groundwater flow is to the north toward the river (Figure 8).

The QF site is located in a commercial/residential area in the City of Fond du Lac limits. The 2009 estimated population of the City of Fond du Lac, Wisconsin is 42,340 people (Reference 55). The majority of the population within a 4-mile radius for groundwater (Figure 3) relies on municipal wells; however, the rural area population relies on private wells. There are 16 municipal water supply wells serving the City of Fond du Lac, the Village of North Fond du Lac, and the Maryhill Subdivision within a 4-mile radius of QF. Only one of these is less than a mile from the QF site at 0.6 mile distance: its total depth is 745′, cased into the Galena Platteville Dolomite at 116′ depth. This downgradient municipal well has never had any detects of VOCs (Reference 57). Seven wells are between 1 to 2 miles; five wells are between 2 to 3 miles; and three wells are between 3 to 4 miles from the site. The total population served by these wells is approximately 47,000 people (Reference 56). Contamination from the QF site is not expected to endanger these water supply wells due to soil type and distance.

Water supply sources from the census block data (Reference 56) identify the following information:

Distance from site→ / Population using ↓	0 – ¼ mile	¼ - ½ mile	½ – 1 mile	1 – 2 mile	2 – 3 mile	3 – 4 mile
Private wells	0	0	2	254	1545	2160
Municipal	930	3470	12740	20541	5131	3501
Surface Water	0	0	0	0	0	0

At this time, the groundwater impacts currently identified are unlikely to affect water supplies to the City of Fond du Lac and surrounding areas. Project management for continued monitoring will proceed under guidance from the WDNR Remediation & Redevelopment Program and NR 700 WAC.

6.3 Surface Water Pathway

The QF site is located on the East Branch of the Fond du Lac River. The Fond du Lac River Watershed is approximately 245 square miles. Land use is mainly residential with some commercial use. The average depth of the river during normal precipitation season is two to four feet, but can reach a depth of six feet during spring. Average flow is 165 cubic feet per second (Reference 54). The river flows

north into Lake Winnebago which is a source of drinking water for much of the surrounding communities. The City of Fond du Lac obtains its water from municipal groundwater wells.

The surface water intakes for the other nearby population centers are located within Lake Winnebago approximately 10 miles downstream of the QF site. While sediments in the river had been impacted according to previous reports; the massive flooding on June 12, 2008 flushed all the sediments out of the river and into Lake Winnebago. Past and recent sample results from surface water immediately downgradient of the QF site indicate there have been no impacts to surface water in the river. Therefore, current evaluation indicates that the surface water pathway is not considered a risk at this time.

6.4 Direct Contact Pathway

In May 2002, USEPA excavated a major portion of soils to a depth of four feet; and thus mitigated the threat to the direct contact pathway (Reference 50). The remaining waste mass is currently capped with soil and mowed grasses, and the property has restricted access. Therefore, based on site conditions the direct contact pathway is not considered at risk.

6.5 Air Pathway

An adjacent industrial building located at 224 Oak Street was sampled for VOCs in the subslab of the vacant basement (located in the southwest side of the building). A water sample from the sump was also collected (Reference 51) and detected 17 ug/L TCE. Results of the vapor sampling (Table 6) indicate some potential interference with products currently used within the building; however, there are some contaminants present in subslab vapors that may be related to the QF site e.g. TCE, cisDCE, and carbon tetrachloride. No odors were present during the site reconnaissance. No release of a hazardous substance to the air has been observed and there are no reports of adverse health effects from the property owners. Sub-slab analytical results indicate there are vapors in exceedance of the USEPA RSLs; however, the basement and a majority of the building are vacant and no significant threat to human health exists at this time. WDNR professional judgment based on the site specifics and pathway conditions concluded that a release of a hazardous substance to the air is not likely to be significant.

7.0 SUMMARY AND CONCLUSIONS

The Quic Frez site was an industrial facility which included furniture manufacturing, refrigeration manufacturing, and painting operations. A number of environmental investigations have been conducted on the property including an EPA Removal Action (2002) and a Preliminary Assessment (2003).

The extent of contamination from the QF site has been evaluated, and is determined to be present in the same general vertical and horizontal area in both soil and groundwater and the contaminant concentrations have been significantly reduced. Contaminant concentrations are continuing to be degraded by the remaining iron filings still present in the subsoil. Additional groundwater monitoring is needed to continue observation of the increasing vinyl chloride concentrations. This monitoring is on-going thru mid-2012.

Soil contamination in the highly impacted area around MW-4 and MW-13 will require additional assessment and likely remediation. Continued groundwater monitoring is also required. The additional work needed at the site will be scheduled as state funding allows. Due to the current property use of 224 Oak Street, vapors present below the building do not pose a risk at this time.

Further information on the QF site and actions taken to date may be obtained from the Remediation & Redevelopment Program at the WDNR Oshkosh Service Center.

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56. Population Density Raster, WDNR
57. 2010 Consumer Confidence Report, Fond du Lac Waterworks PWS ID 46004699

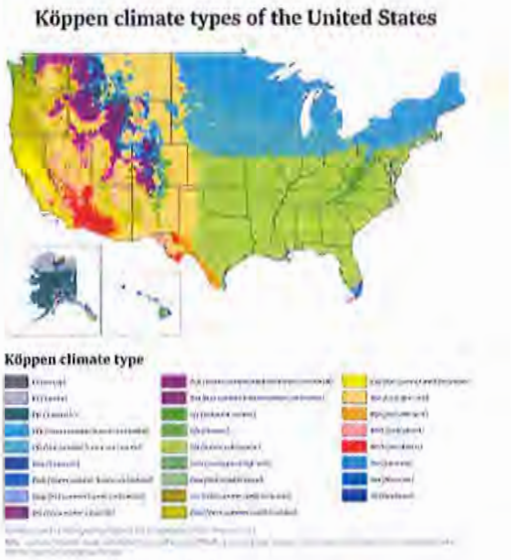
NOTE: The reports listed in this reference section are numerous and in most instances they are large reports so they are not included herein. The cover page for each reference accompanies this report. A complete copy of the reports can be found at the Wisconsin Department of Natural Resources (WDNR) Northeast Region office in Oshkosh, Wisconsin.

Reference 3

Climate of the United States

From Wikipedia, the free encyclopedia

The **climate of the United States** varies due to differences in latitude, and a range of geographic features, including mountains and deserts. West of the 100th meridian, much of the US is semi-arid to desert in the far southwestern US, and Mediterranean along the California coast. East of the 100th meridian, the climate is humid continental in the northern areas east through New England, to humid subtropical in the Gulf and South Atlantic regions. Southern Florida is tropical, as is Hawaii and the US Virgin Islands. Higher-elevation areas of the Rocky Mountains, the Wasatch, Sierra Nevada, and Cascade Range are alpine. The West Coast areas in coastal Oregon and Washington are oceanic climate. The state of Alaska, on the northwestern corner of the North American continent, is largely subarctic climate, but with a subpolar oceanic climate in the southeast (Alaska Panhandle), southwestern peninsula and Aleutian Islands.



Köppen climate types of the US

The primary drivers of weather in the contiguous United States are the seasonal change in the solar angle, the migration north/south of the subtropical highs, and the seasonal change in the position of the polar jet stream.

In the Northern Hemisphere summer the Subtropical high pressure systems move northward and closer to the United States mainland. In the Atlantic Ocean, the "Bermuda High" creates a south-southwest flow of warm, humid air over the eastern, southern and central United States - resulting in warm to hot temperatures, high humidity and occasional thunderstorm activity. In the Pacific Ocean high pressure builds toward the California coast resulting in a northwesterly airflow creating the typical sunny, dry, and stable weather conditions along the West Coast.

In the Northern Hemisphere winter, the subtropical highs retreat southward. The polar jet stream (and associated conflict zone between cold, dry air masses from Canada and warm, moist air masses from the Gulf of Mexico) drops further southward into the United States - bringing more precipitation and periods of disturbed weather, as well as colder or mild air masses. Areas in the southern US (Florida, the Gulf Coast, the Desert Southwest, and southern California) however, often have more stable weather, as the polar jet stream's impact does not usually reach that far south. Weather systems, be they high-pressure systems (anticyclones), low-pressure systems (cyclones) or fronts (boundaries between air masses of differing temperature, humidity and most commonly, both) are faster-moving and more intense in the winter/colder months than in the summer/warmer months, when the belt of lows and storms generally move into southern Canada.

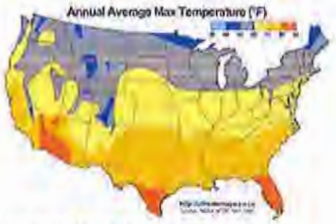
The Gulf of Alaska is the origination area of many storms that enter the United States. Such "North Pacific lows" enter the US through the Pacific Northwest, then move eastward across the northern Rocky Mountains, northern Great Plains, upper Midwest, Great Lakes and New England states. Across the central states from late fall to spring, "Panhandle hook" storms move from the central Rockies into the Oklahoma/Texas panhandle areas, then northeast toward the Great Lakes. They generate unusually large temperature contrasts, and often bring heavy Gulf moisture northward, resulting sometimes in cold conditions and possibly-heavy snow or ice north and west of the storm track, and warm conditions, heavy rains and potentially-severe thunderstorms south and east of the storm track - often simultaneously. Across the northern states in winter usually from Montana eastward, "Alberta clipper" storms track east and bring light to moderate snowfalls from the Great Lakes to New England, and often, windy and severe Arctic outbreaks behind them. When winter-season Canadian cold air masses drop unusually far southward, "Gulf lows" can develop in or near the Gulf of Mexico, then track eastward or northeastward across the Southern states, or nearby Gulf or South Atlantic waters. They often bring rain, but on rare occasions can bring ice to areas of the interior southern states.

In the cold season (generally November to March), most precipitation occurs in conjunction with organized low-pressure systems and associated fronts. In the summer, storms are much more localized, with short-duration thunderstorms common in many areas east of the 100th meridian. In the warm season, storm systems affecting a large area are less frequent, and weather conditions are more solar {sun} controlled, with the greatest chance for thunderstorm and severe weather activity during peak heating hours, mostly between 3 PM and 9 PM local time. From May to August especially, often-overnight mesoscale-convective-system (MCS) thunderstorm complexes, usually associated with frontal activity, can deliver significant to flooding rainfall amounts from the Dakotas/Nebraska eastward across Iowa/Minnesota to the Great Lakes states. From late summer into fall (mostly August to October), tropical cyclones sometimes approach or cross the Gulf and Atlantic states, bringing high winds, heavy rainfall, and storm surges (often topped with battering waves) to coastal areas.

Contents

Record one day precipitation by county between 1979 and 2011

Regional Overview



A map of the average annual high temperatures in the United States

Southwest

The Southwest has a hot desert climate, at lower elevations. Cities like Phoenix, Las Vegas, Yuma, and Palm Springs have average highs over 100 °F (38 °C) during the summer months and lows in the 60s. In winter, daily temperatures in the southwest are cooler with highs in the 50s and 60s, and lows in the 40s. Northern Arizona and New Mexico, central and northern Nevada and most of Utah (outside higher mountain areas) have a semi-desert climate, but with colder and snowier winters than points south due to higher elevations. As in other desert climates, the dry air results in large differences (sometimes over 40 F) between daytime high and nighttime low temperatures.

The coast of California has a Mediterranean climate. Daily high temperatures range from 70 to 80 °F (21 to 27 °C) in the summer to 50 to 65 °F (10 to 16 °C) in winter, with low temperatures from the 60 °F (16 °C)s in summer to the mid 40s F in winter. [citation needed]. Like most Mediterranean climates, much of coastal California has a wet winter and dry summer. Early summers can often bring cool, overcast weather (fog and low stratus clouds) to coastal California. As such, the warmest summer weather is delayed until August, even September in many areas of the California coast; on average, September is the warmest month in San Francisco, CA. Upwelling of cold Pacific waters also contributes to the frequent cool spring and early summer weather in coastal California. In California's inland river valleys (Bakersfield, Sacramento areas), the wet-winter, dry-summer pattern remains, but winters are cooler and more prone to occasional frost or freeze, while summers are much hotter, with blazing sunshine and daytime high temperatures not uncommonly in the 90s °F to over 100 °F (38 °C).

Gulf Coast/Lower Mississippi Valley/South Atlantic states

The Gulf and South Atlantic states have a humid subtropical climate with mostly mild winters and hot, humid summers. Most of the Florida peninsula including Miami and Jacksonville, along with other coastal cities like Houston, New Orleans, Savannah, Charleston and Wilmington all have average summer highs in the lower 90s F, and lows generally from 70 to 75 °F (21 to 24 °C); combined with moist tropical air, this creates the sultry summer weather conditions typical found here. In the interior South, in cities like Raleigh, NC, Atlanta, Birmingham, AL, Nashville TN, San Antonio, TX, and Jackson, average summer highs and lows are similar to coastal areas, white some areas of interior eastern Texas having highs in the upper 90s F. In winter, average daily high temperatures range from the 40 °F (4 °C)s (upper South: northern Arkansas, Kentucky and Virginia), to the 60 °F (16 °C)s along the Gulf Coast and South Atlantic coast (Charleston southward), with 70 °F (21 °C)s in central and southern Florida and far southern Texas. Average daily lows in winter range from 20 °F (−7 °C)s north to 40 °F (4 °C)s along the Gulf and far South Atlantic coasts, with 50 °F (10 °C)s in Florida and coastal south Texas.

Southern Florida has a tropical climate, with all months having a mean temperature of higher than 65 °F (18 °C), a wet season from May through October, and a dry season from November through April. In cities like Fort Lauderdale, Miami, Key West, Naples, and Palm Beach average daily highs range from the mid 70 °F (21 °C)s in winter to the upper 80 °F (32 °C)s in summer. Average overnight lows range from the upper 50 °F (10 °C)s in winter to the mid and upper 70 °F (21 °C)s in summer. Southern Florida is the warmest region of the US mainland in winter.

Southern Plains/lower Midwest/Middle East Coast

The region from the southern Plains, to the lower Midwest, eastward to the central East Coast (NYC/coastal Connecticut southward to Virginia) has a temperate climate, with cool to cold winters and long hot summers. Daytime highs range from 80 to 90 F in summer to 35 to 50 F in winter. Lows range from the 60's F in summer to 25 to 35 F in winter. Cities in this region include Wichita, Kansas, St. Louis, Springfield, Illinois, Indianapolis, IN, Columbus, Ohio, Pittsburgh, Philadelphia, Washington, D.C., Richmond, VA, New York City, New Haven,CT, and Atlantic City, NJ. Precipitation is spread fairly evenly throughout the year, though as one travels from Indiana westward there is an increasingly prominent early-summer concentration, with a May maximum in northern Texas and Oklahoma, and a June maximum increasingly evident from (central/northern) Indiana westward to Kansas. As one travels from east to west across Texas, Oklahoma and Kansas, average annual precipitation steadily decreases. Far western Texas (El Paso area) is desert, and average annual precipitation is less than 20 inches in westernmost Kansas and the Oklahoma Panhandle, where the climate qualifies as semi-arid.

In the lower Midwest (and southern Plains states, especially), temperatures can rise or drop rapidly; winds can be extreme; and clashing air masses, including hot, dry air of Mexican and/or Southwestern origin, warm, moist air from the Gulf of Mexico and cold, dry air from Canada can spawn severe thunderstorms and tornadoes, particularly from April to June. The "dryline," separating hot, dry air of Mexican/Southwestern U.S. origin from warm, moist air from the Gulf of Mexico, often causes severe, occasionally violent, thunderstorms to fire in central and eastern Texas, Oklahoma and Kansas; these sometimes contribute toward the hailstorms and tornado outbreaks the Southern Plains are well known for. Reflecting these air-mass conflicts, central Oklahoma, including the Oklahoma City and Norman areas, has the highest frequency of tornadoes per unit land area on planet Earth, with May the highest-risk month for tornadoes throughout "Tornado Alley," from northern Texas north-northeastward toward western and central Iowa.

Northern Great Plains/North-Central/Great Lakes/New England

The northern half of the Great Plains (Nebraska northward), northern Midwest, Great Lakes, and New England states have a humid continental climate. Here there are four distinct seasons, with warm to hot summers, and cold and often-snowy winters. Average daily high temperatures range from 10 °F (−12 °C)s (North Dakota/central and northern Minnesota) to 30 °F (−1 °C)s in winter to 70 to 80 °F (21 to 27 °C)s in summer, while overnight lows range from below 0 °F (−18 °C) in winter (in North Dakota and much of Minnesota) to 50 to 60 °F (10 to 16 °C)s in summer. In the New England states, precipitation is evenly distributed around the year, with a slight late fall-early winter (November–December) maximum along the New England coast from Boston, MA northward due to intense early-winter storms. In the Great Lakes states, cold Arctic air in winter crossing the relatively warmer lake waters can result in frequent and sometimes very heavy "lake effect" snow, especially on the eastern and southern shores of the Great Lakes (for example, in western Michigan's Lower Peninsula and in the Buffalo, NY area). Cities in this area include Minneapolis, MN, Omaha, NE, Sioux Falls, SD, Fargo,

Chicago, Cleveland, Buffalo, Albany, Boston, Concord, Augusta, Maine. As one travels from east to west across Nebraska, South Dakota and North Dakota, average annual precipitation steadily decreases, and the westernmost counties of these states have a semi-arid climate, with about or just over 15 inches of precipitation per year, on average (see climate data for Williston, ND, Rapid City, SD and Scottsbluff, NE).

In the upper Midwest and northern Plains states, temperatures may rise or fall rapidly, and winds (from warm-season thunderstorms or larger-scale low-pressure systems) can be strong to extreme. Here, air-mass conflicts primarily involve warm, moist air from the Gulf of Mexico, clashing with cool to cold, dry air from Canada, with only occasional intrusions of hot, dry air from the southwest. The conflicts between Canadian and Gulf air commonly produce severe thunderstorms (including hailstorms, especially on the western Plains) and tornadoes, particularly in May and June. In the northern Plains and North Central states generally, June is the year's wettest month on average, owing to maximum shower and thunderstorm activity. Also, June is the highest-risk month for severe weather throughout North Dakota, South Dakota, Minnesota, Iowa, Wisconsin and northern Illinois.[citation needed]

Pacific Northwest

The Pacific Northwest has a oceanic climate. The climate is wet and cool in autumn, winter, and spring, and stable and drier in the summer months, especially July and August. On average, the wettest month is typically November or December; the driest, July. In the summer months, average highs in cities like Seattle and Portland are from 70 to 79 °F (21 to 26 °C) with lows from 50 to 59 °F (10 to 15 °C), while in winter daily highs are from 40 to 49 °F (4 to 9 °C) and overnight lows from 30 to 39 °F (−1 to 4 °C).[citation needed]

In winter, the Pacific Northwest (especially coastal districts and other areas west, i.e. on the prevailing windward side, of the Olympic and Cascade mountain ranges), experiences a mostly overcast, wet and cool climate, but without severe cold like that found in the interior northern U.S. (i.e. Minnesota/North Dakota). At lower elevations, winter precipitation falls mostly as rain. However, snow does occur even at the lowest elevations, primarily when Pacific moisture interacts with cold air intruding into the Pacific Northwest from western Canada (i.e. Alberta and interior British Columbia). In Seattle, WA and Portland, OR, winter-season snowfall varies greatly from one winter season to the next; in Seattle, the average winter-season snowfall is about 7 inches. In January 1950 (also the coldest January and winter month in Seattle history), Seattle received an unprecedented monthly snowfall of over 57 inches. Summers in the Pacific Northwest are generally cool, especially along the coastline. The Great Basin and Columbia Plateau (the Intermontane Plateaus) are arid or semiarid regions, with high summer temperatures in the 90s to occasionally over 100 at lower elevations (e.g. at Boise, ID), with annual precipitation averaging less than 15 inches (380 mm) as a result of the rain shadow of the Sierra Nevada and Cascades. [citation needed]. Both coastal and interior areas of Oregon and Washington, and southern Idaho, have a wet-winter, dry-summer precipitation pattern, but traveling eastward into Montana and Wyoming, this transitions progressively toward relatively drier winters and a May and eventually June precipitation maximum, the latter characteristic of the Northern Plains and much of the upper Midwest (i.e. both Dakotas, Nebraska, Iowa and Minnesota).

Precipitation

The characteristics of precipitation across the United States differ significantly across the United States and its possessions. Late summer and fall extratropical cyclones bring a majority of the precipitation which falls across western, southern, and southeast Alaska annually. During the fall, winter, and spring, Pacific storm systems bring most of Hawaii and the western United States much of their precipitation.[1]

Average precipitation

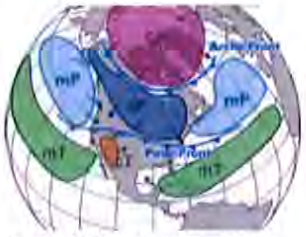
In the central and upper eastern United States, precipitation is evenly distributed throughout the year, although summer rainfall increases as one moves southeastward, until a sharp wet summer and dry winter prevail in Florida. Lake-effect snows add to precipitation potential downwind of the Great Lakes,[2] as well as Great Salt Lake and the Finger Lakes during the cold season. The average snow to liquid ratio across the contiguous United States is 13:1, meaning 13 inches (330 mm) of snow melts down to 1 inch (25 mm) of water.[3] The El Niño-Southern Oscillation affects the precipitation distribution, by altering rainfall patterns across the West, Midwest, the Southeast, and throughout the tropics.[4][5][6][7]

During the summer, the Southwest monsoon combined with Gulf of California and Gulf of Mexico moisture moving around the subtropical ridge in the Atlantic Ocean bring the promise of afternoon and evening thunderstorms to the southern tier of the country as well as the Great Plains.[8] Equatorward of the subtropical ridge, tropical cyclones enhance precipitation (mostly from August to October) across southern and eastern sections of the country, as well as Puerto Rico, the United States Virgin Islands, the Northern Mariana Islands, Guam, and American Samoa.[9] Over the top of the ridge, the jet stream brings a summer precipitation maximum to the Great Lakes. Large thunderstorm areas known as mesoscale convective complexes move through the Plains, Midwest, and Great Lakes during the warm season, contributing up to 10% of the annual precipitation to the region.[10]

Extremes

In northern Alaska, tundra and arctic conditions predominate, and the temperature has fallen as low as −80 °F (−62 °C).[11] On the other end of the spectrum, Death Valley, California once reached 134 °F (56.7 °C), officially the highest temperature ever recorded on Earth.[12]

On average, the mountains of the western states receive the highest levels of snowfall on Earth. The greatest annual snowfall level is at Mount Rainier in Washington, at 692 inches (1,758 cm); the record there was 1,122 inches (2,850 cm) in the winter of 1971–72. This record was broken by the Mt. Baker Ski Area in northwestern Washington which reported 1,140 inches (2,896 cm) of snowfall for the 1998-99 snowfall season. Other places with significant snowfall outside the Cascade Range are the Wasatch Mountains, near the Great Salt Lake and the Sierra Nevada, near Lake Tahoe.



Several different air masses affect the United States.

U.S. Climate Data

Reference 4

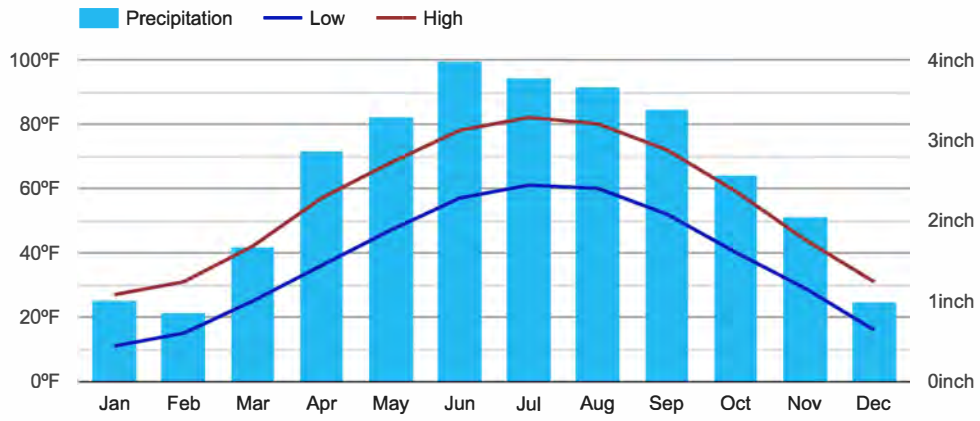
Monthly Daily History Geo

Climate Fond Du Lac - Wisconsin

	Ja (January)	Fe (February)	Ma (March)	Ap (April)	Ma (May)	Ju (June)
Hi	27	31	42	57	68	78
Lo	11	15	25	36	47	57
Pre.	1.00	0.86	1.68	2.87	3.30	3.99

	Ju (July)	Au (August)	Se (September)	Oc (October)	No (November)	De (December)
Hi	82	80	72	59	44	31
Lo	61	60	52	40	29	16
Pre.	3.77	3.66	3.39	2.56	2.05	0.99

Fond Du Lac Climate Graph - Wisconsin Climate Chart



Average weather Fond Du Lac, WI

Annual high temperature	56°F
Annual low temperature	37°F
Average annual precip.	30.12 inch

Share

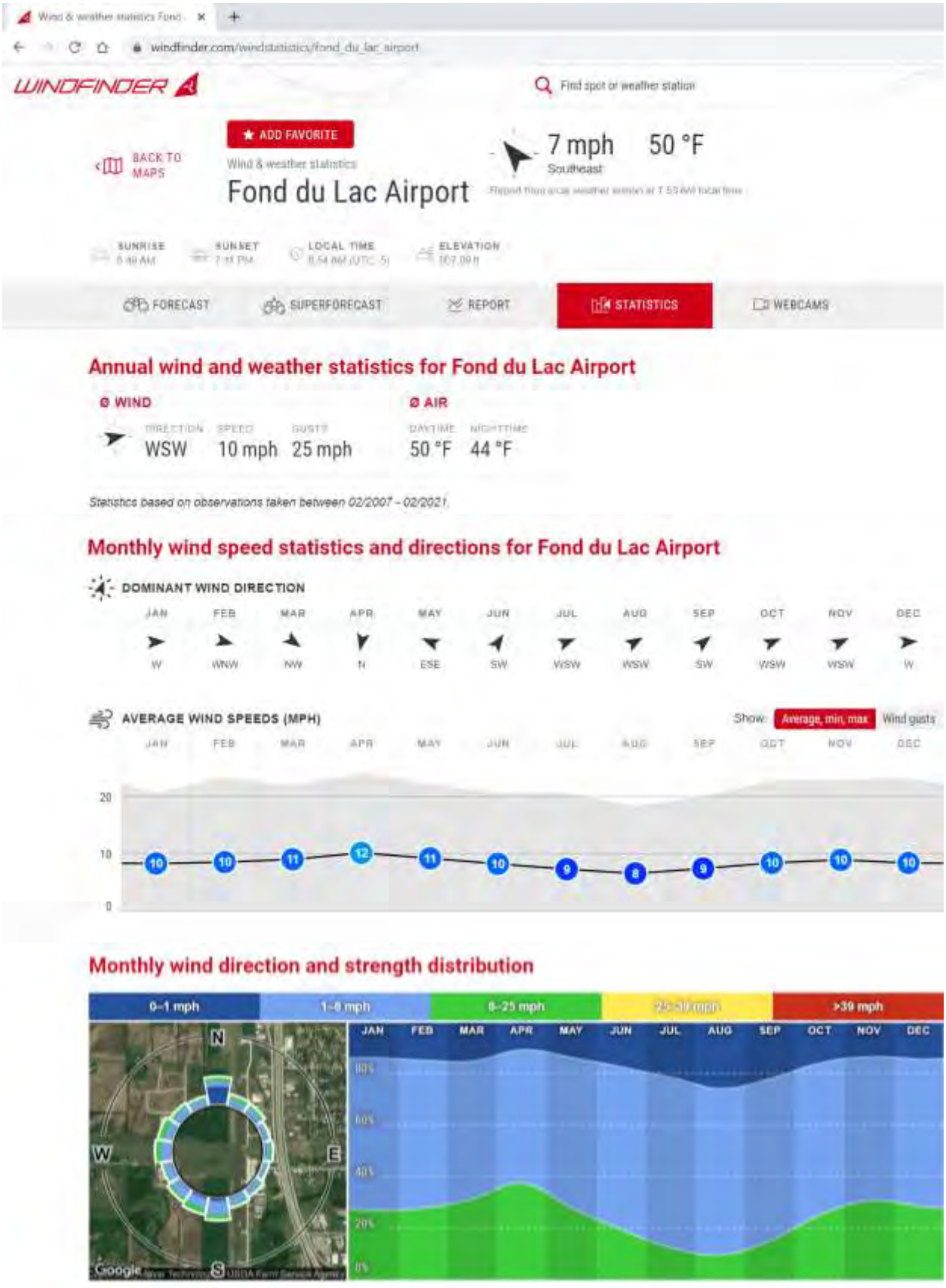
Station Data

Monthly averages Fond Du Lac
Longitude: -88.4471, Latitude: 43.773
Average weather Fond Du Lac, WI - 54935

Monthly: 1981-2010 normals
History: 2009-2019

Abbreviations

Ja (January): January, Fe (February): February, ...


windfinder.com/windstatistics/fond_du_lac_airport
WINDFINDER
Find spot or weather station
ADD FAVORITE
BACK TO MAPS
Wind & weather statistics
Fond du Lac Airport
7 mph
Southeast
50 °F
SUNRISE
SUNSET
LOCAL TIME
ELEVATION
FORECAST
SUPERFORECAST
REPORT
STATISTICS
WEBCAMS
Annual wind and weather statistics for Fond du Lac Airport
Ø WIND
DIRECTION
SPEED
GUSTS
WSW
10 mph
25 mph
Ø AIR
DAYTIME
NIGHTTIME
50 °F
44 °F
Statistics based on observations taken between 02/2007 - 02/2021
Monthly wind speed statistics and directions for Fond du Lac Airport
DOMINANT WIND DIRECTION
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
W WNW NW N ESE SW WSW WSW SW WSW WSW W
AVERAGE WIND SPEEDS (MPH)
Show: Average, min, max Wind gusts
20
10
0
10 10 11 12 11 10 9 8 9 10 10 10
Monthly wind direction and strength distribution
0–1 mph
1–6 mph
6–25 mph
>39 mph
N
W
E
S
Google
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
80%
60%
40%
20%
0%

Temperature statistics for Fond du Lac Airport

AVERAGE DAYTIME TEMPERATURES (°F)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
MAX	54	66	82	84	95	97	100	93	93	88	77	64
AVG	23	23	37	48	63	72	77	74	66	53	40	27
MIN	-18	-15	-9	16	36	54	54	48	36	27	7	-15

AVERAGE NIGHTTIME TEMPERATURES (°F)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
MAX	52	55	70	77	84	86	90	82	84	81	70	63
AVG	20	18	31	41	53	63	67	64	58	47	36	25
MIN	-20	-17	-15	14	28	37	43	34	30	21	1	-13

Reference 6

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

ENVIRONMENTAL CLEANUP & BROWNFIELDS REDEVELOPMENT
BRRTS ON THE WEB

Click the Location Name or FID below to view the Location Details page. If additional Activities are present at this location, they may be accessed from Location Details.

ACTIVITY DETAILS

02-20-118383 QUICFREZ - LGU SL

Status	Activity Type	Jurisdiction
OPEN	ERP	DNR RR

Location Name	County	DNR Region
WI DNR (FORMER QUIC FREZ)	FOND DU LAC	NORTHEAST

Address	Municipality
105 OAK PLACE	FOND DU LAC

PLSS Description	Latitude (WGS84)	Longitude (WGS84)	Google Maps [exit DNR]	RR Sites Map
SE 1/4 of the NW 1/4 of Sec 15, T15N, R17E	43.7723719	-88.4518545	CLICK TO VIEW	CLICK TO VIEW

Additional Location Description	Acres
	UNKNOWN

Facility ID	PECFA No.	EPA ID	Start Date	End Date	Date of Last Action
998314900		WIN000508296	1997-02-13		2020-04-17

Characteristics

PECFA Funds Eligible	EPA Superfund	EPA NPL Site	Above Ground Petrol Tank	Underground Petrol Tank	Drycleaner	PFAS	Sediments	WI DOT Site

230 Actions and 16 Documents

Records related to the site are documents that were available at the time the scanned paper or electronic file was uploaded. Records withheld by the department due to confidentiality, attorney-client privilege, and other sensitive records, as well as lab data, may not be included. Additional records associated with the site may or may not be accessible through an open records request through DNR or another state agency (see Jurisdiction above).

Date	Code	Name	File	Comment
1996-02-04	29	Phase II Environmental Site Assessment (ESA) Rpt Received		
1996-02-04	28			

Date	Code	Name Phase I Environmental Site Assessment (ESA) Rpt Received	File	Comment
1996-07-05	43	Site Activity Status Update Received		ADAPTIVE REUSE STUDY
1997-02-13	1	Notification of Hazardous Substance Discharge		
1997-02-28	2	Responsible Party (RP) letter sent		
1997-04-25	43	Site Activity Status Update Received		RP HAS NOT YET HIRED A CONSULTANT
1997-10-22	43	Site Activity Status Update Received		MEMO FROM FDL POLICE
1997-10-23	43	Site Activity Status Update Received		LETTER FROM RP TO FDL
1997-10-23	43	Site Activity Status Update Received		MEMO FROM FDL FIRE DEPT
1997-10-23	43	Site Activity Status Update Received		LETTER FROM WHEDA TO FDL
1997-10-27	43	Site Activity Status Update Received		LETTER FROM FDL HS PRINCIPAL TO FLD
1998-01-21	99	Miscellaneous		BEAP APPLICATION - NOT SELECTED
1998-03-30	99	Miscellaneous		RESPONSE REQUESTED
1998-05-12	99	Miscellaneous		RESPONSE REQUESTED
1998-06-30	99	Miscellaneous		RESPONSE REQUESTED
1998-08-10	99	Miscellaneous		ELIGIBILITY FOR BROWNFIELDS TAX INCENTIVE
1999-05-11	99	Miscellaneous		REQUEST FOR STATUS UPDATE
1999-05-11	99	Miscellaneous		CALL FROM FDL
1999-05-24	43	Site Activity Status Update Received		FDL REQUEST FOR INFORMATION
1999-05-26	99	Miscellaneous		RESPONSE REQUESTED
1999-06-07	43	Site Activity Status Update Received		FDL OFFER OF ASSISTANCE TO RP
1999-06-10	43	Site Activity Status Update Received		
1999-06-29	99	Miscellaneous		LETTER TO FDL
1999-07-01	35	Site Investigation Workplan (SIWP) Received (non-fee)		
1999-10-04	143	Remedial Action Options Report (RAOR) Received (fee)		
1999-10-04	37	Site Investigation Report (SIR) Received (non-fee)		
1999-10-08	40	Remedial Action Options Report (RAOR) Approved		
1999-10-26	43	Site Activity Status Update Received		REVISED COST ESTIMATE
1999-11-17	99	Miscellaneous		DNR/RP ON-SITE MEETING
2000-05-05	99	Miscellaneous		LETTER FROM DCOM ON REMOVAL OF BUILDINGS
2001-06-07	43	Site Activity Status Update Received		FDL LETTER TO DNR
2001-09-23	43	Site Activity Status Update Received		INVITE TO DEMOLITION OF THE BUILDINGS
2001-12-04	99	Miscellaneous		LETTER REGARDING SEA/RETAINING WALL FAILURE
2001-12-11	35	Site Investigation Workplan (SIWP) Received (non-fee)		ADDITIONAL SIWP FOR RIVER BANK AREA
2002-01-03	99	Miscellaneous		RIP RAP APPLICATION
2002-01-25	43	Site Activity Status Update Received		UPDATE ON GRANTS AND FINANCING
2002-02-04	99	Miscellaneous		RIP RAP PERMIT
2002-02-22	43	Site Activity Status Update Received		GRANTS UPDATE

Date	Code	Name	File	Comment
2002-02-25	35	Site Investigation Workplan (SIWP) Received (non-fee)		
2002-03-06	99	Miscellaneous		REQUEST FOR EPA REMOVAL ASSISTANCE
2002-03-12	99	Miscellaneous		DREDGE PERMIT
2002-03-12	43	Site Activity Status Update Received		EPA EMERGENCY REMOVAL
2002-04-15	43	Site Activity Status Update Received		EPA LETTER
2002-05-03	43	Site Activity Status Update Received		ANALYTICAL RESULTS AND BORING LOGS
2002-05-03	99	Miscellaneous		FIRST SUDZ REIMBURSEMENT REQUEST
2002-05-22	356	Superfund Removal Action Taken		EPA POLLUTION REPORT
2002-07-12	43	Site Activity Status Update Received		EPA ACTION MEMO
2002-07-25	43	Site Activity Status Update Received		EPA REMOVAL ACTION REPORT - FINAL
2002-08-06	205	Site Investigation Start - State Lead		
2002-08-09	207	Remedial Design Start - State Lead		STATE LEAD CONTRACT SIGNED FOR RAOR
2002-10-25	43	Site Activity Status Update Received		SECOND REIMBURSEMENT REQUEST
2002-10-29	29	Phase II Environmental Site Assessment (ESA) Rpt Received		ON SE PARCEL
2002-11-27	43	Site Activity Status Update Received		STATE LEAD SECOND INVOICE
2002-12-16	39	Remedial Action Options Report (RAOR) Received (non-fee)		RAP FOR STATE LEAD
2003-02-04	43	Site Activity Status Update Received		TANK EXPLORATION REPORT
2003-05-02	206	Site Investigation End - State Lead		
2003-05-16	99	Miscellaneous		RAOR MEMO
2003-07-11	99	Miscellaneous		INCORRECT EPA # FOR HAZARDOUS WASTE
2003-07-21	99	Miscellaneous		PUBLIC NOTICE INFORMATION MEETING
2003-07-25	37	Site Investigation Report (SIR) Received (non-fee)		
2003-08-07	99	Miscellaneous		REMEDIAL ACTION POSTPONED
2003-11-12	43	Site Activity Status Update Received		ANALYTICAL DATA
2003-12-03	354	Superfund Site Assessment Other Cleanup Authority (OCA)		FROM SUPERFUND DATABASE
2003-12-03	350	Superfund Site Assessment Preliminary Assessment (PA)		
2003-12-18	205	Site Investigation Start - State Lead		SI STATE LEAD CONTRACT
2004-01-14	611	Local Government Unit (LGU) Liability Exemption Applies		
2004-01-22	43	Site Activity Status Update Received		WELL ABANDONMENT FORM, PROCEDURES
2004-01-22	43	Site Activity Status Update Received		CERTIFICATION OF BIO-REMEDIATION; HICKORY MEADOWS
2004-01-30	43	Site Activity Status Update Received		ANALYTICAL DATA
2004-01-30	43	Site Activity Status Update Received		USACE CONFIRMATION LETTER
2004-02-03	99	Miscellaneous		REQUEST FOR PERMISSION TO ACCESS

Date	Code	Name	File	Comment
2004-02-04	43	Site Activity Status Update Received		ANALYTICAL DATA
2004-02-04	43	Site Activity Status Update Received		SIGNED ACCESS AGREEMENT
2004-02-06	99	Miscellaneous		PUBLIC NOTICE REQUIRED
2004-02-10	99	Miscellaneous		INVOICE # 1 FOR ADDL' SI
2004-02-23	43	Site Activity Status Update Received		BORING LOGS
2004-03-10	43	Site Activity Status Update Received		FIELD LOGS AND GROUNDWATER ANALYTICAL DATA
2004-03-17	99	Miscellaneous		CHAPTER 30 PERMIT
2004-03-22	99	Miscellaneous		SEDIMENT DETERMINATION
2004-03-22	43	Site Activity Status Update Received		UPDATED SITE PLAN, ANALYTICAL DATA, AND DRUM INVENTORY
2004-04-07	43	Site Activity Status Update Received		ANALYTICAL DATA
2004-04-22	37	Site Investigation Report (SIR) Received (non-fee)		DRAFT
2004-06-22	43	Site Activity Status Update Received		DRUM DISPOSAL CONTRACT
2004-06-30	206	Site Investigation End - State Lead		
2004-06-30	37	Site Investigation Report (SIR) Received (non-fee)		
2004-08-20	43	Site Activity Status Update Received		SOIL DISPOSAL DOCUMENTATION
2004-08-31	207	Remedial Design Start - State Lead		RD PROPOSAL
2004-09-30	99	Miscellaneous		APROVAL FOR REMEDIAL ACTION
2004-10-28	43	Site Activity Status Update Received		GROUNDWATER DRUM DISPOSAL
2004-12-01	207	Remedial Design Start - State Lead		REMEDIAL DESIGN CONTRACT
2005-01-20	99	Miscellaneous		REMEDIAL DESIGN CHANGE ORDER #1
2005-02-11	43	Site Activity Status Update Received		WPDES PERMIT APPLICATION
2005-02-11	43	Site Activity Status Update Received		NON-CONTACT COOLING WATER PERMIT APPLICATION
2005-02-18	43	Site Activity Status Update Received		WATER PERMIT APPLICATION
2005-03-09	43	Site Activity Status Update Received		EROSION CONTROL AND STORM WATER MANAGEMENT PLAN
2005-03-10	99	Miscellaneous		INJECTION PERMIT
2005-03-30	99	Miscellaneous		WPDES PERMIT
2005-05-03	99	Miscellaneous		116 (H&H) APPROVAL
2005-05-06	99	Miscellaneous		FLOOD ANALYSIS APPROVAL
2005-05-12	99	Miscellaneous		MANUAL CODE APPROVAL
2005-06-07	43	Site Activity Status Update Received		DRAFT SITE HEALTH AND SAFETY PLAN
2005-06-07	43	Site Activity Status Update Received		DRAFT DESIGN REPORT
2005-06-07	99	Miscellaneous		FOLLOW UP LETTER
2005-08-01	43	Site Activity Status Update Received		DESIGN REPORT AND SPECIFICATIONS AND SITE HEALTH AND SAFETY PLAN
2005-10-03	149	Remedial Action (RA) Design Report Approved		
2005-10-03	147	Remedial Action (RA) Design Report Received (non-fee)		DESIGN REPORT REC'D
2005-10-03	208	Remedial Design End - State Lead		
2005-10-10	208	Remedial Design End - State Lead		

Date	Code	Name	File	Comment
2005-10-20	43	Site Activity Status Update Received		STORM WATER PERMIT APPLICATION
2005-10-27	99	Miscellaneous		WPDES STORM WATER PERMIT
2005-11-07	99	Miscellaneous		PRE-CONSTRUCTION MEETING
2005-11-08	209	Remedial Construction Start - State Lead		
2005-11-30	43	Site Activity Status Update Received		FINAL SITE HEALTH AND SAFETY PLAN
2005-12-09	43	Site Activity Status Update Received		HEALTH AND SAFETY PLAN
2005-12-14	43	Site Activity Status Update Received		AIR MONITORING PLAN
2006-01-26	99	Miscellaneous		APPROVED EXTENSION
2006-03-03	99	Miscellaneous		STORM WATER PERMIT
2006-03-29	99	Miscellaneous		BROWNFIELDS GRANT LETTER
2006-04-13	209	Remedial Construction Start - State Lead		TERRAN CONSTRUCTION CONTRACT BEGINS
2006-04-13	209	Remedial Construction Start - State Lead		
2006-05-04	99	Miscellaneous		POOR PERFORMANCE LETTER TO NORTHSTAR
2006-05-12	43	Site Activity Status Update Received		PRE-CONSTRUCTION MEETING MINUTES
2006-05-13	43	Site Activity Status Update Received		CONCRETE DISPOSAL TICKETS
2006-05-30	43	Site Activity Status Update Received		GRADING PLAN
2006-05-30	99	Miscellaneous		START OF CONSTRUCTION NOTICE
2006-06-27	43	Site Activity Status Update Received		TERRAN HEALTH AND SAFETY PLAN
2006-06-27	43	Site Activity Status Update Received		LASAGNA DESIGN REPORT
2006-06-30	43	Site Activity Status Update Received		ELECTRICAL INSPECTOR CORRESPONDENCE
2006-07-21	43	Site Activity Status Update Received		CONSTRUCTION BULLETIN #2, CALCULATIONS AND SURVEY NOTES
2006-09-12	211	Operation & Maintenance Start - State Lead		O&M CONTRACT STARTED
2006-09-22	43	Site Activity Status Update Received		WELL ABANDONMENT FORMS
2006-11-08	43	Site Activity Status Update Received		LASAGNA OPERATIONS MANUAL
2006-11-08	43	Site Activity Status Update Received		OPERATIONS MANUAL
2006-11-08	210	Remedial Construction End - State Lead		LASAGNA SYSTEM TURNED ON
2006-12-07	43	Site Activity Status Update Received		REVISED MONITORING PLAN
2007-01-08	43	Site Activity Status Update Received		FIRST WPDES REPORT
2007-01-08	210	Remedial Construction End - State Lead		
2007-01-15	210	Remedial Construction End - State Lead		
2007-01-22	98	Technical Assistance Provided		
2007-01-22	97	Technical Assistance Request Received (fee)		REDEVELOPMENT QUESTION
2007-02-15	43	Site Activity Status Update Received		GREENSPACE COVER SPECIFICATIONS
2007-02-21	43	Site Activity Status Update Received		LASAGNA CONSTRUCTION REPORT
2007-03-21	211	Operation & Maintenance Start - State Lead		
2007-03-22	43	Site Activity Status Update Received		WPDES REPORT #2
2007-06-06	92	Operation & Maintenance (O&M) Report Received (non-fee)		STATUS REPORT #1

Date	Code	Name	File	Comment
2007-07-10	53	Deed Affidavit for Contamination (NR 728) Recorded		RECORDED BY THE CITY OF FOND DU LAC
2007-07-12	43	Site Activity Status Update Received		CPM REPORT
2007-07-16	43	Site Activity Status Update Received		BOREHOLE ABANDONMENT FORMS
2007-07-18	43	Site Activity Status Update Received		WPDES REPORT #3
2007-09-06	43	Site Activity Status Update Received		WPDES REPORT #4
2007-09-12	43	Site Activity Status Update Received		REMEDIATION STATUS REPORT #2
2007-11-01	153	Remedial Action (RA) Documentation Report Approved		
2007-11-01	151	Remedial Action (RA) Documentation Report Received (non-fee)		
2007-11-02	43	Site Activity Status Update Received		YEAR 2 MONITORING PLAN
2007-11-14	99	Miscellaneous		TERMINATION OF WPDES PERMIT
2007-11-16	99	Miscellaneous		HAZARDOUS WASTE REPORTING
2007-11-28	43	Site Activity Status Update Received		ANODE REPAIR: LASAGNA SYSTEM
2007-12-13	92	Operation & Maintenance (O&M) Report Received (non-fee)		O&M STATUS REPORT #4
2007-12-13	43	Site Activity Status Update Received		CONSTRUCTION DOCUMENTATION REPORT: GREENSPACE COVER
2007-12-18	99	Miscellaneous		INVOICE DISPUTE LETTER SENT (FOR INVOICES #9 & #10)
2007-12-18	43	Site Activity Status Update Received		WPDES REPORT #5
2007-12-26	43	Site Activity Status Update Received		ANODE REPAIR: LASAGNA SYSTEM
2008-03-05	92	Operation & Maintenance (O&M) Report Received (non-fee)		O&M STATUS REPORT #3
2008-03-05	43	Site Activity Status Update Received		WPDES REPORT #6
2008-03-20	92	Operation & Maintenance (O&M) Report Received (non-fee)		O&M STATUS REPORT #5
2008-04-24	43	Site Activity Status Update Received		INVOICE DISPUTE RESOLUTION LETTER
2008-06-23	43	Site Activity Status Update Received		SECOND SOIL PROGRESS SAMPLING PLAN
2008-10-02	43	Site Activity Status Update Received		WPDES REPORT #7
2008-10-02	43	Site Activity Status Update Received		CHANGE ORDER #5 (FLOOD EVAL AND N ANODE REPAIR)
2008-10-02	43	Site Activity Status Update Received		WPDES REPORT #8
2008-10-03	43	Site Activity Status Update Received		N ANODE REPAIR SUMMARY MEMO
2008-12-02	99	Miscellaneous		DISTURBANCE OF SOIL CAP
2008-12-18	43	Site Activity Status Update Received		WPDES PERMIT REPORT #9
2009-03-11	43	Site Activity Status Update Received		WPDES REPORT #10
2009-07-29	43	Site Activity Status Update Received		ABANDONMENT FORMS
2009-08-04	43	Site Activity Status Update Received		HAZARDOUS WASTE CERTIFICATION
2009-09-03	99	Miscellaneous		VAPOR SAMPLING RESULTS NOTIFICATION
2009-09-15	43	Site Activity Status Update Received		2008 REMEDIATION STATUS REPORT
2009-12-15	43	Site Activity Status Update Received		WPDES FINAL REPORT #11
2010-03-02	41	Remedial Action Report Received		

Date	Code	Name	File	Comment
2010-03-02	92	Operation & Maintenance (O&M) Report Received (non-fee)		FINAL O&M REPORT AND REMEDIAL ACTION REPORT
2010-03-02	92	Operation & Maintenance (O&M) Report Received (non-fee)		FINAL O&M REPORT AND REMEDIAL ACTION REPORT
2010-06-29	43	Site Activity Status Update Received		STATUS REPORT #1 - BT2
2010-07-06	43	Site Activity Status Update Received		PAY REQUEST #1 RECEIVED
2010-09-20	43	Site Activity Status Update Received		PAY REQUEST #3 RECEIVED
2010-10-06	43	Site Activity Status Update Received		QUARTERLY STATUS REPORT #2
2011-01-13	43	Site Activity Status Update Received		QTLY STATUS REPORT #3
2011-01-26	99	Miscellaneous		2010 ANNUAL HW REPORT FILED ON-LINE
2011-02-23	43	Site Activity Status Update Received		INVOICE #6 RECEIVED
2011-04-07	43	Site Activity Status Update Received		QUARTERLY STATUS REPORT #4, GROUNDWATER MONITORING
2011-04-27	43	Site Activity Status Update Received		INVOICE #8 RECEIVED
2011-07-07	43	Site Activity Status Update Received		QTLY GW RESULTS & PROJECT STATUS
2011-07-13	315	Superfund Site Assessment Transmittal Memos		
2011-07-28	317	Superfund Site Assessment Site Reassessment (SR)		SITE REASSESSMENT
2011-09-08	130	DNR Regulatory Reminder Sent		Vapor Intrusion (VI) Assessment Notification Ltr Sent
2011-10-05	99	Miscellaneous		INVOICE 2-3 RECEIVED
2011-10-24	43	Site Activity Status Update Received		QUARTERLY GROUNDWATER REPORT #6 RECEIVED
2012-01-17	43	Site Activity Status Update Received		QUARTERLY STATUS REPORT #7, GROUNDWATER RESULTS FOR NOVEMBER 2011
2012-02-16	43	Site Activity Status Update Received		INVOICE 2-6 APPROVED
2012-03-28	43	Site Activity Status Update Received		GW MONITORING REPORT #8
2012-06-11	43	Site Activity Status Update Received		INVOICE 3 - 1 RECEIVED AND SENT TO RR/5
2012-07-25	43	Site Activity Status Update Received		GROUNDWTER MONITORING REPORT #9 RECEIVED
2012-10-10	43	Site Activity Status Update Received		GROUNDWATER RESULTS FOR AUGUST 2012 SAMPLING EVENT
2013-01-07	43	Site Activity Status Update Received		QUARTERLY GROUNDATER REPORT #11
2013-03-25	43	Site Activity Status Update Received		FINAL ROUND OF STATE CONTRACT FOR GROUNDWATER MONITORING
2013-03-26	43	Site Activity Status Update Received		QUARTERLY GROUNDATER REPORT #12
2013-07-11	43	Site Activity Status Update Received		QTLY GW MONITORING REPORT #13
2013-10-14	43	Site Activity Status Update Received		QUARTERLY GROUNDATER REPORT #14
2013-11-01	43	Site Activity Status Update Received		REVISIONS TO QUARTERLY GROUNDATER REPORT #14
2014-01-06	43	Site Activity Status Update Received		STATUS REPORT #15 - NOV 2013 GW MONITORING RESULTS
2014-05-05	43	Site Activity Status Update Received		GROUNDWATER MONITORING STATUS REPORT - 16 OF 20 SAMPLES WERE DESTROYED IN SHIPPING
2014-07-02	43	Site Activity Status Update Received		STATUS REPORT #17

Date	Code	Name	File	Comment
2014-10-09	43	Site Activity Status Update Received		QTLY STATUS REPORT & GW RESULTS
2014-10-09	43	Site Activity Status Update Received		STATUS REPORT #18
2015-01-06	43	Site Activity Status Update Received		QTLY STATUS REPORT #19
2015-05-18	43	Site Activity Status Update Received	PDF	GW MONITORING STATUS REPORT #20
2015-06-15	99	Miscellaneous		NEW WDNR PM - LAURIDSEN (VIA EMAIL)
2016-06-08	43	Site Activity Status Update Received		COST ESTIMATE FROM OMNNI FOR RESTORING SITE TO ITS ORIGINAL CONDITION PRE-REMEDIATION (VIA EMAIL)
2017-06-12	99	Miscellaneous		PROPERTY STILL OWNED BY THE CITY OF FOND DU LAC
2018-05-23	99	Miscellaneous		PROPERTY STILL OWNED BY CITY OF FDL
2018-09-20	43	Site Activity Status Update Received	PDF	GW MONITORING RESULTS
2019-10-16	99	Miscellaneous	PDF	INFORMATION REGARDING POSSIBLE SOURCE OF DEHP IN GROUNDWATER
2019-11-01	39	Remedial Action Options Report (RAOR) Received (non-fee)	PDF	DRAFT
2019-11-21	99	Miscellaneous		PEER REVIEW MEMO REGARDING THE RAOR
2019-12-11	99	Miscellaneous	PDF	REQUEST FOR ACCESS
2020-01-14	39	Remedial Action Options Report (RAOR) Received (non-fee)	PDF	REPLACES RAOR FROM 11/2019
2020-01-14	43	Site Activity Status Update Received		SIGNED ACCESS AGREEMENTS FOR CITY, COUNTY & PRIVATE PROPERTY
2020-03-17	43	Site Activity Status Update Received	PDF	SANITRAY & SUB-SLAB VAPOR RESULTS
2020-03-25	99	Miscellaneous	PDF	NOTIFICATION OF RESULTS
2020-04-17	43	Site Activity Status Update Received	PDF	GROUNDWATER SAMPLING RESULTS

Substances

Substance	Type	Amt Released	Units
Volatile Organic Compounds	VOC		
Trichloroethylene	VOC		

Who

Click on Project Manager Email Address Below to Send Email

Role	Name/Address
Project Manager	DAVID NESTE 625 E CTH Y STE 700 OSHKOSH, WI 54901 david.neste@wisconsin.gov

BRRTS data comes from various sources, both internal and external to DNR. There may be omissions and errors in the data and delays in updating new information.

Reference 7

Wisconsin Department of Natural Resources

WDNR SHWIMS on the Web

WI DNR (FORMER QUIC FREZ)
Facility Name

HELP

General Information

Facility Name			County	WDNR Region
WI DNR (FORMER QUIC FREZ)			FOND DU LAC	NORTHEAST
Facility Status	**FID**	**EPA ID**	**SIC Code**	**NAICS Code**
OPERATING	998314900	WIR000116129	NONE	811412
Physical Address Find on Google Maps [Exit DNR]		**Municipality**	**State**	**Zip**
105 OAK PLACE		FOND DU LAC	WI	54935
Mailing Address		**City**	**State**	**Zip**
~~800 HOFFMAN DR~~		~~WATERTOWN~~	~~WI~~	~~53094~~
Facility Owner Type	**Public Land Survey System Desc.**		**Latitude and Longitude**	
~~PRIVATE~~	SE 1/4 of the NW 1/4 of Sec 15, T15N, R17E		NOT AVAILABLE	

Owned by City of Fond du Lac at mailing address shown below

Facility Owner(s)

STEVEN J MEER 154 E REES ST FOND DU LAC, WI 54935
CITY OF FOND DU LAC PO BOX 150 FOND DU LAC, WI 549360150
~~**CITY OF WATERTOWN** 800 HOFFMAN DR WATERTOWN, WI 53094~~

Waste Management Activities at this Location

Activity Type Click to view details	Activity Status	License No.
SOLID WASTE TRANSPORTER	INACTIVE	13867
HW GENERATOR - SMALL	INACTIVE	N/A
HW GENERATOR - VERY SMALL	INACTIVE	N/A

Other Activities at this Location

Activity Number and Name Click to view details on AW/RR BOTW	Type/Status
02-20-118383 QUICFREZ - LGU SL	ERP - OPEN
04-20-379329 QUICFREZ	SPILL - CLOSED
07-20-525648 QUICFREZ REDEVELOPMENT	GENERAL PROPERTY

Reference 8

Superfund Site Information

QUIC FREZ (EPA ID: WIN000508296)

Site Information

Site Info | **Aliases** | Operable Units | **Contaminants** | Contacts
Administrative Records | Reports and Documents

Site Name:	QUIC FREZ
Street:	105 OAK PLACE
City / State / ZIP:	FOND DU LAC, WI 54936
NPL Status:	Not on the NPL
Non-NPL Status:	Other Cleanup Activity: State-Lead Cleanup
ERS Exclusion:	An Eligible Response Site (ERS) Exclusion decision has been made at this site.
EPA ID:	WIN000508296
EPA Region:	05
County:	FOND DU LAC
Latitude:	+43.771111
Longitude:	-088.450556
Federal Facility Flag:	Not a Federal Facility

Return to Search Results Return to Search Superfund Sites

MARCH 23, 2021

Reference 9

- **You are here:** EPA Home
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- RCRAInfo
- Search Results

Search Results

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Multisystem Search

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System Data Searches

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Data Downloads

Widgets

Services

Mobile

Other Datasets

RCRAInfo Links

- Overview

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- Model
- RCRAInfo Search User Guide
- Contact Us
- Office of Resource Conservation and Recovery Home

RCRAInfo

Data Disclaimer

RCRAInfo Facility Information

<< Return

WI DNR (FORMER QUIC FREZ)
Handler ID: WIR000116129
105 OAK PLACE
FOND DU LAC, WI 54935

County Name: FOND DU LAC

Latitude: 43.77243
Longitude: -88.45049

Hazardous Waste Generator:

Owner Name: CITY OF FOND DU LAC

You can navigate within the map with your mouse.

BIENNIAL REPORT SUMMARY

REPORT YEAR	GENERATION (Tons)	MANAGEMENT (Tons)	WASTE RECEIVED (Tons)	WASTE SHIPPED (Tons)	INCINERATION (Tons)	DISPOSAL (Tons)	ACUTE GENERATION (Tons)
2011	4.6			4.6			
2009	15.5			15.5			

LIST OF FACILITY CONTACTS

NAME	STREET	CITY	STATE	ZIP CODE	PHONE	TYPE OF CONTACT
KELD LAURIDSEN	2984 SHAWANO AVE	GREEN BAY	WI	54313-6727	920-662-5420	Public
JENNIFER EASTERLY	625 E CTH Y SUITE 700	OSHKOSH	WI	54901	920-303-5447	Permit
KELD LAURIDSEN	2984 SHAWANO AVE	GREEN BAY	WI	54313-6727	920-662-5420	Permit
CHRISTINE LILEK	1155 PILGRIM RD	PLYMOUTH	WI	53073	920-892-8756	Permit
JOHN ANGELI	160 S MACY PO BOX 150	FOND DU LAC	WI	54936-0150	920-929-3316	Permit
JENNIFER EASTERLY	160 S MACY PO BOX 150	FOND DU LAC	WI	54936-0150	920-303-5447	Permit

HANDLER / FACILITY CLASSIFICATION

Unspecified Universe for the facility listed above.

HANDLER TYPE	LAND DISPOSAL	INCINERATOR	BOILER AND OR INDUSTRIAL FURNACE	STORAGE	TREATMENT

HANDLER TYPE
Not in a universe

No PROCESS INFORMATION is available for the facility listed above.

LIST OF NAICS CODES AND DESCRIPTIONS

NAICS CODE	NAICS DESCRIPTION
71219	NATURE PARKS AND OTHER SIMILAR INSTITUTIONS

LIST OF WASTE CODES AND DESCRIPTIONS

WASTE CODE	WASTE DESCRIPTION
D040	TRICHLORETHYLENE

Go To Top Of The Page

Reference 10

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION
Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Revelopment ☒ Other ☐ _____

Page 1 of 1

Facility/Project Name: QUIC FREZ	License/Permit/Monitoring Number:	Boring Number: MW12	
Boring Drilled By: Name of crew chief (first, last) and Firm — First Name: ADAM Last Name: SWEET — Firm: HORIZON CONST. & EXPLO.	Date Drilling Started: 12/15/2020	Date Drilling Completed: 12/15/2020	Drilling Method: DIRECT PUSH/ROTARY
WI Unique Well No.:	DNR Well ID No.:	Well Name: MW12	Final Static Water Level: _____ Feet MSL	Surface Elevation: ~755.5 Feet MSL	Borehole Diameter: 8.25 inches
Local Grid Origin ☐ (estimated: ☐) or Boring Location ☐ — State Plane _____ N, _____ E — SE 1/4 of NW 1/4 of Section 15, T 15 N, R 17 E	Lat 43° 46' 22.2" — Long 88° 27' 27"	Local Grid Location: ☐ N ☐ E _____ Feet ☐ S _____ Feet ☐ W	
Facility ID: 998314900	County: FOND DU LAC	County Code: 20	Civil Town/City/or Village: FOND DU LAC

Sample: Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
				6" TS BLACK LOAM 6" 3/4" GRAVEL				0.2 (1')						
	25"		2	GRAVELY BLACK LOAM 6"										
			5	SILTY RED CLAY W/ BLACK LOAM & GRAVEL				0.2 (4')						
				SLUFF										
				TREE ROOT										
	21"			SILTY RED CLAY										
			10	SILTY RED CLAY W/ SCATTERED GRAVEL				0.2 (9.5')						
	58"	11'	V					0.2 (11')						
			15	SILTY RED CLAY				0.2 (14')						
	5"													
			20											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: DAVID NESTE Firm: WDNR

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

BASELINE PID: START 0.1-0.2, END 0.1

State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 7-98

Facility/Project Name: QUIC FREZ	Local Grid Location of Well: _____ ft. ☐ N. ☐ S. _____ ft. ☐ E. ☐ W.	Well Name: MW12
Facility License, Permit or Monitoring No.	~~Local Grid Origin~~ ☐ (estimated: ☒) or Well Location ☒ Lat. 43° 46' 22.2" Long. 88° 27' 7.7" or	Wis. Unique Well No. _____ DNR Well ID No. _____
Facility ID: 998314100	St. Plane _____ ft. N, _____ ft. E. S/C/N	Date Well Installed: 12/15/2020 (m m d d y y y y)
Type of Well: MONITORING Well Code ____/____	Section Location of Waste/Source: SE 1/4 of NW 1/4 of Sec. 15 T. 15 N, R. 17 ☐ E ☒ W	Well Installed By: Name (first, last) and Firm: ADAM SWEET HORIZON CONST. & EXPLO.
Distance from Waste/Source: ~80' ft.	Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known
		Gov. Lot Number: _____

A. Protective pipe, top elevation _____ ft. MSL

B. Well casing, top elevation _____ ft. MSL

C. Land surface elevation ~755.5 ft. MSL

D. Surface seal, bottom _____ ft. MSL or ~0.5 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☒
Bedrock ☐

13. Sieve analysis performed? ☐ Yes ☒ No

14. Drilling method used: Rotary ☒ 50 Hollow Stem Auger ☐ 41 Other ☐ _____

15. Drilling fluid used: Water ☐ 02 Air ☐ 01 Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No
Describe _____

17. Source of water (attach analysis, if required):
_____

E. Bentonite seal, top _____ ft. MSL or ~0.5 ft.

F. Fine sand, top _____ ft. MSL or ~3 ft.

G. Filter pack, top _____ ft. MSL or ~4 ft.

H. Screen joint, top _____ ft. MSL or ~6 ft.

I. Well bottom _____ ft. MSL or ~16 ft.

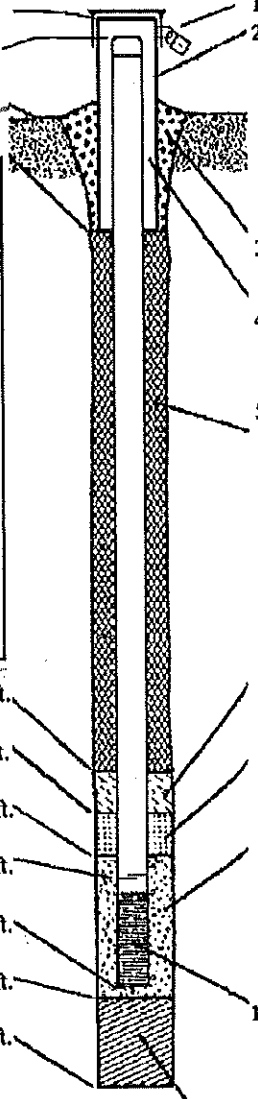
J. Filter pack, bottom _____ ft. MSL or ~16.5 ft.

K. Borehole, bottom _____ ft. MSL or ~16.5 ft.

L. Borehole, diameter 8.25 in.

M. O.D. well casing 2.4 in.

N. I.D. well casing 2.0 in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 4 in.
b. Length: 5 ft.
c. Material: Steel ☐ 04 Other ☐ _____
d. Additional protection? ☐ Yes ☐ No
If yes, describe: _____

3. Surface seal: Bentonite ☐ 30 Concrete ☒ 01 Other ☐ _____

4. Material between well casing and protective pipe: Bentonite ☒ 30 Other ☐ _____

5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. _____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. _____ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. _____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01 Tremie pumped ☐ 02 Gravity ☒ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 32
c. _____ Other ☐ _____

7. Fine sand material: Manufacturer, product name & mesh size
a. REDFLINT #15
b. Volume added _____ ft^3

8. Filter pack material: Manufacturer, product name & mesh size
a. REDFLINT #40
b. Volume added _____ ft^3

9. Well casing: Flush threaded PVC schedule 40 ☒ 23 Flush threaded PVC schedule 80 ☐ 24 Other ☐ _____

10. Screen material: _____
a. Screen type: Factory cut ☒ 11 Continuous slot ☐ 01 Other ☐ _____
b. Manufacturer _____
c. Slot size: 0.010 in.
d. Slotted length: 10 ft.

11. Backfill material (below filter pack): None ☐ 14 Other ☐ _____

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm
DAVID NESTE	WDNR

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on those forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

Facility/Project Name	County Name	Well Name
QUIC FREZ	FOND DU LAC	MW12

Facility License, Permit or Monitoring Number	County Code	Wis. Unique Well Number	DNR Well ID Number
	20	_____	_____

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method

surged with bailer and bailed	☒	41
surged with bailer and pumped	☐	61
surged with block and bailed	☐	42
surged with block and pumped	☐	62
surged with block, bailed and pumped	☐	70
compressed air	☐	20
bailed only	☐	10
pumped only	☐	51
pumped slowly	☐	50
Other _____	☐	

3. Time spent developing well 20 min.

4. Depth of well (from top of well casisng) 18.7 ft.
north side

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing ____.__ gal.

7. Volume of water removed from well ~70.0 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added none

10. Analysis performed on water added? ☐ Yes ☒ No
(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 10.46 ft.	18.2 ft.
Date	b. 04/07/2021 (m m d d y y y y)	04/07/2021 (m m d d y y y y)
Time	c. 11:40 ☒ a.m. ☐ p.m.	12:00 ☐ a.m. ☒ p.m.
12. Sediment in well bottom	~0.1 inches	0.0 inches
13. Water clarity	Clear ☒ 10 Turbid ☐ 15	Clear ☒ 20 Turbid ☐ 25
(Describe)		cloudy, lt. brown, trace silt.
Fill in if drilling fluids were used and well is at solid waste facility:		
14. Total suspended solids	____.__ mg/l	____.__ mg/l
15. COD	____.__ mg/l	____.__ mg/l

16. Well developed by: Name (first, last) and Firm
First Name: _____ Last Name: _____
Firm: WDNR

17. Additional comments on development: 18.7' - 10.5' = 8.2' * 0.65 gal/ft * 3 ≈ 16 gals

Name and Address of Facility Contact/Owner/Responsible Party
First Name: [illegible] Last Name: [illegible]
Facility/Firm: WDNR
Street: _____
City/State/Zip: _____

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: [signature]
Print Name: STEPHEN D. MUELLER
Firm: WDNR

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION
Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Revelopment ☒ Other ☐ _____

Page 1 of 1

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
QUIC FREZ		MW22

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name: ADAM Last Name: SWEET Firm: HORIZON CONST. & EXPLO.	12/15/2020	12/15/2020	DIRECT PUSH/ROTARY

WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
_ _ _ _ _ _	_ _ _ _	MW22	_____ Feet MSL	~756.5 Feet MSL	8.25 inches

Local Grid Origin ☐ (estimated: ☐) or Boring Location ☐
State Plane _____ N, _____ E
SW 1/4 of NE 1/4 of Section 15, T 15 N, R 17 E

Lat 43°46'21.2"
Long 88°27'2.1"

Local Grid Location
☐ N ☐ E
_____ Feet ☐ S _____ Feet ☐ W

Facility ID	County	County Code	Civil Town/City/or Village
998314900	FOND DU LAC	20	FOND DU LAC

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
				6" TOPSOIL 8" SILTY LOAM BROWN/BLACK SILTY RED CLAY				0.2 (1')						
	43.5													
			5	SILTY RED CLAY SCATTERED GRAVEL				0.2 (4')						
	58'	V	7'					0.2 (7')						
			10	SILTY RED CLAY				0.2 (9.5') 0.2 (11')						
	55"													
			15	SILTY RED CLAY				0.2 (14')						
	44"							0.2 (16')						
			20	EOB SET MW @ 16' BGS				0.3 (19')						

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm
DAVID NESTE	WDNR

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

BASELINE PID: START 0.1-0.2, END 0.1

State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

Facility/Project Name: QUIC FAEZ	Local Grid Location of Well: ____ ft. ☐ N. ☐ S. ____ ft. ☐ E. ☐ W.	Well Name: MW 22
Facility License, Permit or Monitoring No.	~~Local Grid Origin ☐~~ (estimated: ☒) or Well Location ☒ Lat. 43° 46' 26.2" Long. 88° 27' 2.1" or	Wis. Unique Well No. / DNR Well ID No.
Facility ID: 998314900	St. Plane ____ ft. N, ____ ft. E. S/C/N	Date Well Installed: 12/15/2020 (m m d d y y y y)
Type of Well: MONITORING; Well Code ____/____	Section Location of Waste/Source: SW 1/4 of NE 1/4 of Sec. 15, T. 15 N, R. 17 ☒ E ☐ W	Well Installed By: Name (first, last) and Firm: ADAM SWEET, HORIZON CONST. & EXPLO.
Distance from Waste/Source ~765 ft.	Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☒ Upgradient s ☐ Sidegradient; d ☐ Downgradient n ☐ Not Known
		Gov. Lot Number

A. Protective pipe, top elevation _____ ft. MSL

B. Well casing, top elevation _____ ft. MSL

C. Land surface elevation ~756.5 ft. MSL

D. Surface seal, bottom _____ ft. MSL or ~0.5 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☒
Bedrock ☐

13. Sieve analysis performed? ☐ Yes ☒ No

14. Drilling method used: Rotary ☒ 50; Hollow Stem Auger ☐ 41; Other ☐ _____

15. Drilling fluid used: Water ☐ 02 Air ☐ 01; Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No

Describe _____

17. Source of water (attach analysis, if required): _____

E. Bentonite seal, top _____ ft. MSL or ~0.5 ft.

F. Fine sand, top _____ ft. MSL or ~3 ft.

G. Filter pack, top _____ ft. MSL or ~4 ft.

H. Screen joint, top _____ ft. MSL or ~6 ft.

I. Well bottom _____ ft. MSL or ~16 ft.

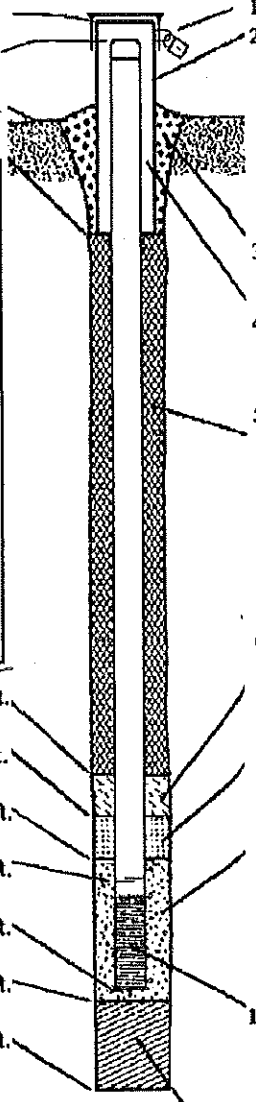
J. Filter pack, bottom _____ ft. MSL or ~16.5 ft.

K. Borehole, bottom _____ ft. MSL or ~16.5 ft.

L. Borehole, diameter 8.25 in.

M. O.D. well casing 2.4 in.

N. I.D. well casing 2.0 in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 8 in.
b. Length: 1 ft.
c. Material: Steel ☐ 04; Other ☐ _____
d. Additional protection? ☐ Yes ☐ No
If yes, describe: _____

3. Surface seal: Bentonite ☐ 30; Concrete ☒ 01; Other ☐ _____

4. Material between well casing and protective pipe: Bentonite ☒ 30; Other ☐ _____

5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. _____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. _____ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. _____ ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01; Tremie pumped ☐ 02; Gravity ☒ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 32
c. _____ Other ☐ _____

7. Fine sand material: Manufacturer, product name & mesh size
a. REDFLINT #15
b. Volume added _____ ft^3

8. Filter pack material: Manufacturer, product name & mesh size
a. REDFLINT #40
b. Volume added _____ ft^3

9. Well casing: Flush threaded PVC schedule 40 ☒ 23; Flush threaded PVC schedule 80 ☐ 24; Other ☐ _____

10. Screen material: _____
a. Screen type: Factory cut ☒ 11; Continuous slot ☐ 01; Other ☐ _____
b. Manufacturer _____
c. Slot size: 0.010 in.
d. Slotted length: 10 ft.

11. Backfill material (below filter pack): None ☐ 14; Other ☐ _____

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm
DAVID NESTE	WDNR

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on those forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

Facility/Project Name	County Name	Well Name
QUIC FREZ	FOND DU LAC	MW22

Facility License, Permit or Monitoring Number	County Code	Wis. Unique Well Number	DNR Well ID Number
	20		

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method

surged with bailer and bailed	☐ 41
surged with bailer and pumped	☐ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☒ 10
pumped only	☐ 51
pumped slowly	☐ 50
Other _____	☐

3. Time spent developing well 19 min.

4. Depth of well (from top of well casisng) 15.75 ft.

5. Inside diameter of well 2.0 in.

6. Volume of water in filter pack and well casing ____.__ gal.

7. Volume of water removed from well 5.0 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added none

10. Analysis performed on water added? ☐ Yes ☒ No (If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 10.30 ft.	15.1 ft.
Date	b. 04/07/2021 (m m d d y y y y)	04/07/2021 (m m d d y y y y)
Time	c. 15:21 ☐ a.m. ☒ p.m.	15:46 ☐ a.m. ☒ p.m.
12. Sediment in well bottom	~0.1 inches	0.0 inches
13. Water clarity	Clear ☒ 10 Turbid ☐ 15	Clear ☒ 20 Turbid ☐ 25
(Describe)	slt. gray + trace silt	slt. gray + trace silt
		slt, "swampy"
		odor

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	____.__ mg/l	____.__ mg/l
15. COD	____.__ mg/l	____.__ mg/l

16. Well developed by: Name (first, last) and Firm
First Name: Steve Last Name: Mueller
Firm: WDNR

17. Additional comments on development: 15.75 - 10.3' = 5.45' * 0.65 gal/ft. * 3 = 11 gals.

Name and Address of Facility Contact/Owner/Responsible Party
First Name: _____ Last Name: _____
Facility/Firm: _____
Street: _____
City/State/Zip: _____

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: [signature]
Print Name: STEPHEN D. MUELLER
Firm: WDNR

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION
Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Revelopment ☒ Other ☐ _____

Page 1 of 1

Facility/Project Name: QUIC FREZ	License/Permit/Monitoring Number:	Boring Number: MW23
Boring Drilled By: Name of crew chief (first, last) and Firm — First Name: ADAM Last Name: SWEET — Firm: HORIZON CONSTR & EXPLO.	Date Drilling Started: 12/15/2020	Date Drilling Completed: 12/15/2020 — Drilling Method: DIRECT PUSH / ROTARY
WI Unique Well No.:	DNR Well ID No.:	Well Name: MW23
Final Static Water Level: _____ Feet MSL	Surface Elevation: ~758 Feet MSL	Borehole Diameter: 8.25 inches
Local Grid Origin ☐ (estimated: ☐) or Boring Location ☐ — State Plane _____ N, _____ E — SW 1/4 of NE 1/4 of Section 15, T 15 N, R 17E	Lat 43°46'20.3" — Long 88°27'16"	Local Grid Location: ☐ N ☐ E _____ Feet ☐ S _____ Feet ☐ W
Facility ID: 9983149 00	County: FOND DU LAC	County Code: 20 — Civil Town/City/ or Village: FOND DU LAC

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
				6" BROWN LOAM TOPSOIL										
				RED SILTY CLAY				0.2 (1')						
	51"													
			5											
				RED SILTY CLAY				0.2 (5') 0.2 (6')						
	60"													
		9'	V											
			10											
				RED SILTY CLAY				0.2 (10') 0.2 (11')						
			15											
				RED SILTY CLAY				0.1 (15') 0.2 (16')						
	61"													
				SCREENED 6-16										
				TD EOB @ 20' SET MW @ 16' BGS				0.1 (20')						

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: DAVID NESTE Firm: WDNR

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BASELINE PID: START 0.1-0.2, END 0.1

State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

Facility/Project Name: QUIC FREZ	Local Grid Location of Well: ☐ ft. ☐ N. ☐ ft. ☐ S. ☐ E. ☐ W.	Well Name: MW23
Facility License, Permit or Monitoring No.	~~Local Grid Origin~~ ☐ (estimated: ☒) or Well Location ☒ Lat. 43° 46' 20.5" Long. 88° 27' 1.6" ☐ m or	Wis. Unique Well No. _____ DNR Well ID No. _____
Facility ID: 998314900	St. Plane _____ ft. N, _____ ft. E. S/C/N	Date Well Installed: 12/15/2020 (m m d d y y y y)
Type of Well: MONITORING Well Code ____/____	Section Location of Waste/Source: SW 1/4 of NE 1/4 of Sec. 15, T. 15 N, R. 17 ☒ E ☐ W	Well Installed By: Name (first, last) and Firm: ADAM SWEET, HORIZON CONST. & EXPLO.
Distance from Waste/Source ~220 ft.	Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☒ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known
		Gov. Lot Number: _____

A. Protective pipe, top elevation _____ ft. MSL

B. Well casing, top elevation _____ ft. MSL

C. Land surface elevation ~758 ft. MSL

D. Surface seal, bottom _____ ft. MSL or ~2 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☒
Bedrock ☐

13. Sieve analysis performed? ☐ Yes ☒ No

14. Drilling method used: Rotary ☒ 50
Hollow Stem Auger ☐ 41
Other ☐ _____

15. Drilling fluid used: Water ☐ 02 Air ☐ 01
Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No
Describe _____

17. Source of water (attach analysis, if required):
_____

E. Bentonite seal, top _____ ft. MSL or ~0.5 ft.

F. Fine sand, top _____ ft. MSL or ~3 ft.

G. Filter pack, top _____ ft. MSL or ~4 ft.

H. Screen joint, top _____ ft. MSL or ~6 ft.

I. Well bottom _____ ft. MSL or ~16 ft.

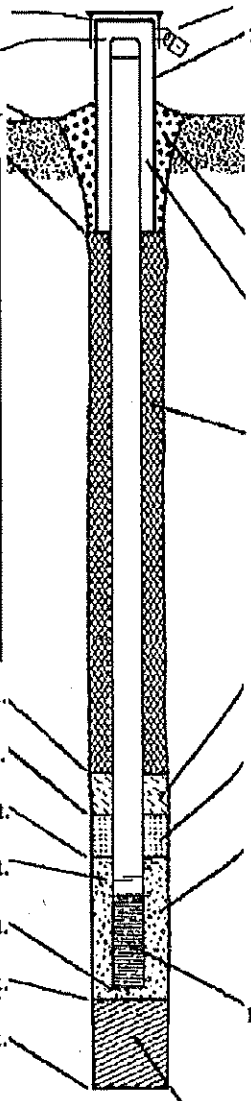
J. Filter pack, bottom _____ ft. MSL or ~16.5 ft.

K. Borehole, bottom _____ ft. MSL or ~16.5 ft.

L. Borehole, diameter 8.25 in.

M. O.D. well casing 2.4 in.

N. I.D. well casing 2.0 in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 8 in.
b. Length: 1 ft.
c. Material: Steel ☐ 04 Other ☐ _____
d. Additional protection? ☐ Yes ☐ No
If yes, describe: _____

3. Surface seal: Bentonite ☐ 30 Concrete ☒ 01 Other ☐ _____

4. Material between well casing and protective pipe: Bentonite ☒ 30 Other ☐ _____

5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. _____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. _____ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. _____ ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01 Tremie pumped ☐ 02 Gravity ☒ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 32
c. _____ Other ☐ _____

7. Fine sand material: Manufacturer, product name & mesh size
a. REDFLINT #15
b. Volume added _____ ft^3

8. Filter pack material: Manufacturer, product name & mesh size
a. REDFLINT #40
b. Volume added _____ ft^3

9. Well casing: Flush threaded PVC schedule 40 ☒ 23
Flush threaded PVC schedule 80 ☐ 24
Other ☐ _____

10. Screen material: _____
a. Screen type: Factory cut ☒ 11 Continuous slot ☐ 01 Other ☐ _____
b. Manufacturer _____
c. Slot size: 0.010 in.
d. Slotted length: 10 ft.

11. Backfill material (below filter pack): None ☐ 14 Other ☐ _____

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: DAVID NESTE Firm: WDNR

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

Facility/Project Name	County Name	Well Name
QUIC FREZ	FOND DU LAC	MW 23

Facility License, Permit or Monitoring Number	County Code	Wis. Unique Well Number	DNR Well ID Number
	20	_____	___

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method

surged with bailer and bailed	☒	41
surged with bailer and pumped	☐	61
surged with block and bailed	☐	42
surged with block and pumped	☐	62
surged with block, bailed and pumped	☐	70
compressed air	☐	20
bailed only	☐	10
pumped only	☐	51
pumped slowly	☐	50
Other _____	☐	

3. Time spent developing well 60 min.

4. Depth of well (from top of well casisng) 15.9 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing ____.__ gal.

7. Volume of water removed from well ~19.0 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added None

10. Analysis performed on water added? ☐ Yes ☒ No (If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 3.83 ft.	~19.3 ft.
Date	b. 04/07/2021 (m m d d y y y y)	04/07/2021 (m m d d y y y y)
Time	c. 13:15 ☐ a.m. ☒ p.m.	14:15 ☐ a.m. ☒ p.m.
12. Sediment in well bottom	~0.1 inches	0.0 inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe) Red-brown much silt	Clear ☒ 20 Turbid ☐ 25 (Describe) slt. cloudy trace silt slt, red-brown

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	____.__ mg/l	____.__ mg/l
15. COD	____.__ mg/l	____.__ mg/l

16. Well developed by: Name (first, last) and Firm
First Name: Last Name:
Firm: WDNR

17. Additional comments on development: 15.9' − 3.2' = 12.7' * 0.65 gal/ft x 3 = 25 gals

14:15

Name and Address of Facility Contact/Owner/Responsible Party
First Name: Last Name:
Facility/Firm:
Street:
City/State/Zip:

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature:
Print Name: STEPHEN D. MUELLER
Firm: WDNR

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION
Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Revelopment ☒ Other ☐ _____

Page 1 of 1

Facility/Project Name: QUIC FREZ	License/Permit/Monitoring Number:	Boring Number: MW24	
Boring Drilled By: Name of crew chief (first, last) and Firm — First Name: ADAM Last Name: SWEET — Firm: HORIZON CONST. & EXPLO.	Date Drilling Started: 12/15/2020	Date Drilling Completed: 12/15/2020	Drilling Method: DIRECT PUSH / ROTARY
WI Unique Well No.	DNR Well ID No.	Well Name: MW24	Final Static Water Level: _____ Feet MSL
Surface Elevation: ~757 Feet MSL	Borehole Diameter: 8.25 inches		
Local Grid Origin ☐ (estimated: ☐) or Boring Location ☐ — State Plane _____ N, _____ E — SW 1/4 of NE 1/4 of Section 15, T 15 N, R 17 E	Lat 43° 46' 22.3" — Long 88° 27' 1.6"	Local Grid Location: ☐ N _____ Feet ☐ S ☐ E _____ Feet ☐ W	
Facility ID: 998314900	County: FOND DU LAC	County Code: 20	Civil Town/City/ or Village: FOND DU LAC

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
				BLIND DRILL W/ HAND AUGER (UTILITIES)										
			5					0.2 (5')						
	60"			SILTY RED CLAY W/ SCATTERED GRAVEL										
			8'					0.1 (8')						
			10	SILTY RED CLAY W/ SCATTERED GRAVEL				0.2 (10')						
	47"													
			15	SILTY RED CLAY				0.2 (15')						
				SCREENED 6-16				0.2 (16')						
				EOB @ 20' SET MW @ 16' BGS				0.2 (20')						

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm
DAVID NESTE	WDNR

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

BASELINE PID: START 0.1-0.2, END 0.1

State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 7-98

Facility/Project Name: QUIC FREZ	Local Grid Location of Well: _____ ft. ☐N. ☐S. _____ ft. ☐E. ☐W.	Well Name: MW24
Facility License, Permit or Monitoring No.	~~Local Grid Origin~~ ☐ (estimated: ☒) or Well Location ☒ Lat. 43° 46' 22.3" Long. 88° 27' 1.6" or	Wis. Unique Well No. _____ DNR Well ID No. _____
Facility ID: 998314900	St. Plane _____ ft. N, _____ ft. E. S/C/N	Date Well Installed: 12/15/2020 (m m d d y y y y)
Type of Well: MONITORING Well Code ____/____	Section Location of Waste/Source: SW 1/4 of NE 1/4 of Sec. 15, T. 15 N, R. 17 ☒E ☐W	Well Installed By: Name (first, last) and Firm: ADAM SWEET HORIZON CONST. & EXPLO.
Distance from Waste/Source: ~210 ft.	Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☒ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known
		Gov. Lot Number: _____

A. Protective pipe, top elevation _____ ft. MSL

B. Well casing, top elevation _____ ft. MSL

C. Land surface elevation ~757 ft. MSL

D. Surface seal, bottom _____ ft. MSL or ~0.5 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☒
Bedrock ☐

13. Sieve analysis performed? ☐ Yes ☒ No

14. Drilling method used: Rotary ☒ 50
Hollow Stem Auger ☐ 41
Other ☐ _____

15. Drilling fluid used: Water ☐ 02 Air ☒ 01
Drilling Mud ☐ 03 None ☐ 99

16. Drilling additives used? ☐ Yes ☒ No
Describe _____

17. Source of water (attach analysis, if required):
_____

E. Bentonite seal, top _____ ft. MSL or ~0.5 ft.

F. Fine sand, top _____ ft. MSL or ~3 ft.

G. Filter pack, top _____ ft. MSL or ~4 ft.

H. Screen joint, top _____ ft. MSL or ~6 ft.

I. Well bottom _____ ft. MSL or ~16 ft.

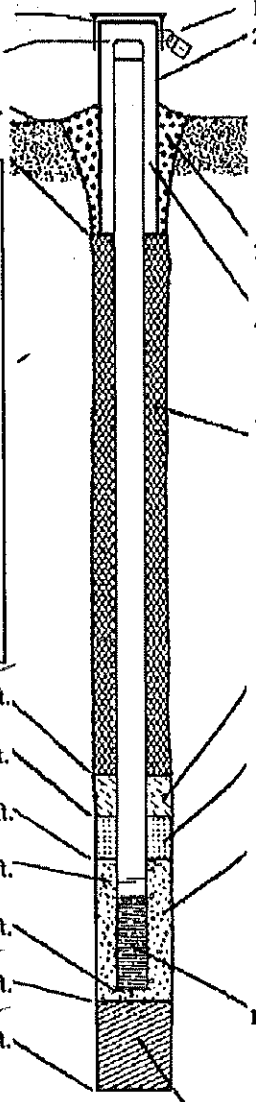
J. Filter pack, bottom _____ ft. MSL or ~16.5 ft.

K. Borehole, bottom _____ ft. MSL or ~16.5 ft.

L. Borehole, diameter 8.25 in.

M. O.D. well casing 2.4 in.

N. I.D. well casing 2.0 in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 8 in.
b. Length: 1 ft.
c. Material: Steel ☐ 04 Other ☐ _____
d. Additional protection? ☐ Yes ☐ No
If yes, describe: _____

3. Surface seal: Bentonite ☐ 30 Concrete ☒ 01 Other ☐ _____

4. Material between well casing and protective pipe: Bentonite ☒ 30 Other ☐ _____

5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. _____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. _____ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. _____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01 Tremie pumped ☐ 02 Gravity ☒ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐1/4 in. ☒3/8 in. ☐1/2 in. Bentonite chips ☒ 32
c. _____ Other ☐ _____

7. Fine sand material: Manufacturer, product name & mesh size
a. REDFLINT #15
b. Volume added _____ ft^3

8. Filter pack material: Manufacturer, product name & mesh size
a. REDFLINT #40
b. Volume added _____ ft^3

9. Well casing: Flush threaded PVC schedule 40 ☒ 23 Flush threaded PVC schedule 80 ☐ 24 Other ☐ _____

10. Screen material: _____
a. Screen type: Factory cut ☐ 11 Continuous slot ☐ 01 Other ☐ _____
b. Manufacturer _____
c. Slot size: 0.010 in.
d. Slotted length: 10 ft.

11. Backfill material (below filter pack): None ☐ 14 Other ☐ _____

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: DAVID NESTE Firm: WDNR

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

Facility/Project Name	County Name	Well Name
QUIC FREZ	FOND DU LAC	MW24
Facility License, Permit or Monitoring Number	**County Code**	**Wis. Unique Well Number**	**DNR Well ID Number**
	20		

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method

surged with bailer and bailed	☒ 41
surged with bailer and pumped	☐ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☐ 10
pumped only	☐ 51
pumped slowly	☐ 50
Other _____	☐

3. Time spent developing well 20 min.

4. Depth of well (from top of well casisng) 16.1 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing ___.__ gal.

7. Volume of water removed from well ___.__ gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added none

10. Analysis performed on water added? (If yes, attach results) ☐ Yes ☒ No

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 8.72 ft.	~15.5 ft.
Date	b. 04/07/2021 (m m d d y y y y)	04/07/2021 (m m d d y y y y)
Time	c. 14:39 ☐ a.m. ☒ p.m.	15:02 ☐ a.m. ☒ p.m.
12. Sediment in well bottom	~0.1 inches	0.0 inches
13. Water clarity	Clear ☒ 10 Turbid ☐ 15 (Describe) Slt. gray brown, slt. cloudy, trace silt	Clear ☒ 20 Turbid ☐ 25 (Describe) slt. gray, slt. cloudy, trace silt.

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	____.__ mg/l	____.__ mg/l
15. COD	____.__ mg/l	____.__ mg/l

16. Well developed by: Name (first, last) and Firm
First Name: Last Name:
Firm: WDNR

17. Additional comments on development: 16.1' − 8.7' = 7.4' * 0.65 gal/ft * 3 = 14 gals.

Name and Address of Facility Contact/Owner/Responsible Party
First Name: Last Name:
Facility/Firm:
Street:
City/State/Zip:

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature:
Print Name: STEPHEN D. MUELLER
Firm: WDNR

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION
Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Revelopment ☒ Other ☐ _____

Page 1 of 1

Facility/Project Name: QUIC FREZ	License/Permit/Monitoring Number:	Boring Number: MW25
Boring Drilled By: Name of crew chief (first, last) and Firm — First Name: ADAM Last Name: SWEET — Firm: HORIZON CONST. & EXPLO.	Date Drilling Started: 12/15/2020	Date Drilling Completed: 12/15/2020
Drilling Method: DIRECT PUSH/ ROTARY		
WI Unique Well No.:	DNR Well ID No.:	Well Name: MW25
Final Static Water Level: _____ Feet MSL	Surface Elevation: ~758.5 Feet MSL	Borehole Diameter: 8.25 inches
Local Grid Origin ☐ (estimated: ☐) or Boring Location ☐ — State Plane _____ N, _____ E — SW 1/4 of NE 1/4 of Section 15, T 15 N, R 17 E	Lat 43°46'21.8" — Long 88°26'58.0"	Local Grid Location: ☐ N ☐ E _____ Feet ☐ S _____ Feet ☐ W
Facility ID: 998314900	County: FOND DU LAC	County Code: 20
Civil Town/City/or Village: FOND DU LAC		

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
	22"			RED CLAY, SILTY										
			5	↓				0.2 (4') 0.2 (5')						
				RED SILTY CLAY										
				↓										
			10					0.2 (10') 0.2 (11')						
		V	11'	RED SILTY CLAY										
				↓										
			15					0.2 (15')						
				END @ 15' MW SET @ 16 BGS SCREENED FROM 6-16										
			20											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: DAVID NESTE Firm: WDNR

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

BASELINE PID: START 0.1-0.2, END 0.1

State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

Facility/Project Name: QUIC FREZ	Local Grid Location of Well: ____ ft. ☐N. ☐S. ____ ft. ☐E. ☐W.	Well Name: MW25
Facility License, Permit or Monitoring No.	Local Grid Origin ☐ (estimated: ☐) or Well Location ☒ Lat. 43° 46' 21.2" Long. 88° 26' 58.1" or	Wis. Unique Well No. / DNR Well ID No.
Facility ID: 998314900	St. Plane ____ ft. N, ____ ft. E. S/C/N	Date Well Installed: 12/15/2020 (m m d d y y y y)
Type of Well: MONITORING Well Code: ____/____	Section Location of Waste/Source: SW 1/4 of NE 1/4 of Sec. 15, T. 15 N, R. 17 ☒E ☐W	Well Installed By: Name (first, last) and Firm: ADAM SWEET, HORIZON CONST. & EXPO.
Distance from Waste/Source: ~460 ft.	Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☒ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known
		Gov. Lot Number: ____

A. Protective pipe, top elevation _____ ft. MSL

B. Well casing, top elevation _____ ft. MSL

C. Land surface elevation ~758.5 ft. MSL

D. Surface seal, bottom _____ ft. MSL or ~0.5 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☒
Bedrock ☐

13. Sieve analysis performed? ☐ Yes ☒ No

14. Drilling method used: Rotary ☒ 50
Hollow Stem Auger ☐ 41
Other ☐ ____

15. Drilling fluid used: Water ☐ 02 Air ☐ 01
Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No
Describe _____

17. Source of water (attach analysis, if required):
_____

E. Bentonite seal, top _____ ft. MSL or ~0.5 ft.

F. Fine sand, top _____ ft. MSL or ~3 ft.

G. Filter pack, top _____ ft. MSL or ~4 ft.

H. Screen joint, top _____ ft. MSL or ~6 ft.

I. Well bottom _____ ft. MSL or ~16 ft.

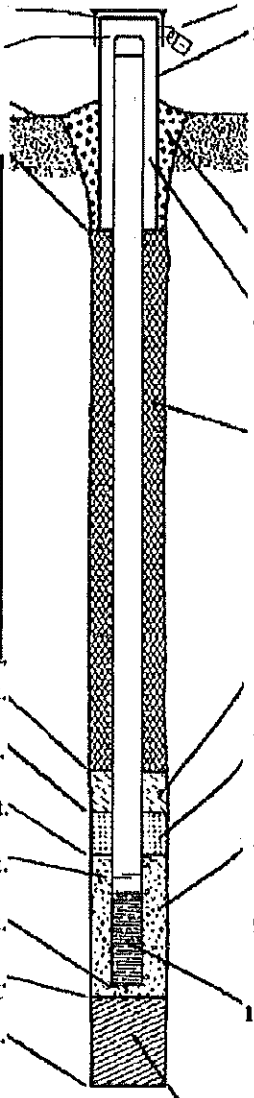
J. Filter pack, bottom _____ ft. MSL or ~16.5 ft.

K. Borehole, bottom _____ ft. MSL or ~16.5 ft.

L. Borehole, diameter 8.25 in.

M. O.D. well casing 2.4 in.

N. I.D. well casing 2.0 in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 8 in.
b. Length: 1 ft.
c. Material: Steel ☐ 04
Other ☐ ____
d. Additional protection? ☐ Yes ☐ No
If yes, describe: _____

3. Surface seal: Bentonite ☐ 30
Concrete ☒ 01
Other ☐ ____

4. Material between well casing and protective pipe:
Bentonite ☒ 30
Other ☐ ____

5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. ____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. ____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. ____ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. ____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01
Tremie pumped ☐ 02
Gravity ☒ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐1/4 in. ☒3/8 in. ☐1/2 in. Bentonite chips ☒ 32
c. _____ Other ☐ ____

7. Fine sand material: Manufacturer, product name & mesh size
a. REDFLINT #15
b. Volume added _____ ft^3

8. Filter pack material: Manufacturer, product name & mesh size
a. REDFLINT #40
b. Volume added _____ ft^3

9. Well casing: Flush threaded PVC schedule 40 ☒ 23
Flush threaded PVC schedule 80 ☐ 24
Other ☐ ____

10. Screen material: _____
a. Screen type: Factory cut ☒ 11
Continuous slot ☐ 01
Other ☐ ____
b. Manufacturer _____
c. Slot size: 0.010 in.
d. Slotted length: 10 ft.

11. Backfill material (below filter pack): None ☐ 14
Other ☐ ____

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm
DAVID NESTE	WDNR

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on those forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

Facility/Project Name	County Name	Well Name
QUIC FREZ	FOND DU LAC	MW25
Facility License, Permit or Monitoring Number	**County Code**	**Wis. Unique Well Number**	**DNR Well ID Number**
	20	_____	___

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method

surged with bailer and bailed	☒ 41
surged with bailer and pumped	☐ 61
surged with block and bailed	☐ 42
surged with block and pumped	☐ 62
surged with block, bailed and pumped	☐ 70
compressed air	☐ 20
bailed only	☐ 10
pumped only	☐ 51
pumped slowly	☐ 50
Other _____	☐

3. Time spent developing well 20 min.

4. Depth of well (from top of well casisng) 15.8 ft.
North side

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing ____.__ gal.

7. Volume of water removed from well ~7.5 gal.

8. Volume of water added (if any) 00 gal.

9. Source of water added None

10. Analysis performed on water added? ☐ Yes ☒ No
(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. 6.27 ft.	15.3 ft.
Date	b. 04/07/2021 (m m d d y y y y)	04/07/2021 (m m d d y y y y)
Time	c. 12:30 ☐ a.m. ☒ p.m.	12:50 ☐ a.m. ☒ p.m.
12. Sediment in well bottom	~0.1 inches	0.0 inches
13. Water clarity	Clear ☒ 10 Turbid ☐ 15 (Describe) _____	Clear ☐ 20 Turbid ☐ 25 (Describe) CLOUDY
		LT. BROWN
		Trace SILT

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	____.__ mg/l	____.__ mg/l
15. COD	____.__ mg/l	____.__ mg/l

16. Well developed by: Name (first, last) and Firm
First Name: Steve Last Name: Mueller
Firm: WDNR

17. Additional comments on development: 15.8' - 6.3' = 9.5' * 0.65 gal/ft * 3 = 18 gals.

Name and Address of Facility Contact /Owner/Responsible Party
First Name: _____ Last Name: _____
Facility/Firm: _____
Street: _____
City/State/Zip: _____

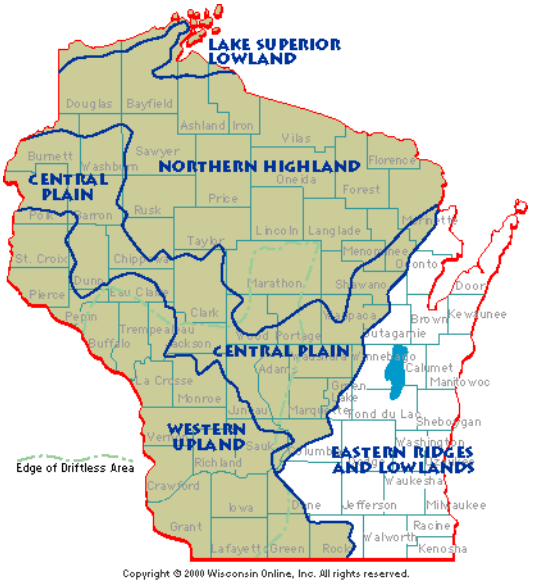
I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: [signature]
Print Name: STEPHEN D. MUELLER
Firm: WDNR

NOTE: See instructions for more information including a list of county codes and well type codes.

More Wisconsin Information

Words in the text shown in blue are explained in the Glossary.

The Eastern Ridges and Lowlands of W isconsin



The Eastern Ridges and Lowlands

Eastern Wisconsin contains a large proportion of the people of the state. The reasons for this are not simple. The three factors of prime importance are level topography, fertile soil and favorable climate. Topographic features are distinct, but they are low. The dominant thing in eastern Wisconsin is the plain.

Alternate weak and resistant rock layers having a moderate inclination will be carved by streams and weather into a belted plain. This plain will have parallel strips of upland and lowland corresponding to the more important resistant and weak strata. The uplands are called cuestas and the lowlands have sometimes been called vales. A cuesta is a ridge which has a steep escarpment on one side and a long gentle slope on the other.

The topography of the eastern ridges and lowlands is controlled by cuestas. The westernmost ridge is the rather low, narrow cuesta formed by the resistant Lower Magnesian limestone. It is alluded to hereafter as the Magnesian cuesta. The eastern upland is the higher and broader cuesta of Niagara limestone. The intermediate Green Bay- Lake Winnebago- Rock River lowland lies upon the belt of Black River and Galena limestone, with the gentle back slope of the Magnesian cuesta for one wall and the steep escarpment of the Niagara cuesta for the other.

The Lake Michigan lowland, half of which lies in the state of Wisconsin, owes its abnormal depth chiefly to glacial erosion rather than weathering and stream work, while the two cuestas and their intermediate lowland in eastern Wisconsin, though also modified by glaciation, are normal products of weathering and stream work.

The Magnesian Cuesta

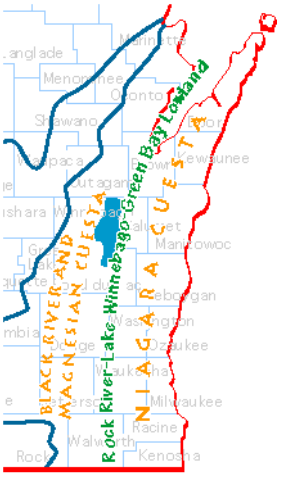
The cuesta of Lower Magnesian limestone varies in elevation from 724 feet above mean sea level (MSL) in Marinette County (near Pound) to 1240 feet above MSL in Dane County (at Lutheran Hill), showing a general increase in height from northeast to southwest.

In parts of Marinette, Shawano, Outagamie, Winnebago, Green Lake and Columbia counties, the width of the cuesta is only two to seven miles, in contrast to ten to 20 miles wide north of Madison.

A west and northwest- facing escarpment terminates the Magnesian cuesta. From this crest one overlooks the lowland of the Central plain. This escarpment in eastern Wisconsin is 175 miles long. It is 300 feet high in Dane and Columbia counties. Good places to see the high portions of the escarpment are between Dane and Lodi, and between Arlington and Poynette. The larger part of the escarpment, however, is much lower. In Marinette County the escarpment is only 50 feet high.

The escarpment is unusually simple in outline, although here and there its front projects in great salients. In Shawano County a triangular area projects seven miles. There are similar salients in southwestern Outagamie County and in Winnebago County south of Lake Poygan. The few reentrants are

complementary to these, as in Columbia County near Cambria.



The escarpment is likewise abnormal in the absence of great numbers of salients cut off and converted into isolated, flat- topped buttes or mesas. There is a large mass of this sort in Green Lake County surrounded by narrow valleys near Princeton and Green Lake. the northern 160 miles of the escarpment is almost entirely without such outliers. In a small area in Columbia County south of the Baraboo Range there are a few outliers in front of the escarpment, especially in the region between Prairie du Sac and Portage. Gibraltar Rock, 1240 feet high and capped by the St Peter sandstone, is the highest of these. These outliers have been isolated by erosion in preglacial time.

The Black River Escarpment

The western edge of the Galena- Black River limestone is so resistant in places as to form a low escarpment. This escarpment is, variably:

- an inconspicuous ledge, or
- a higher cliff, in several cases exceeding the crest of the Magnesian escarpment in height, or
- entirely wanting, or
- buried beneath the glacial drift.

Near Seymour, the escarpment is a more conspicuous feature than that of the Lower Magnesian limestone. Forty miles south of this, however, in Winnebago County, the Black River escarpment is an inconspicuous feature, seen near the quarries between Oshkosh and Omro. Fifteen miles south of this at Tipon, the black River escarpment is again a conspicuous feature.

Two kinds of valleys indent the edge of the escarpment. One is narrow and occupied by torrential streams, such as Mitchell's Glen and Arcade Glen southwest of Ripon. These are post glacial gorges in which the streams descend by rapids and waterfalls. the other sort of valley slopes in the opposite direction across a low part of the escarpment. These are larger streams, like the Menominee River in Marinette county, the upper Fox River in Winnebago county, and the several headwaters of the Rock River in Columbia and Dane Counties.

The back slope of the Galena- Black River limestone is the floor of the Green Bay- Lake Winnebago- Rock River lowland. The eastern edge of this lowland is lower than the western, and slopes northward so that the Green Bay end is nearly 300 feet lower than the part near the Illinois border. The floor of the lowland may be divided into three parts:

1. the submerged part, north of the city of Green Bay,
2. the middle area of rather smooth plain, and
3. the southern, hilly area.

The Niagara Cuesta

The upland between Lake Michigan and the Green Bay- Lake Winnebago- Rock River lowland is underlain by the Niagara limestone. This upland is unsymmetrical. The eastern border is everywhere lower than the western. The middle portion is more than 300 feet higher than the northern and southern portions.

The Niagara cuesta is an upland seven to 20 miles wide at the north on Washington Island and the Door Peninsula, and 25 to 45 miles wide at the south between Milwaukee and the Illinois border. The limestone is 450 to 800 feet thick and the shale at its base has a thickness of 200 to 500 feet. It forms an upland or ridge in practically all of the 900 miles of its circuitous course from Niagara Falls to Wisconsin. The west- facing escarpment overlooks the Green Bay- Winnebago- Rock River lowland and extends across the state of Wisconsin for more than 230 miles, but is nowhere so conspicuously developed a feature as east of Lake Winnebago where it is known as "The Ledge."

In Door County and Washington Island its rises only 160 to 220 feet above Green Bay (which, however, is 100 to 144 feet deep). At High Cliff, south of Clifton in Calumet County, the Niagara escarpment falls 223 feet (from 970 to 747 feet above MSL) in less than 700 feet horizontally. South of Stockbridge the crest of the escarpment is at an elevation of 1060 feet and is 313 feet higher than the base. It continues southward into Fond du Lac County with about the same altitude. Near Waukesha and Oconomowoc it is inconspicuous as a present- day topographic feature, but well records show that it is still 120 feet high.

In contrast with the Magnesian and Black River escarpments, the Niagara escarpment and cuesta are remarkable for the absence of transverse gaps in their southern 170 miles. The single exception is the Manitowoc River, northeast of Lake Winnebago. The northern portion is breached by several gaps. The widest of these lies between the end of Door Peninsula and the Upper Peninsula of Michigan. This gap of 30 miles is interrupted by Washington Island (8 miles long) and the smaller Rock Island in Wisconsin, and by several islands further north in Michigan. Another gap is at Sturgeon Bay. All these northern gaps are now occupied by the waters of Green Bay and Lake Michigan.

The upland on the back slope of the Niagara cuesta is a region of very moderate relief, with glacial deposits forming the greatest irregularities. The erosion of the largest streams, like the Milwaukee River near its mouth, results in a maximum relief of only 100 to 120 feet by cutting into the glacial drift and the rock. The greatest relief resulting from the glacial deposits lying upon the rock surface is 100 to 200 feet.

The slope of the drift- covered upland from the crest to the wave- cut cliffs of Lake Michigan is an average of about 12 feet to the mile. It descends from 1000 feet at the escarpment near Hartland, Waukesha County, to 700 feet near Lake Michigan. The Fox River of Waukesha, Racine and Kenosha counties and several smaller streams have a longitudinal trend (ie trending north- south along the back slope of the cuesta). The Milwaukee River flows eastward down the dip slope to within seven miles of Lake Michigan, then, at Fredonia, Ozaukee County, it turns abruptly southward and flows parallel to the coast for 32 miles before entering the lake at Milwaukee.

The eastern termination of the Niagara upland is masked by the waters of Lake Michigan.

The Glaciation of Eastern Wisconsin

In southeastern Wisconsin there are more than 1,400 oval hills of glacial drift in an area of 4,200 square miles. There are fully as many of these oval hills in the northeastern part of the state. They are called drumlins and they were made by the continental glacier. Wisconsin is famous in the world outside for two of its geographic features. One of these is the Driftless Area (above), and the other is the drumlins.

These oval drumlins have one peculiarity. Their longer axes are always parallel to the direction of the ice movement. Therefore they tell us the directions in which various parts of the continental glacier moved in eastern Wisconsin.

The ice moved across Wisconsin for long ages. The continental glacier advanced not once, but several times. Each glacial epoch was probably of greater duration than the time since the last ice sheet melted away. The proofs of unusually- effective glacial erosion in eastern Wisconsin are to be found in the following:

a. the rock basin character of Lake Michigan,
b. the similar form of Green Bay,
c. the submerged hanging valley relationship of Green Bay and Lake Michigan,
d. the absence of the Richmond shale from the floor of the Green Bay- Lake Winnebago- Rock River lowland,
e. the amount of quartzite derived from certain small ledges,
f. the simple outlines of the limestone escarpments,
g. the absence of residual soil on the surfaces of the cuestas,
h. the paucity of caves and sink holes,
i. the absence of marked ridges and valleys upon the cuesta surfaces,
j. the topographic contrast between the glaciated and driftless portions of Wisconsin, and the gradation from one to the other in the border region.

One part of eastern Wisconsin where a great amount of glacial erosion took place was the basin of Lake Michigan. It has a broad, flat bottom and abrupt walls, descending to a depth of 500 to 800 feet. The weak, Devonian shales underlying Lake Michigan must have formed a lowland in preglacial times. The lowland was doubtless occupied by a master stream flowing southward.

The preglacial stream course in the Lake Michigan basin was near present lake level at the southern boundary of Wisconsin. The bottoms of the preglacial valleys in what are now Lake Michigan and Green Bay were, accordingly, higher than [the current Lake Michigan level of] 581 feet above sea level. As the bottom of the lake is (a) at a level of only five to 80 feet above sea level east of Door Peninsular, (b) 323 feet below sea level in the deepest portion southeast of Sturgeon Bay, and (c) just about at sea level east of Racine in southern Wisconsin, the amount of glacial deepening, vertically, was from 500 to nearly 900 feet.

There are good reasons for supposing that, before the Glacial Period, the site of Green Bay was occupied by a river rather than a lake.

The depth of Green Bay at the junction with Lake Michigan is 100 to 144 feet, and the depth in the straits north of Washington Island is 156 feet. To the east the water deepens rapidly to 576 feet. Junctions of main and side streams are normally even, or accordant, in regions where there have never been glaciers. the junctions of main and side valleys in glaciated regions are almost always discordant, and the side valley hangs above the main valley. This is spoken of as a hanging valley. Such discordance is produced because the larger glacier in the main valley erodes its bed more deeply than the smaller ice tongue in the side valley. Since, in the case of Green Bay and Lake Michigan, this discordant valley junction lies below lake level it is spoken of as a submerged hanging valley.

Scar city of Caves and Sink Holes

In the Driftless Area, caves and disintegration seem to be abundant down to the limit of ground water. This is ten to 100 feet in some places, and 100 to 300 feet in others. Sink holes in the driftless portion of the state are from five to 20 feet deep. Caves penetrate to a depth of 50 to 75 feet in driftless southwestern Wisconsin. It seems logical to conclude from the relationships of residual soil and of caves that one or two hundred feet of weathered and cavernous rock have been eroded by the ice in eastern Wisconsin.

Surface Featur es Due to Glacial Deposition

The deposits left by the ice sheet are unassorted till, or boulder clay, and stratified gravel, sand and clay. they contain not only fragments of the local limestone, shale and sandstone, but also igneous and metamorphic rocks imported into the region by the ice sheet.

Extending southwestward from Waterloo are abundant boulders of quartzite scattered by the glacier in the lee of the ledges. This is known as a boulder train. It is recognizable because quartzite is a unique rock in this region of limestone and sandstone. The Waterloo boulder train is more than 60 miles long. It is fan- shaped, increasing in width from a narrow band to 20 miles near Sun Prairie and Lake Mills, and 50 miles near whitewater and Madison. Smaller boulder trains are found in the valley of the Fox River in the Central Plain, and in the Powers Bluff monadnock of the Northern Highland in Wood County.

The drift in eastern Wisconsin contains fragments of native copper from the north. Masses up to 487 pounds in weight have been found in southeastern Wisconsin.

A few diamonds are also found in the glacial drift. Such diamonds have been found near Eagle in Waukesha County, southwest of Oregon in Dane County, near Saukville in Ozaukee county, Burlington in Racine county and Kohlsville in Washington County. The largest of these weighed 15-12/32 carats. Their source is unknown, but is supposed to be somewhere in Canada. As long ago as 1670 the Jesuit fathers related a story of diamonds on some of the islands at the entrance to Green Bay.

The ground moraine which covers nearly all of eastern Wisconsin has the variable, slightly rolling topography of drift- mantled plains. The ground moraine is made up largely of till, but may contain small areas of stratified sand and gravel. The ground moraine covers a much larger area than the terminal moraines, which are in long narrow belts. McGee described the similar ground moraine of Iowa:

> "The whole mass (of ice), indeed, must have lain in majestic inactivity until devoured by the hungry sun and thirsty wind. The boulder- dotted surface . . . is its epitaph."

The thickness of the ground moraine in southeastern Wisconsin varies from a few feet on the hilltops to more than 400 feet in the bottoms of the preglacial valleys. The surfaces mantled by the ground moraine have local relief of 50 to 200 feet, except where the topographic forms like terminal moraines and drumlins rise above the ground moraine.

Most of the ground moraine is covered by a rather fertile clay soil, but parts of it are stony. Large areas are too swampy for agriculture, or are covered by lakes.

Drumlins

Drumlins are confined mostly to the limestone belt and lie within five to 35 miles of the outermost terminal moraine. The ice in this belt is thought to have been at least 450 to 1,450 feet thick.

Some of the drumlins rise as much as 140 feet above the adjacent plain. A few are as low as five feet. their average width is about a quarter mile, and their length varies from a few rods to two miles. The material is chiefly unstratified glacial drift. Numerous well sections show that they do not have rock cores.

The Kettle Moraine

Between the Green Bay and Lake Michigan lobes was formed an interlobate deposit of unusual height and irregularity. This is a part of the kettle moraine of Wisconsin, so called because of the deep hollows or "kettles." It rises 200 feet above the region southeast of Whitewater and is especially well seen near Eagle in Waukesha County. The kettles are due to the melting of buried ice blocks, or to the building of irregular morainic ridges which enclose undrained depressions.

Outwash Deposits

Deposits made by streams which issued from the edge of the melting ice are found in many parts of eastern Wisconsin. They are typically developed near Janesville and Beloit in Rock County. Outwash plains consist of low, coalescing, alluvial fans which head up against a moraine. Outwash may be built at the border of any recessional moraine. Near Janesville the outwash plain slopes southward at the rate of nearly 10 feet to the mile. It as a smooth surface with slight irregularities. The thickness of the outwash at Janesville is 450 feet.

Eskers

Allied to the outwash plains in origin are the eskers, built by glacial streams flowing beneath the ice. These are narrow, winding ridges of stratified gravel. They are not numerous. Eskers as much as six miles long are known in eastern Wisconsin. Conspicuous one are to be seen near Waterloo in Jefferson County, west of Cottage Grove in Dane County, in the southeastern part of Dodge County, the eastern part of Columbia County, and the southeastern part of Marinette County. [Parnell Esker may be hiked via a trail in the Kettle Moraine State Forest Northern Unit, near Dundee in southeastern Fond du Lac County. Ed.]

A For est Bed

At Two Creeks, between Kewaunee and Manitowoc, the wave- cut cliffs of the lake shore reveal an ancient forest bed, buried beneath red till and resting on stratified red clay. It consists of logs, branches and upright stumps. This forest bed proves that there was a period long enough for forest growth between the retreat of the ice and accumulation of the red clay and the readvance of the ice during which the red till was deposited. Similar vegetable accumulations are found in wells in the Fox River Valley.

[The book's extensive and detailed chapter on The Glaciation of Eastern Wisconsin is followed by a chapter on The Drainage of Eastern Wisconsin. The Wisconsin Coast of Lake Michigan is then discussed in detail in a separate chapter beginning on page 294.]

The Geographical Provinces of Wisconsin

Western Upland | Eastern Ridges and Lowlands | Central Plain | Northern Highland | Lake Superior Lowland

Editor's Notes | Glossary

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Reference 12

Geology and Ground-Water Resources of Fond du Lac County, Wisconsin

By THOMAS G. NEWPORT

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1604

Special reference is given to the area of the city of Fond du Lac. Prepared in cooperation with the Geological and Natural History Survey, University of Wisconsin, and the city of Fond du Lac

UNITED STATES GOVERNMENT PRINTING OFFICE, WASHINGTON : 1962

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ILLUSTRATIONS

[Plates are in pocket]

TABLES

GEOLOGY AND GROUND-WATER RESOURCES OF FOND DU LAC COUNTY, WISCONSIN

By THOMAS G. NEWPORT

ABSTRACT

The principal water-bearing rocks underlying Fond du Lac County, Wis., are sandstones of Cambrian and Ordovician age and dolomite of Silurian age. Other aquifers include dolomite of Ordovician age and sand and gravel of Quaternary age. Crystalline rocks of Precambrian age, which underlie all the water-bearing formations, form a practically impermeable basement complex and yield little or no water to wells.

Ground water is the source of all public and most private and industrial water supplies in the county. The municipalities and industries obtain water chiefly from wells that penetrate the sandstones of Cambrian and Ordovician age. The Platteville formation and Galena dolomite of Ordovician age and the Niagara dolomite of Silurian age supply water to most domestic and stock wells and to a few industrial wells. Several buried valleys in the bedrock surface contain water-bearing deposits of sand and gravel.

The source of the ground water in Fond du Lac County is local precipitation. Recharge to the water-bearing beds occurs in most of the county but is greatest where the bedrock formations are near the surface. Ground water is discharged by seeps and springs, by evaporation and transpiration, and by wells.

Ground-water levels in wells fluctuate in response to recharge and to natural discharge and pumping. In areas not affected by pumping, water levels generally decline through the summer months because of natural discharge and lack of recharge, recover slightly in the fall after the first killing frost, decline during the winter, and recover in the spring when recharge is greatest. In areas of heavy pumping, the water levels are lowest in late summer and highest in late winter. Water levels in wells in the Fond du Lac area were about 5 to 50 feet above the land surface in 1885, but they had declined to as low as 185 feet below the land surface by 1957.

Coefficients of transmissibility and storage of the sandstones of Cambrian and Ordovician age were determined by making controlled aquifer tests at Fond du Lac. The coefficients were verified by comparing computed water-level declines with actual declines. The computed values were within about 30 percent of the actual values, a reasonable agreement for coefficients of this type.

Probable declines of water levels by 1966 were computed, using the same coefficients of transmissibility and storage. If the distribution of wells and the rate of pumping remain the same in 1957–66 as they were in 1956, the water levels will decline about 5 feet more by 1966. If, however, the distribution of pumped wells remains the same but the pumping by the city of Fond du Lac increases at a uniform rate from the 3 mgd (million gallons per day) pumped in 1956 to 5 mgd in 1966, the water levels in 1966 will be at least 60 feet below

and Calumet Counties, on the east by Calumet and Sheboygan Counties, on the south by Washington and Dodge Counties, and on the west by Green Lake County. The distance across the county is 36 miles from east to west and 18 to 27 miles from north to south. The county has an area of approximately 760 square miles.

In 1950, the population of Fond du Lac County was 67,829, of which 29,936 (44 percent) resided in the city of Fond du Lac.

ECONOMIC DEVELOPMENT

The economy of the county is chiefly agricultural. Dairying is of major importance and sweet corn, peas, oats, and barley are grown extensively. There are several canning factories and many small milk-processing and cheese plants in the county. Repair shops for two railroads are located at North Fond du Lac. In 1958, there were approximately 15 industrial plants in the city of Fond du Lac.

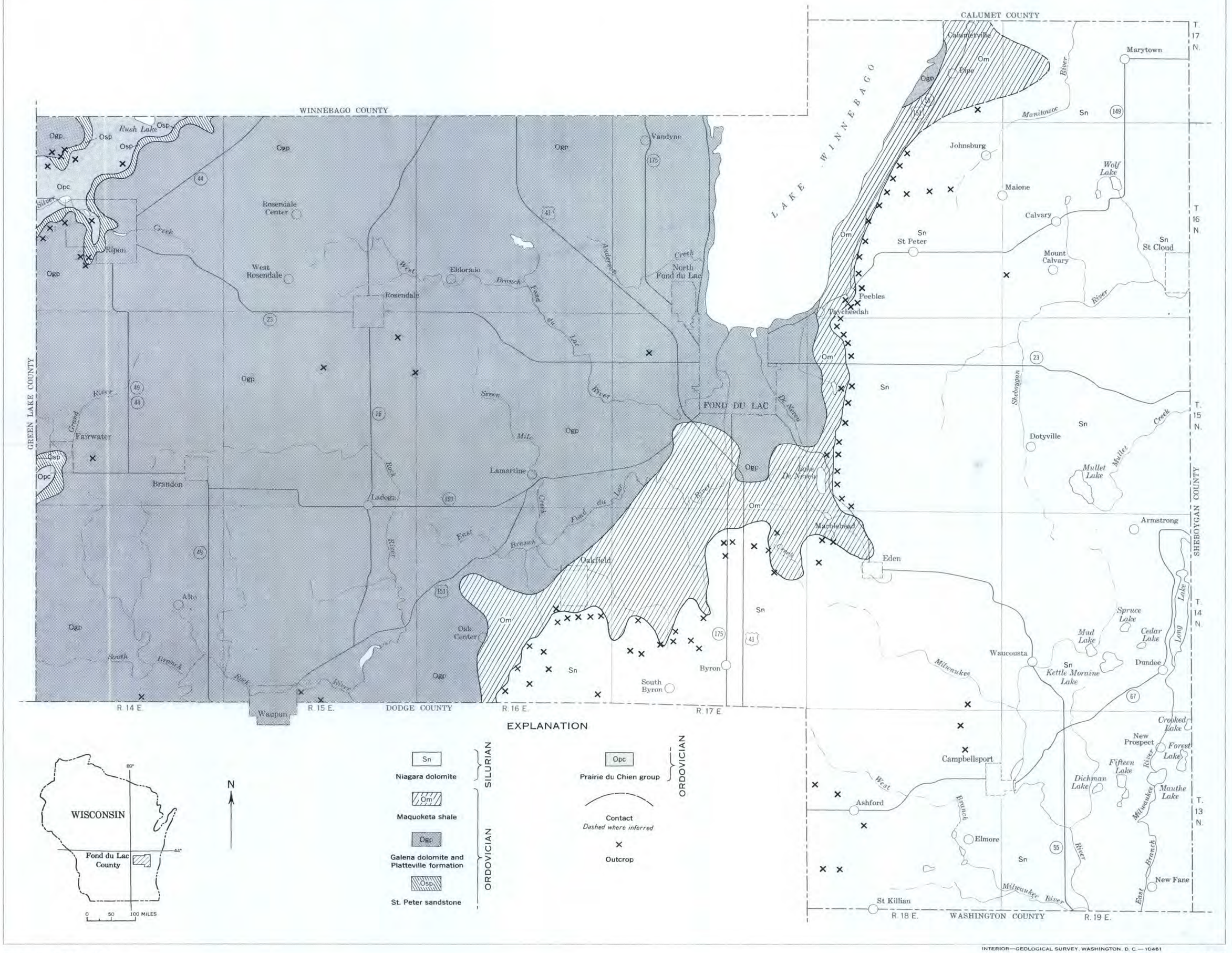
TOPOGRAPHY AND DRAINAGE

The most pronounced topographic feature in the county is a west-facing escarpment of Niagara dolomite (pl. 2). It extends from south of Pipe to Eden, thence southwestward to Oakfield and south to the Dodge County line. The top of the escarpment ranges from about 50 to 150 feet above the general level of the area to the west.

The area east of the escarpment is higher and more rolling than the area to the west. The so-called Kettle Moraine area in the southeastern part of the country is rolling to hilly. To the north, the surface is gently rolling and is characterized by numerous hills, or drumlins, and by a few relatively flat areas.

A large flat plain, 3 to 8 miles wide, lies immediately west of the escarpment and extends southward from Lake Winnebago to a few miles north of the Dodge County line. West of this plain the surface is gently rolling.

Most of the streams that drain the county originate within its boundaries. The area east of the escarpment is drained by the Manitowoc, Sheboygan, and Milwaukee Rivers and their tributaries into Lake Michigan. The flat plain in the central part of the county is drained by the East Branch of the Fond du Lac River and De Neveu Creek and their tributaries into Lake Winnebago. The West Branch of the Fond du Lac River and Anderson Creek drain the north-central part of the county, also into Lake Winnebago. The extreme northwestern part of the county is drained by Silver Creek and the west-central part by Grand River. Both streams flow into the Fox River in Winnebago County and thence into Lake Winebago. The headwaters of the Rock River drain the southwestern and south-central parts of the county southward to the Mississippi River.



Base compiled from maps of the State Highway Commission of Wisconsin and field notes

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—10461

Modified from Geologic Map of Wisconsin, E. F. Bean (1949)

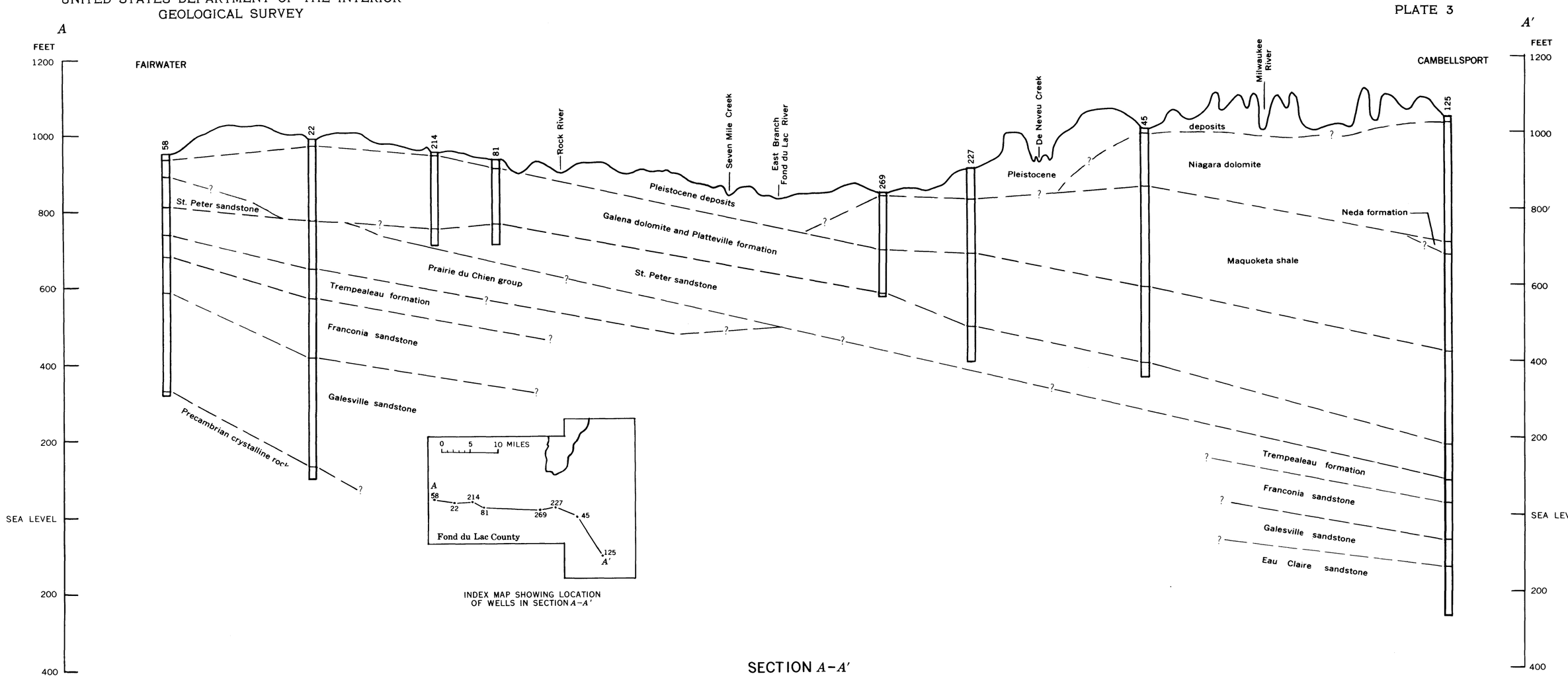
MAP OF FOND DU LAC COUNTY, WISCONSIN, SHOWING BEDROCK GEOLOGY

1 0 5 MILES

DATUM IS MEAN SEA LEVEL

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WATER-SUPPLY PAPER 1604
PLATE 3



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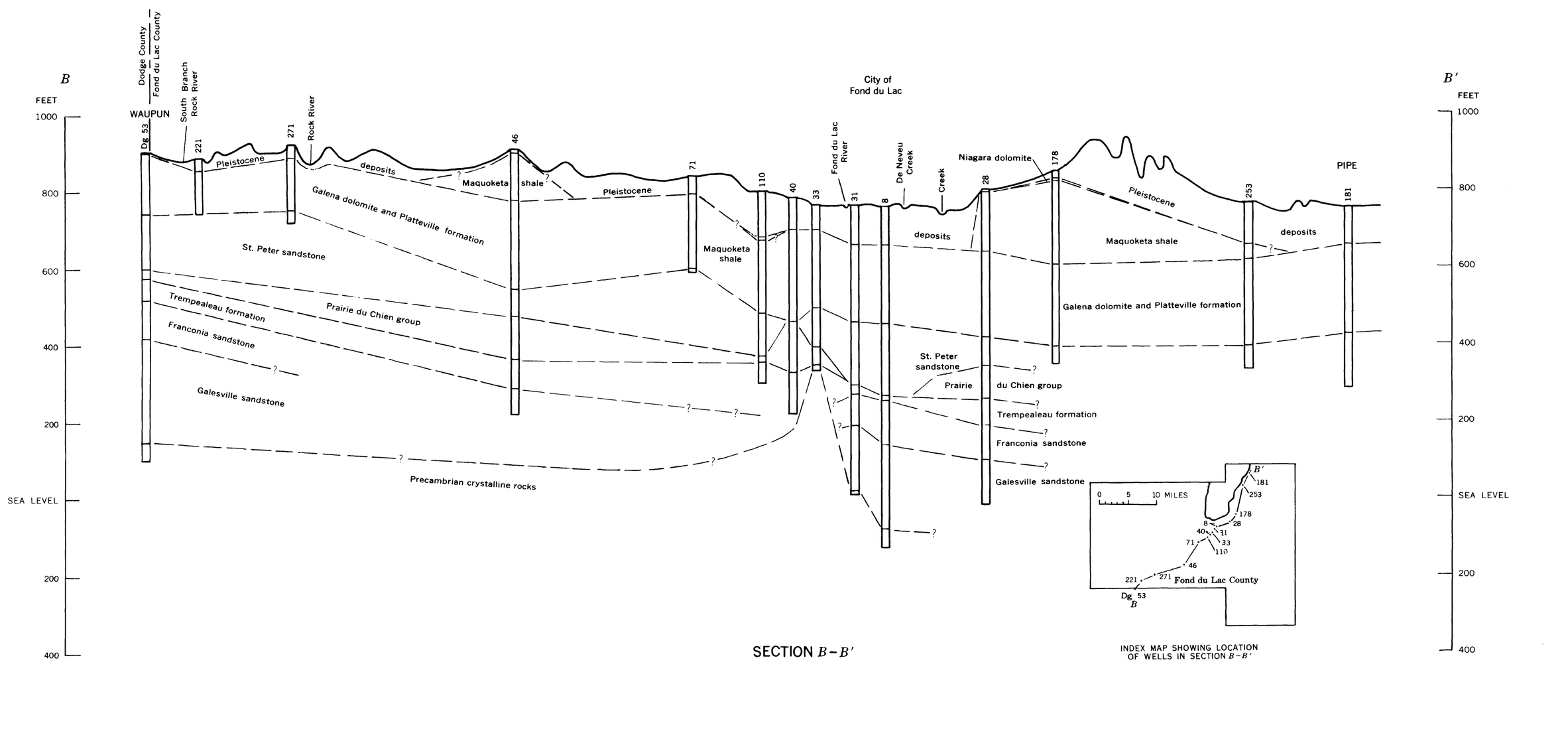

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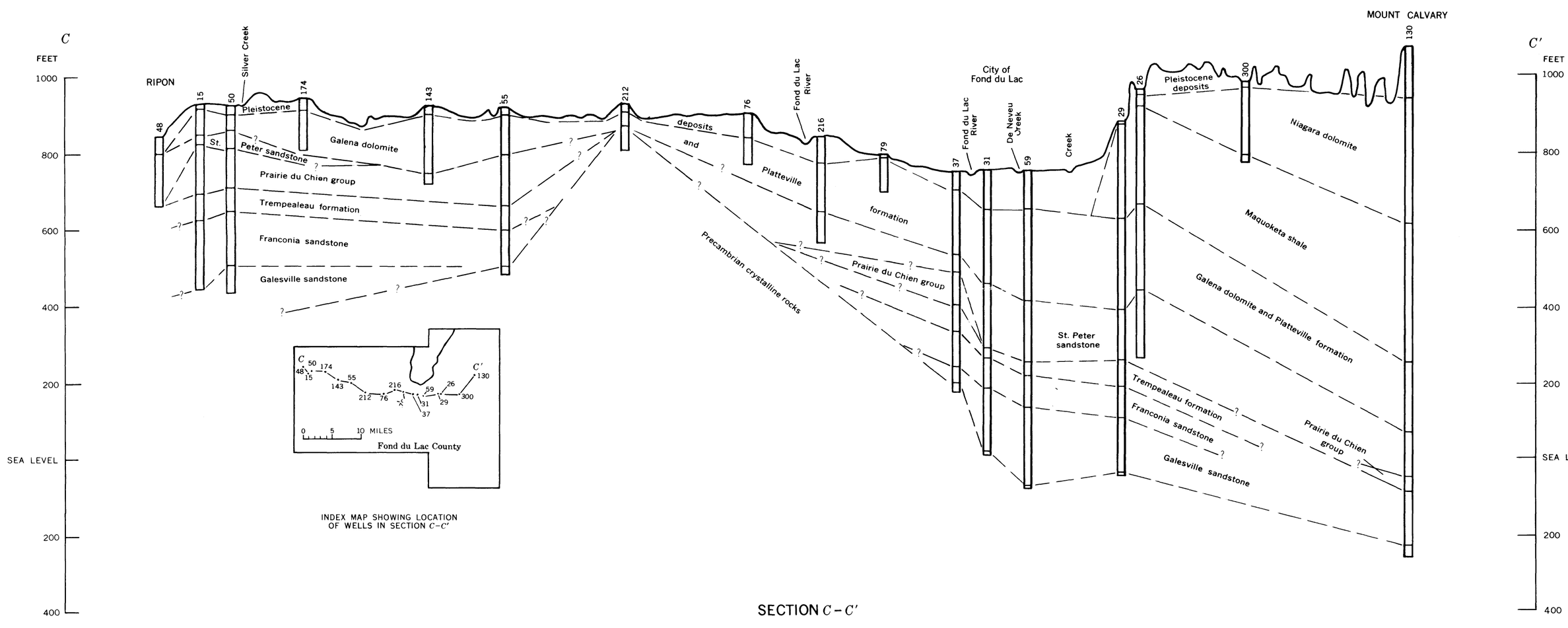


SECTION $C-C'$

STRATIGRAPHIC SECTIONS FROM FAIRWATER TO CAMPBELLSPORT, WAUPUN TO PIPE, AND RIPON TO MOUNT CALVARY, WISCONSIN

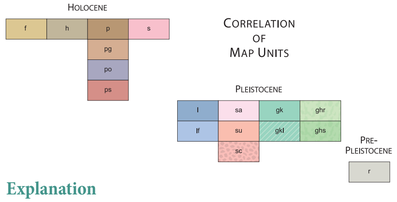
1 0 5 MILES

604855 O - 62 (In Pocket)

Preliminary Quaternary Geology of Fond du Lac County, Wisconsin

William N. Mode and Thomas S. Hooyer

Open-File Report 2014-01
Plate 1 • 2014



Explanation

Postglacial deposits

Fill. Consisting of various materials including gravel, sand, silt, and clay.

Hillslope sediment. Primarily sand, silt, and clay eroded from adjacent upland areas; usually composed of till of the Kirby Lake Member of the Kewaunee Formation; typically 1 to 2 m thick.

Peat. Unit **p:** Peat occupying low-lying, flat to low-relief surfaces; thickness varies, but is typically 1 to 3 m thick. Unit **pg:** Peat over sandy till of the Horicon Member of the Holy Hill Formation. Unit **po:** Peat over lake sediment of glacial Lake Oshkosh; usually only occurs at elevations below 800 feet above sea level; may be beach sediment near margins of wetland. Unit **ps:** Peat overlying postglacial or meltwater stream sediment consisting of silty and sandy sediment with occasional occurrences of channel sand and silt.

Stream sediment. Commonly consists of silty and sandy sediment with occasional occurrences of channel sand and silt; typically 1 to 15 m thick. Deposited in floodplains adjacent to postglacial streams; most was probably deposited during the Holocene.

Glacial deposits

Lake sediment. Unit **l:** Lake sediment consisting of sand, silt, and clay. Unit **lf:** Sediment deposited in glacial Lake Fond du Lac, usually at elevations below 830 feet above sea level; largely silt and clay where deposited in deeper water grading to sand near the shoreline; typically 1 to 3 m thick; sediment deposited near the shoreline may include windblown sediment, washed hillslope sediment, and patches of peat that could not be separately mapped.

Meltwater-stream sediment. Sand and gravel deposited by streams originating from the margin of the Green Bay Lobe; commonly 1 to 30 m thick. Unit **sa:** Sediment deposited in an alluvial fan or delta immediately adjacent to a moraine or ice-contact face. Unit **su:** Sediment deposited in proglacial river channels. Unit **sc:** Collapsed meltwater-stream sediment deposited in alluvial fans, deltas, and proglacial river channels.

Kewaunee Formation

Kirby Lake Member

Till. Red clayey silt with some gravel deposited by the Green Bay Lobe during its first readvance; generally at least 3 m thick. Unit **gk:** Low-relief, nondescript glacial topography; till generally draped over pre-existing topography. Unit **gkl:** Similar to **gk** but covered with thin patches of lake sediment that are typically less than 2 m thick.

Holy Hill Formation

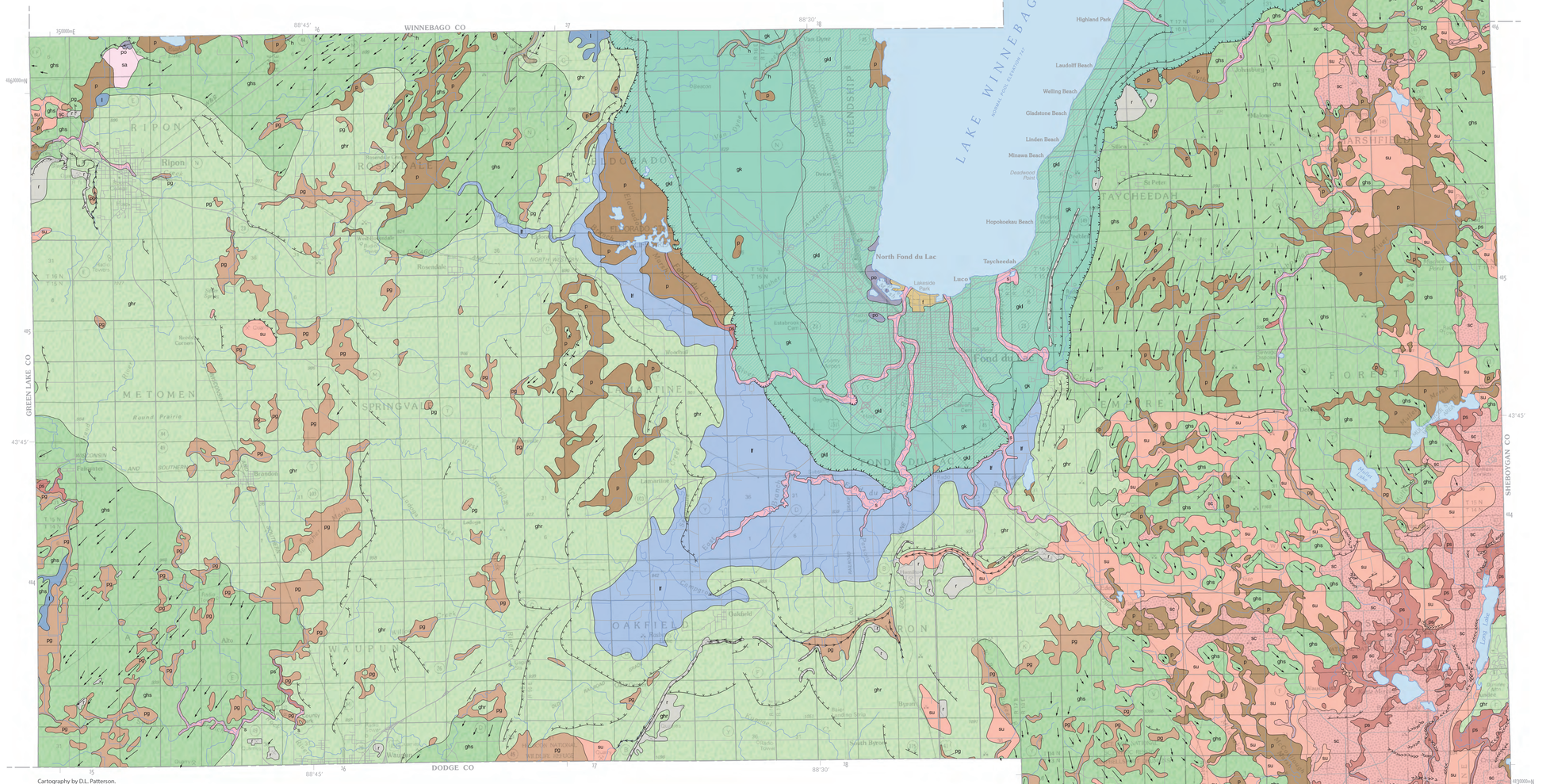
Horicon Member

Till. Brown to reddish brown gravelly, clayey, silty sand deposited by the Green Bay Lobe; generally at least 3 m thick; includes many small to large inclusions of windblown sediment, hillslope sediment, and glacial lake sediment that could not be mapped separately. Unit **ghr:** Generally has rolling topography in areas lacking drumlins. Unit **ghs:** Rolling topography that was subglacially molded; contains streamlined landforms including drumlins and flutes.

Bedrock

Bedrock. Dolomite, sandstone, quartzite, or granite; glacially scoured areas of bedrock near the ground surface covered by less than 2 m of various sediment such as the sandy till of the Holy Hill Formation or sand and gravel.

This geologic map was funded in part by the U.S. Geological Survey, National Cooperative Geologic Mapping Program, under StateMap awards 04HQAG0030, 05HQAG0052, G10AC00263, and G11AC20212. The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the U.S. Government.



Cartography by D.L. Patterson.

Symbols

Geologic contact. Position shown on map is judged to be generally within 0.2 km of actual position.

Moraine crest.

Ice-margin position. Interpreted position of maximum extent of readvance of ice or position of ice-margin stability where ice-contact face or end moraine is missing.

Ice-contact face.

Stream cutbank. Hachures point toward stream channel center line.

Drumlin. Length of arrow on symbol proportional to length of drumlin axes; arrow points in the direction of ice flow.

Sand dune. Arrow indicates wind direction.

Steep slope. Hachures point downslope.

Meltwater channel. Arrow indicates direction of flow.

Esker. V points in direction of water flow.

This map represents work performed by the Wisconsin Geological and Natural History Survey and is released to the open files in the interest of making the information readily available. This map has not been edited or reviewed for conformity with Wisconsin Geological and Natural History Survey standards and nomenclature.

This map is an interpretation of the data available at the time of preparation. Every reasonable effort has been made to ensure that this interpretation conforms to sound scientific and cartographic principles; however, the map should not be used to guide site-specific decisions without verification. Proper use of the map is the sole responsibility of the user.

Scale 1:100,000

1 0 1 2 3 4 5
MILES
1 0 1 2 3 4 5 6 7 8
KILOMETERS

Wisconsin Transverse Mercator Projection1991 adjustment to the North American Datum of 1983 (NAD 83/91).

The base map was constructed from U.S. Geological Survey digital line graph files (1990, scale 1:100,000) and modified by the Wisconsin Department of Natural Resources (1992) and the Wisconsin Geological and Natural History Survey (2012).

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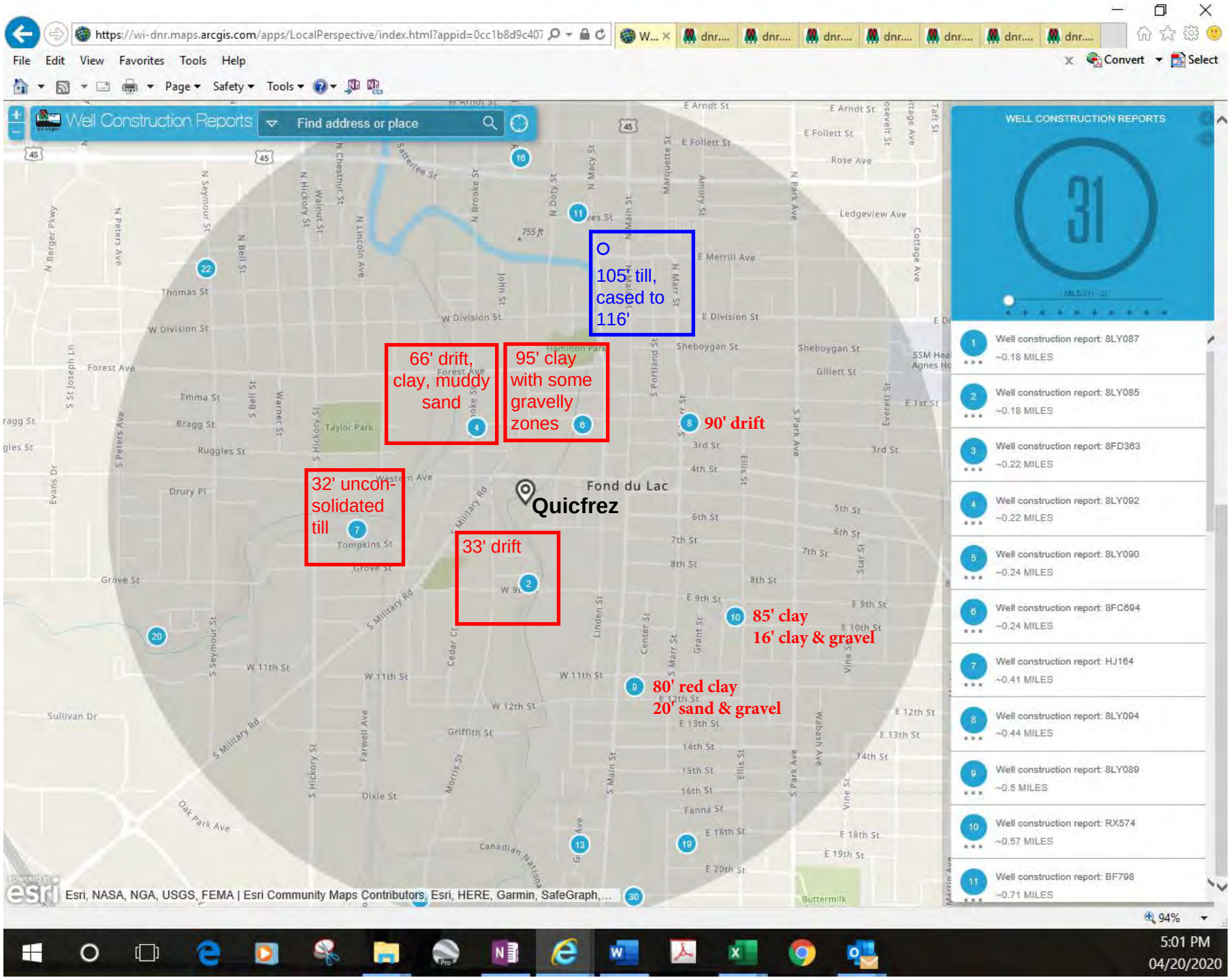
3817 Mineral Point Road • Madison, Wisconsin 53705-5100 • 608/263.7389
James M. Robertson, *Director and State Geologist*
wisconsingeologicalsurvey.org


Well Construction Reports
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WELL CONSTRUCTION REPORTS
31
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Well construction report: 8LY092 ~0.22 MILES
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Well construction report: 8LY089 ~0.5 MILES
Well construction report: RX574 ~0.57 MILES
Well construction report: BF798 ~0.71 MILES
105' till, cased to 116'
66' drift, clay, muddy sand
95' clay with some gravelly zones
90' drift
32' uncon-solidated till
33' drift
85' clay
16' clay & gravel
80' red clay
20' sand & gravel
Fond du Lac
Quicfrez
Esri, NASA, NGA, USGS, FEMA | Esri Community Maps Contributors, Esri, HERE, Garmin, SafeGraph,...
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Map Title

Legend

- Open Site
- Closed Site
- Continuing Obligations Apply

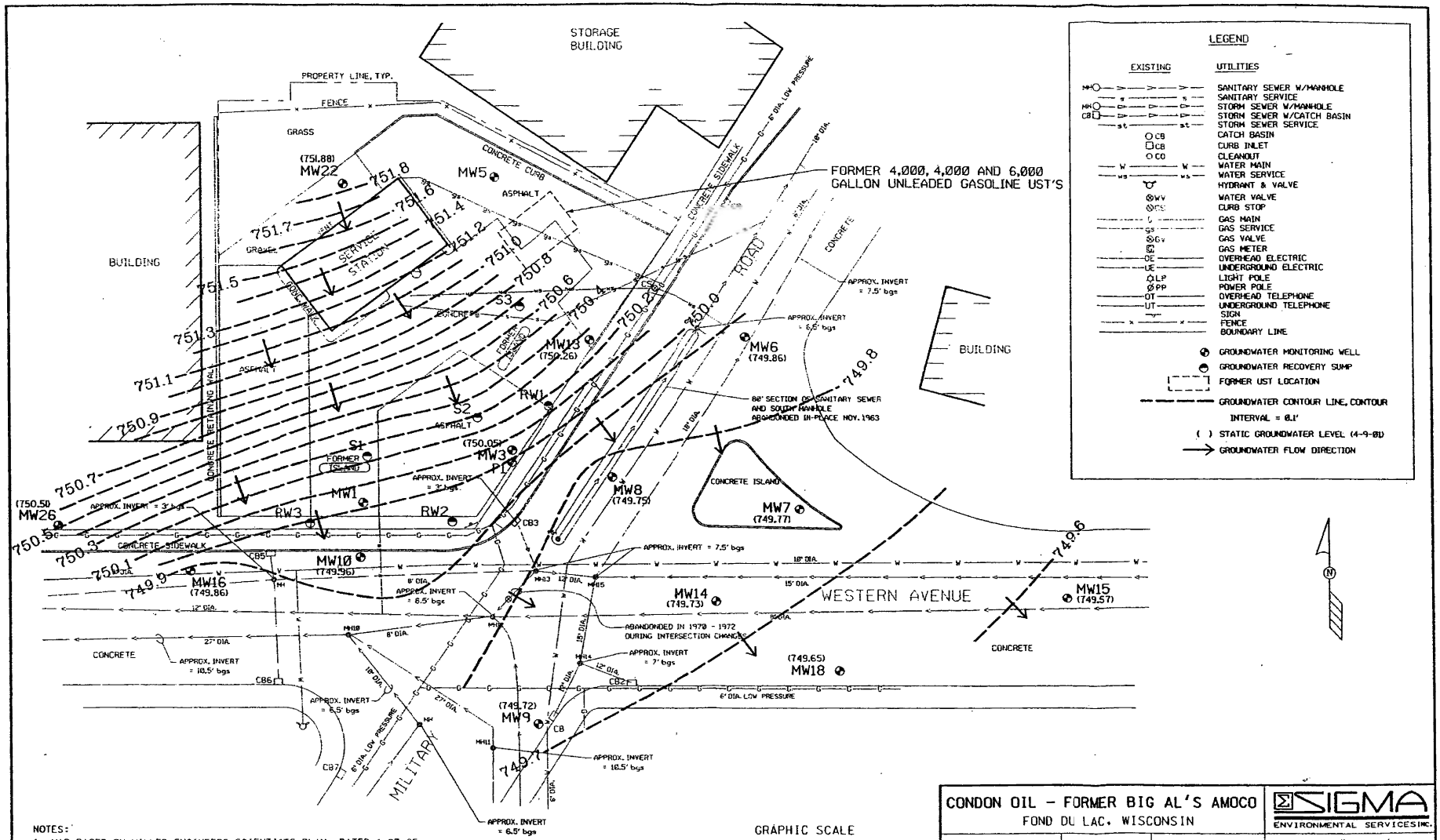
0.2 0 0.2 Miles

1: 7,920

NAD_1983_HARN_Wisconsin_TM

Note: Not all sites are mapped.

Notes



NOTES:
1. MAP BASED ON MILLER ENGINEERS SCIENTISTS PLAN, DATED 1-27-95.
2. MW-1 ABANDONED DURING 12/1999 EXCAVATION ACTIVITIES.
3. UTILITY INFORMATION UPDATED FROM DRAWINGS OBTAINED FROM THE CITY OF FOND DU LAC IN APRIL 2001. ACTUAL LOCATIONS SUBJECT TO FIELD VERIFICATION.

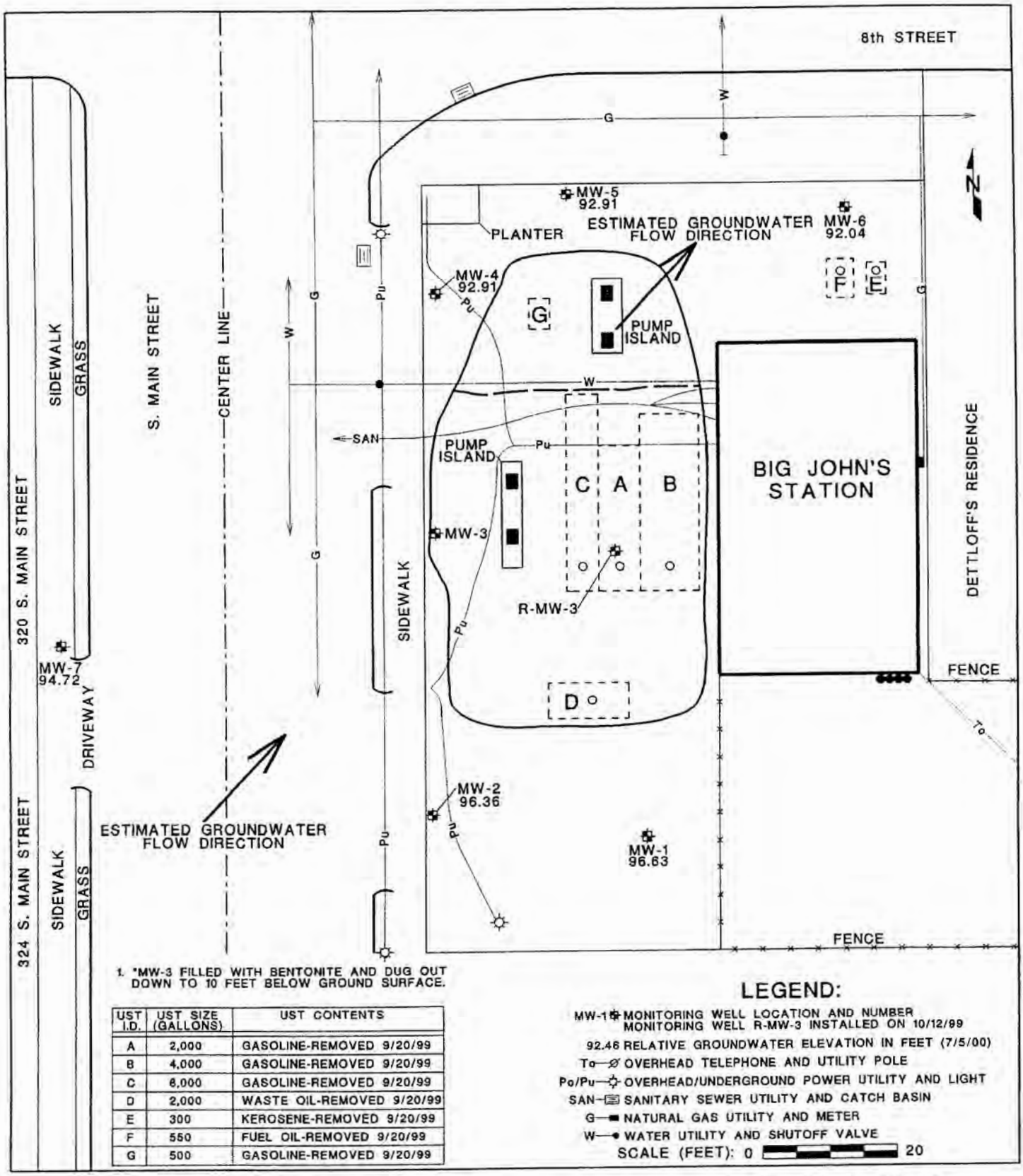
CONDON OIL - FORMER BIG AL'S AMOCO
FOND DU LAC, WISCONSIN

SIGMA ENVIRONMENTAL SERVICES INC.

DATE: 8-18-00	DR. BY: BEB	DR.# 3401-023	SCALE: 1" = 30'

GROUNDWATER CONTOUR MAP
(4-9-01)

FIGURE 1



1. *MW-3 FILLED WITH BENTONITE AND DUG OUT DOWN TO 10 FEET BELOW GROUND SURFACE.

UST I.D.	UST SIZE (GALLONS)	UST CONTENTS
A	2,000	GASOLINE-REMOVED 9/20/99
B	4,000	GASOLINE-REMOVED 9/20/99
C	6,000	GASOLINE-REMOVED 9/20/99
D	2,000	WASTE OIL-REMOVED 9/20/99
E	300	KEROSENE-REMOVED 9/20/99
F	550	FUEL OIL-REMOVED 9/20/99
G	500	GASOLINE-REMOVED 9/20/99

LEGEND:

MW-1 ⊕ MONITORING WELL LOCATION AND NUMBER
MONITORING WELL R-MW-3 INSTALLED ON 10/12/99

92.46 RELATIVE GROUNDWATER ELEVATION IN FEET (7/5/00)

To — OVERHEAD TELEPHONE AND UTILITY POLE

Po/Pu — OVERHEAD/UNDERGROUND POWER UTILITY AND LIGHT

SAN — SANITARY SEWER UTILITY AND CATCH BASIN

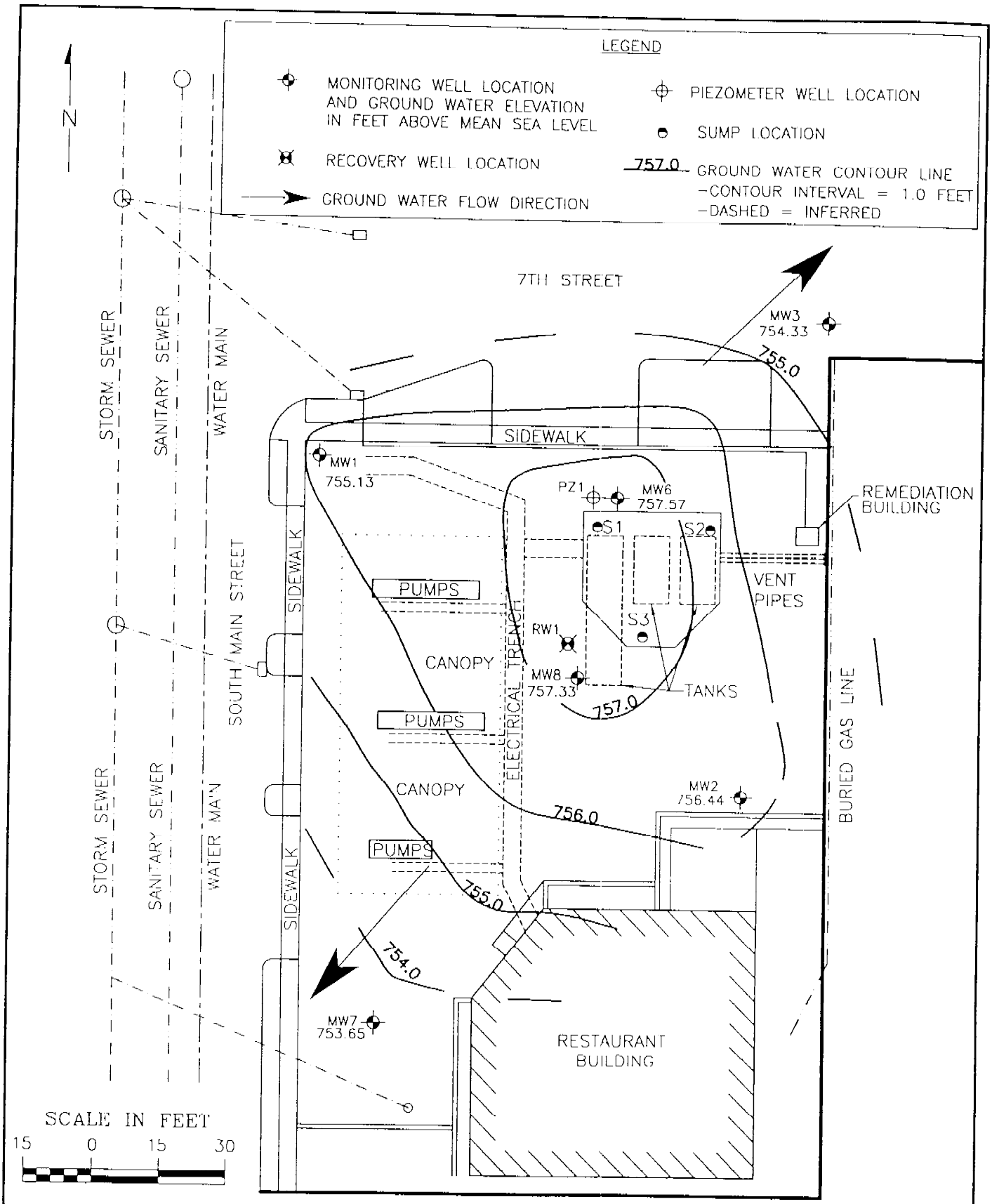
G — NATURAL GAS UTILITY AND METER

W — WATER UTILITY AND SHUTOFF VALVE

SCALE (FEET): 0 20

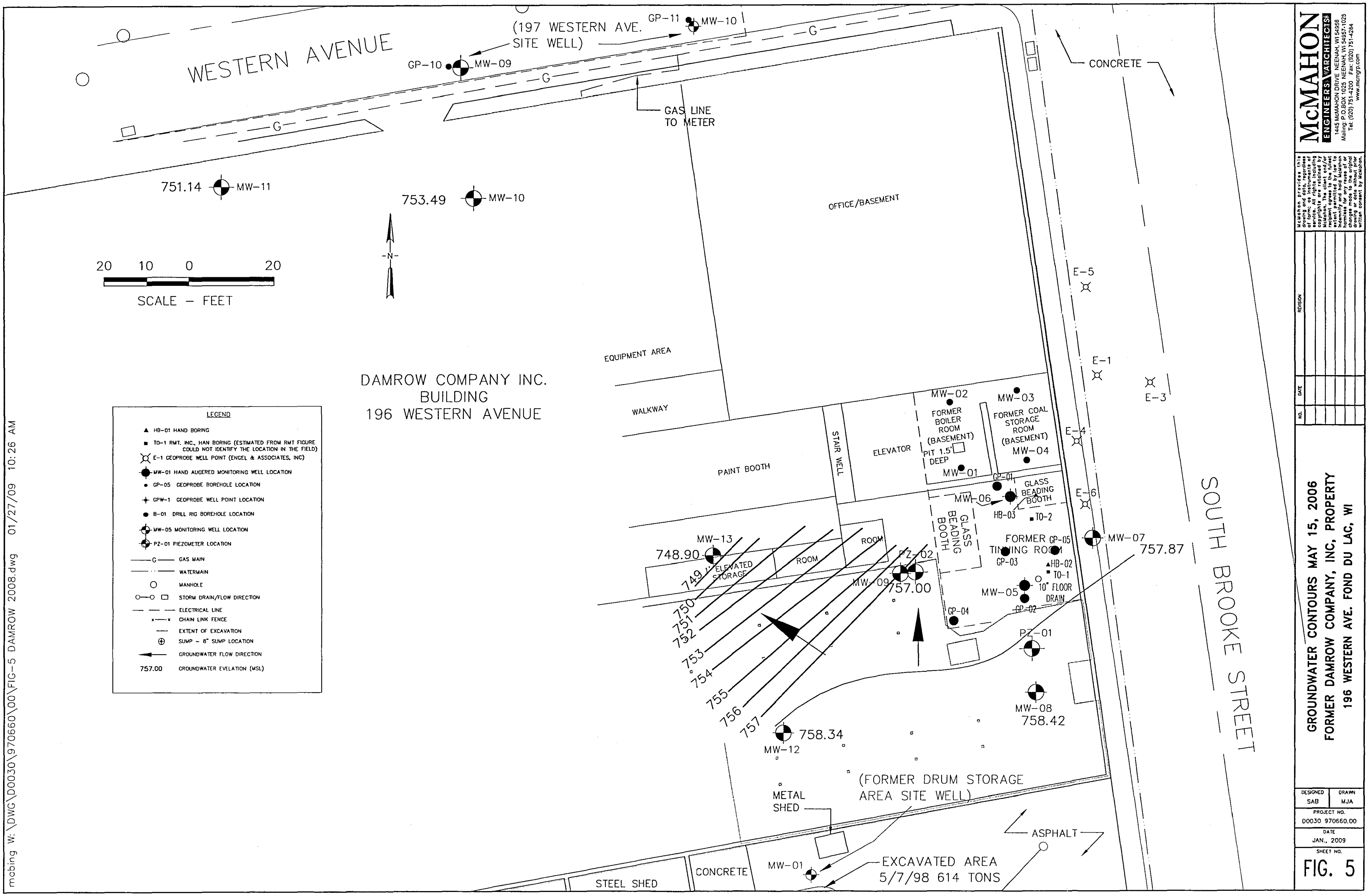
FIGURE 1 SITE FEATURES
BIG JOHN'S
FOND DU LAC, WISCONSIN

ADVENT
ENVIRONMENTAL SERVICES, INC.
DATE: 7/27/00
DRAWING #980149.03A

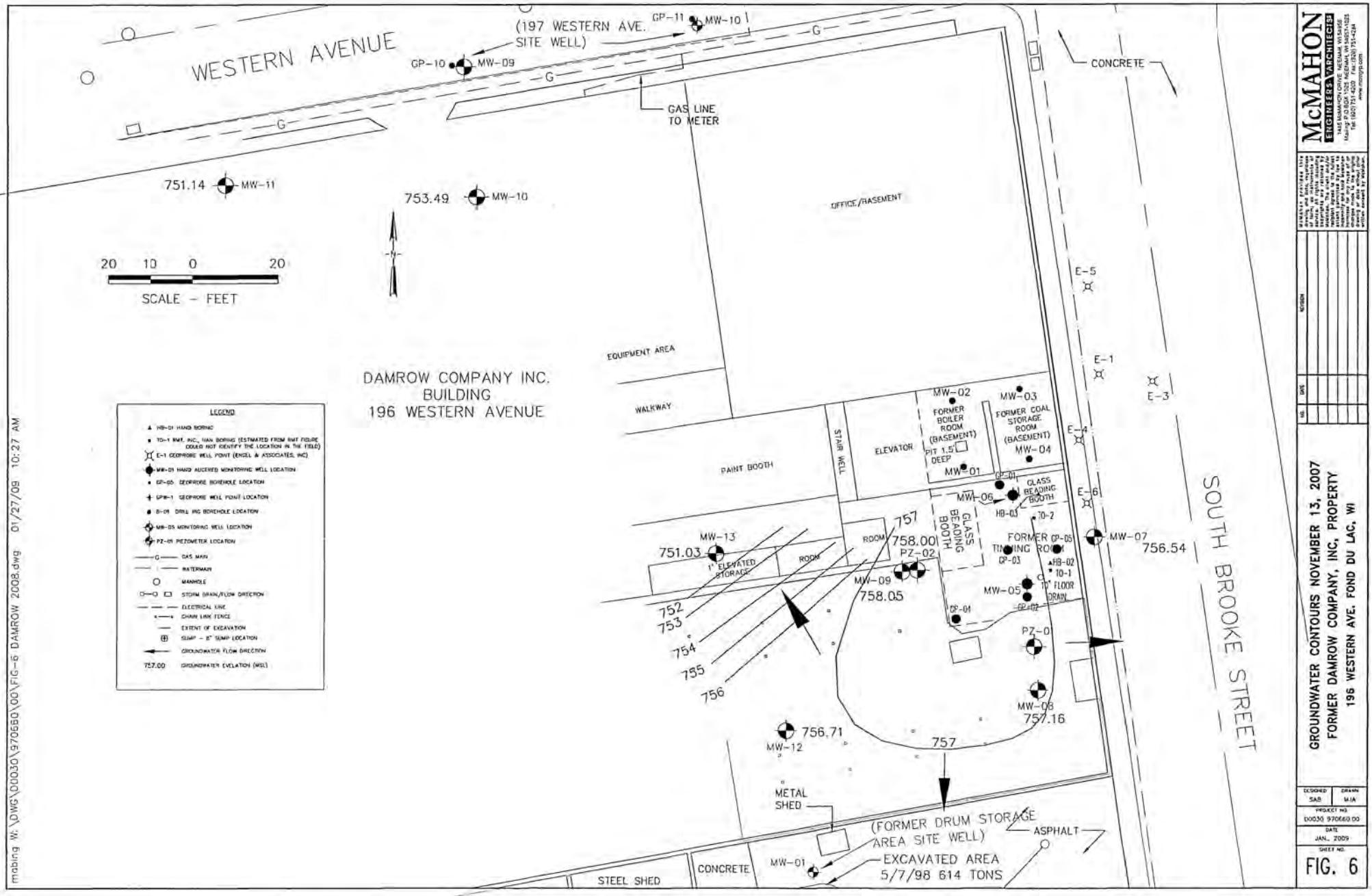


DRAWN BY: BGD	PROJECT: USO830061	DATE: 8/10/95
REV. DATE 8/26/199/ DAM	THIS DRAWING AND ALL INFORMATION CONTAINED THEREON IS THE PROPERTY OF NORTHERN ENVIRONMENTAL INCORPORATED AND SHALL NOT BE COPIED OR USED EXCEPT FOR THE PURPOSE FOR WHICH IT IS EXPRESSLY FURNISHED.	FIGURE 4 GROUND WATER ELEVATIONS AND FLOW DIRECTION: JULY 8, 1997 EXPRESS CONVENIENCE CENTER #74 FOND DU LAC, WISCONSIN
3/26/96 JJR	Northern Environmental℠ Hydrologists • Engineers • Geologists	FOR: U.S. OIL CO.

s:\proj\uso\830061\autocad\gw-flow.dwg



WESTERN AVENUE
(197 WESTERN AVE. SITE WELL)
GP-11
MW-10
GP-10
MW-09
GAS LINE TO METER
CONCRETE
751.14
MW-11
753.49
MW-10
N
20 10 0 20
SCALE - FEET
DAMROW COMPANY INC.
BUILDING
196 WESTERN AVENUE
OFFICE/BASEMENT
EQUIPMENT AREA
WALKWAY
PAINT BOOTH
STAIR WELL
ELEVATOR
MW-02
FORMER BOILER ROOM (BASEMENT)
PIT 1.5' DEEP
MW-01
MW-03
FORMER COAL STORAGE ROOM (BASEMENT)
MW-04
GP-01
GLASS BEADING BOOTH
MW-06
HB-03
TO-2
GLASS BEADING BOOTH
FORMER TINNING ROOM
GP-05
GP-03
HB-02
TO-1
10" FLOOR DRAIN
MW-05
GP-02
GP-04
PZ-01
PZ-02
MW-09
757.00
MW-07
757.87
E-5
E-1
E-3
E-4
E-6
MW-13
748.90
ELEVATED STORAGE
ROOM
ROOM
749
750
751
752
753
754
755
756
757
MW-12
758.34
MW-08
758.42
SOUTH BROOKE STREET
(FORMER DRUM STORAGE AREA SITE WELL)
METAL SHED
ASPHALT
MW-01
EXCAVATED AREA 5/7/98 614 TONS
CONCRETE
STEEL SHED
LEGEND
HB-01 HAND BORING
TO-1 RMT. INC., HAN BORING (ESTIMATED FROM RMT FIGURE COULD NOT IDENTIFY THE LOCATION IN THE FIELD)
E-1 GEOPROBE WELL POINT (ENGEL & ASSOCIATES, INC)
MW-01 HAND AUGERED MONITORING WELL LOCATION
GP-05 GEOPROBE BOREHOLE LOCATION
GPW-1 GEOPROBE WELL POINT LOCATION
B-01 DRILL RIG BOREHOLE LOCATION
MW-05 MONITORING WELL LOCATION
PZ-01 PIEZOMETER LOCATION
G GAS MAIN
WATERMAIN
MANHOLE
STORM DRAIN/FLOW DIRECTION
ELECTRICAL LINE
CHAIN LINK FENCE
EXTENT OF EXCAVATION
SUMP - 8" SUMP LOCATION
GROUNDWATER FLOW DIRECTION
757.00 GROUNDWATER EVELATION (MSL)
mobing W:\DWG\D0030\970660\00\FIG-5 DAMROW 2008.dwg 01/27/09 10:26 AM
McMAHON
ENGINEERS\ARCHITECTS
1445 McMAHON DRIVE NEENAH, WI 54956
Mailing: P.O. BOX 1025 NEENAH, WI 54957-1025
Tel: (920) 751-4200 Fax: (920) 751-4284
www.mcmgrp.com
NO. DATE REVISION
GROUNDWATER CONTOURS MAY 15, 2006
FORMER DAMROW COMPANY, INC, PROPERTY
196 WESTERN AVE. FOND DU LAC, WI
DESIGNED SAB
DRAWN MJA
PROJECT NO. 00030 970660.00
DATE JAN., 2009
SHEET NO.
FIG. 5

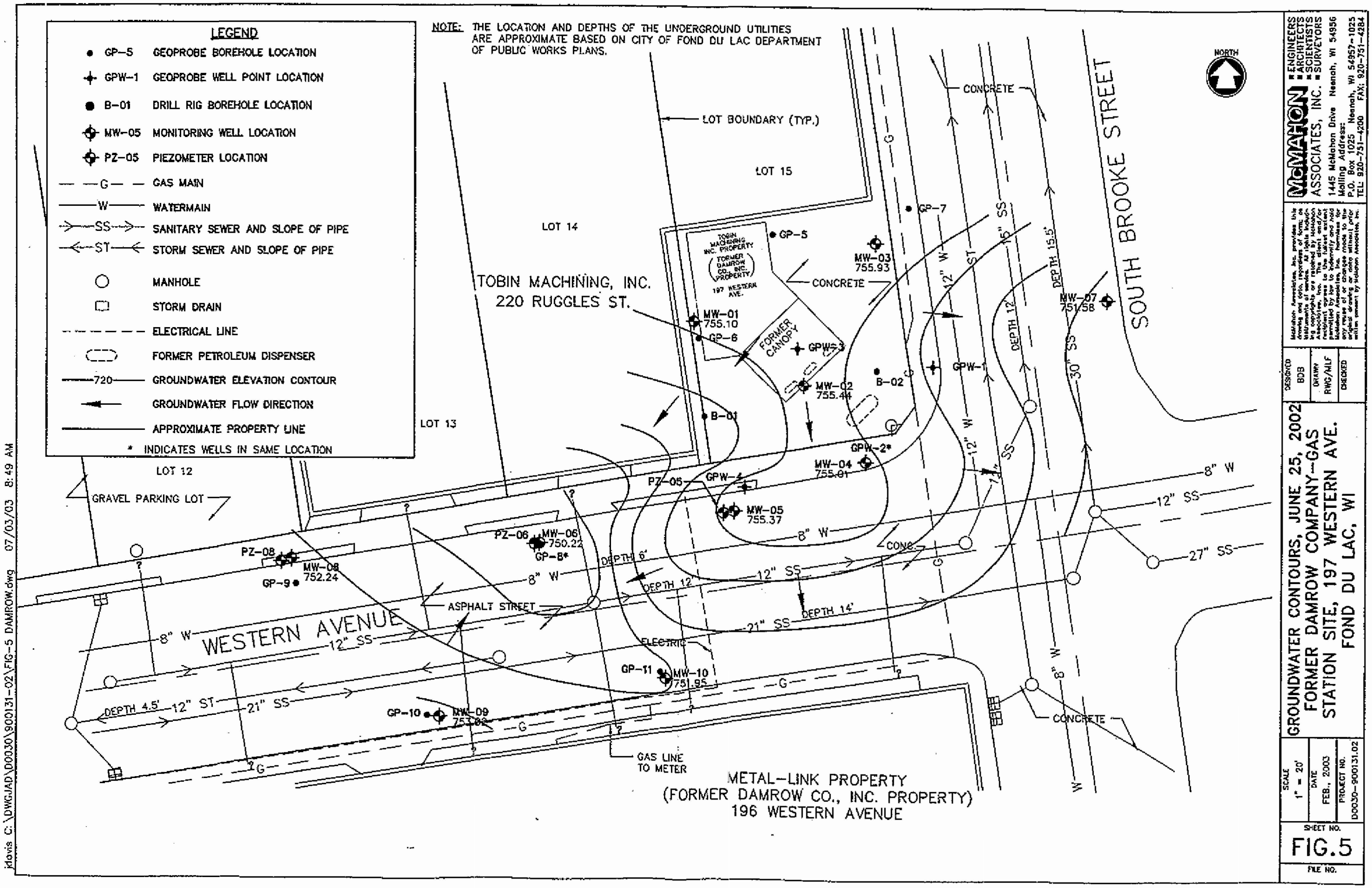


mabing W:\DWG\D0030\970660\00\FIG-6 DAMROW 2008.dwg 01/27/09 10:27 AM

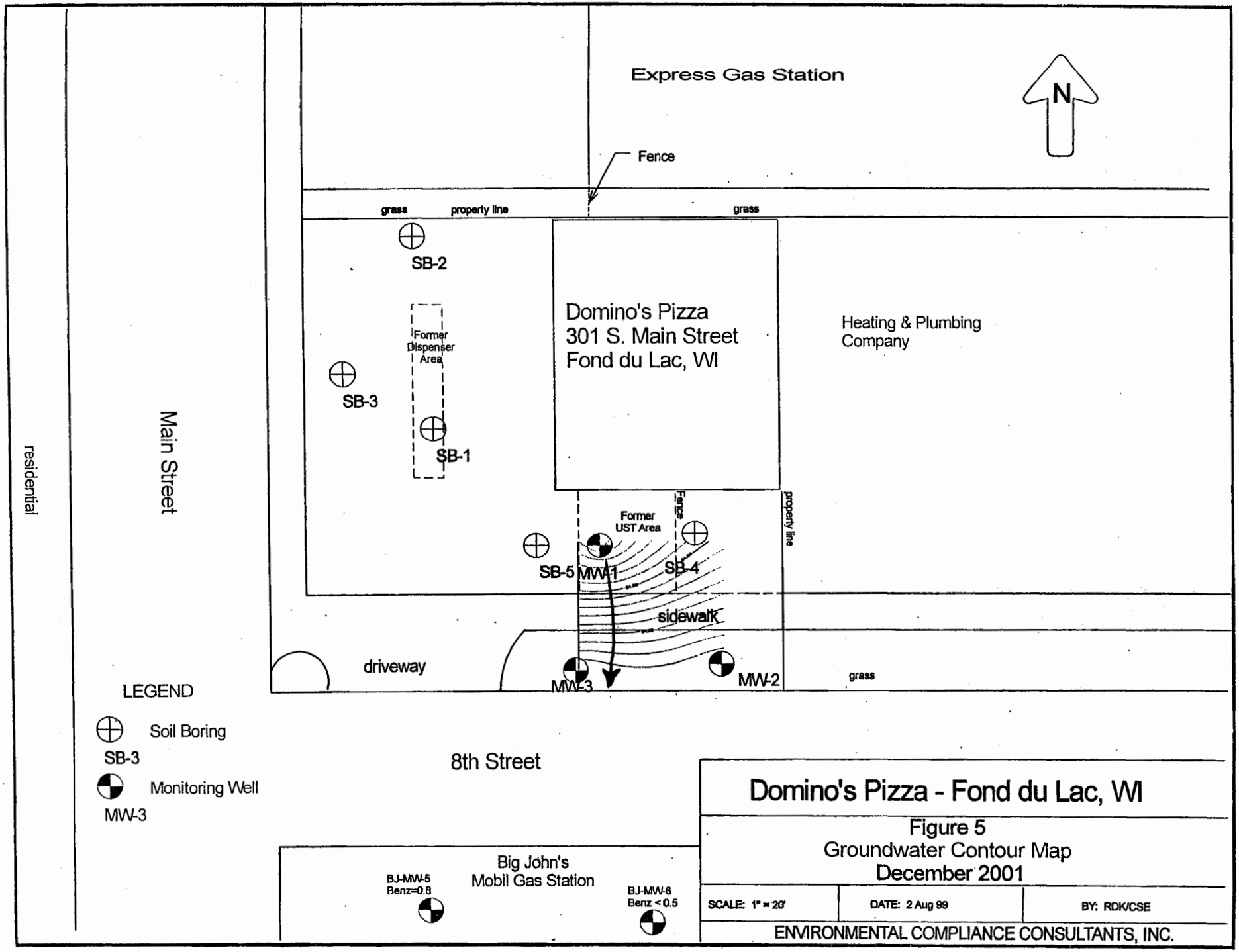
McMAHON ENGINEERS, ARCHITECTS

GROUNDWATER CONTOURS NOVEMBER 13, 2007
FORMER DAMROW COMPANY, INC, PROPERTY
196 WESTERN AVE. FOND DU LAC, WI

DESIGNED SAB | DRAWN MJA
PROJECT NO. D0030 970660.00
DATE JAN., 2009
SHEET NO. FIG. 6



jdavis C:\DWG\JAD\D0030\900131-02\FIG-5 DAMROW.dwg 07/03/03 8:49 AM

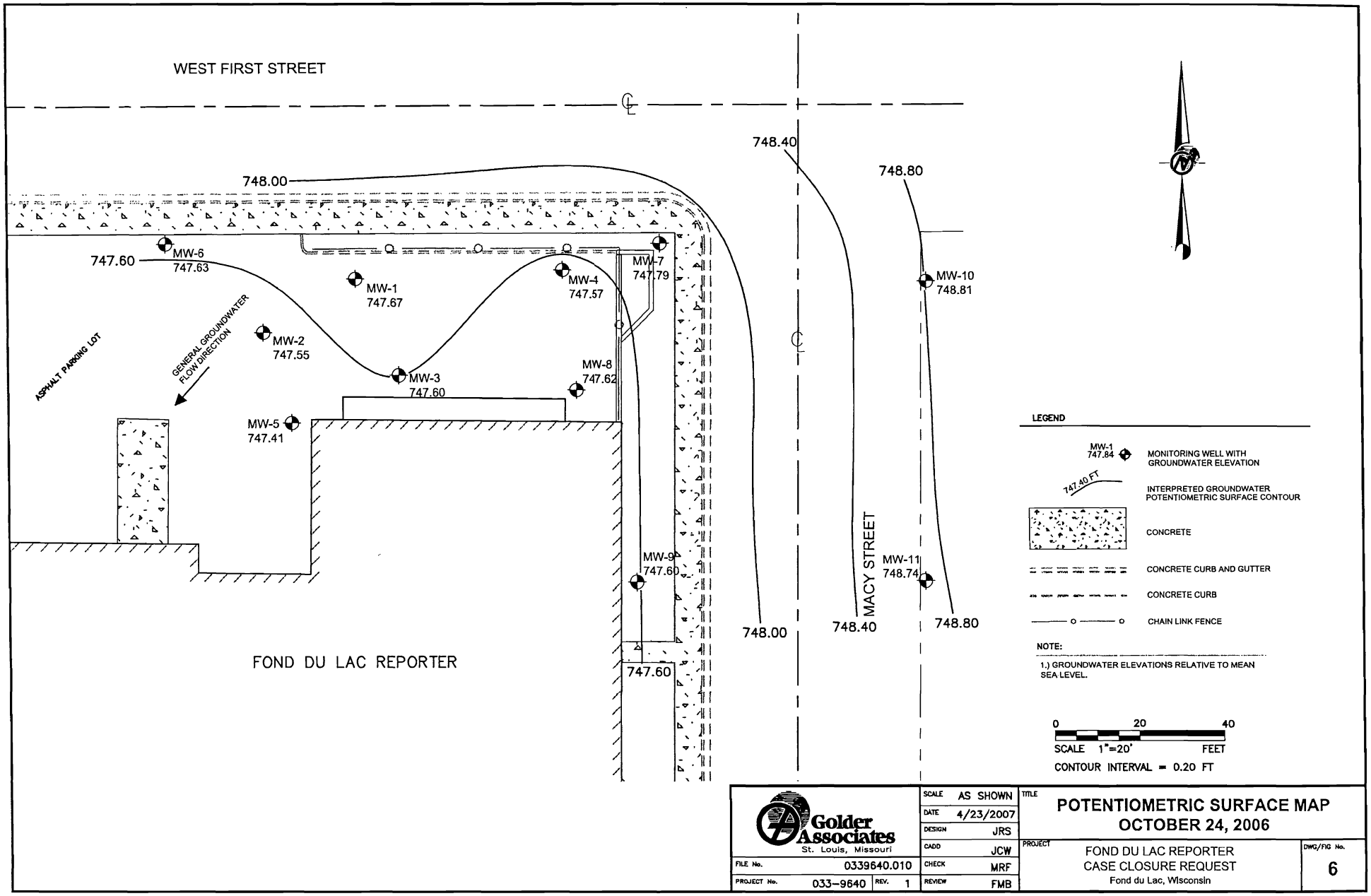


Domino's Pizza - Fond du Lac, WI

Figure 5
Groundwater Contour Map
December 2001

SCALE: 1" = 20'	DATE: 2 Aug 99	BY: RDK/CSE

ENVIRONMENTAL COMPLIANCE CONSULTANTS, INC.



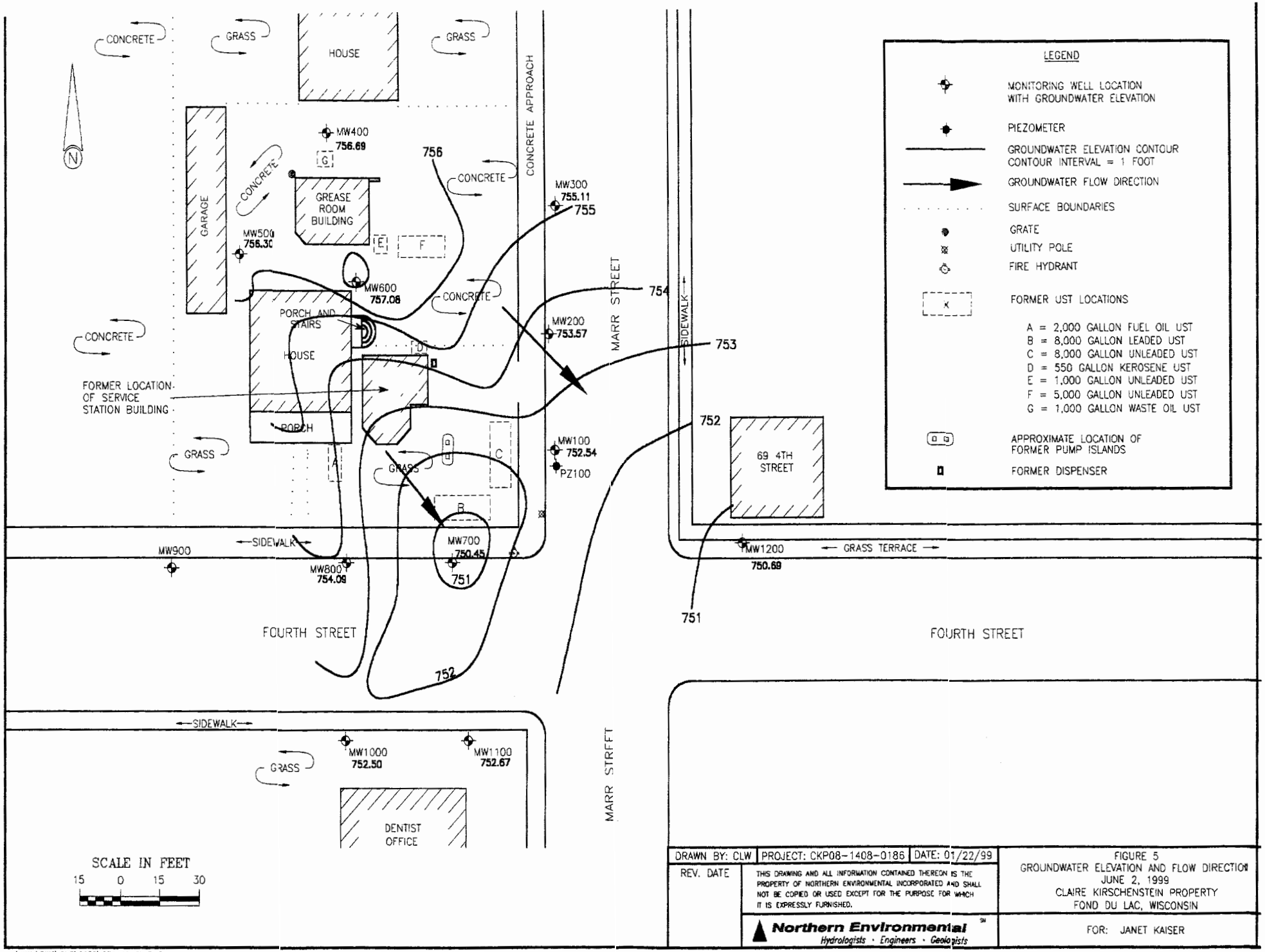
Golder Associates
St. Louis, Missouri

FILE No.	0339640.010
PROJECT No.	033-9640 REV. 1
SCALE	AS SHOWN
DATE	4/23/2007
DESIGN	JRS
CADD	JCW
CHECK	MRF
REVIEW	FMB

TITLE
POTENTIOMETRIC SURFACE MAP OCTOBER 24, 2006

PROJECT
FOND DU LAC REPORTER
CASE CLOSURE REQUEST
Fond du Lac, Wisconsin

DWG/FIG No.
6



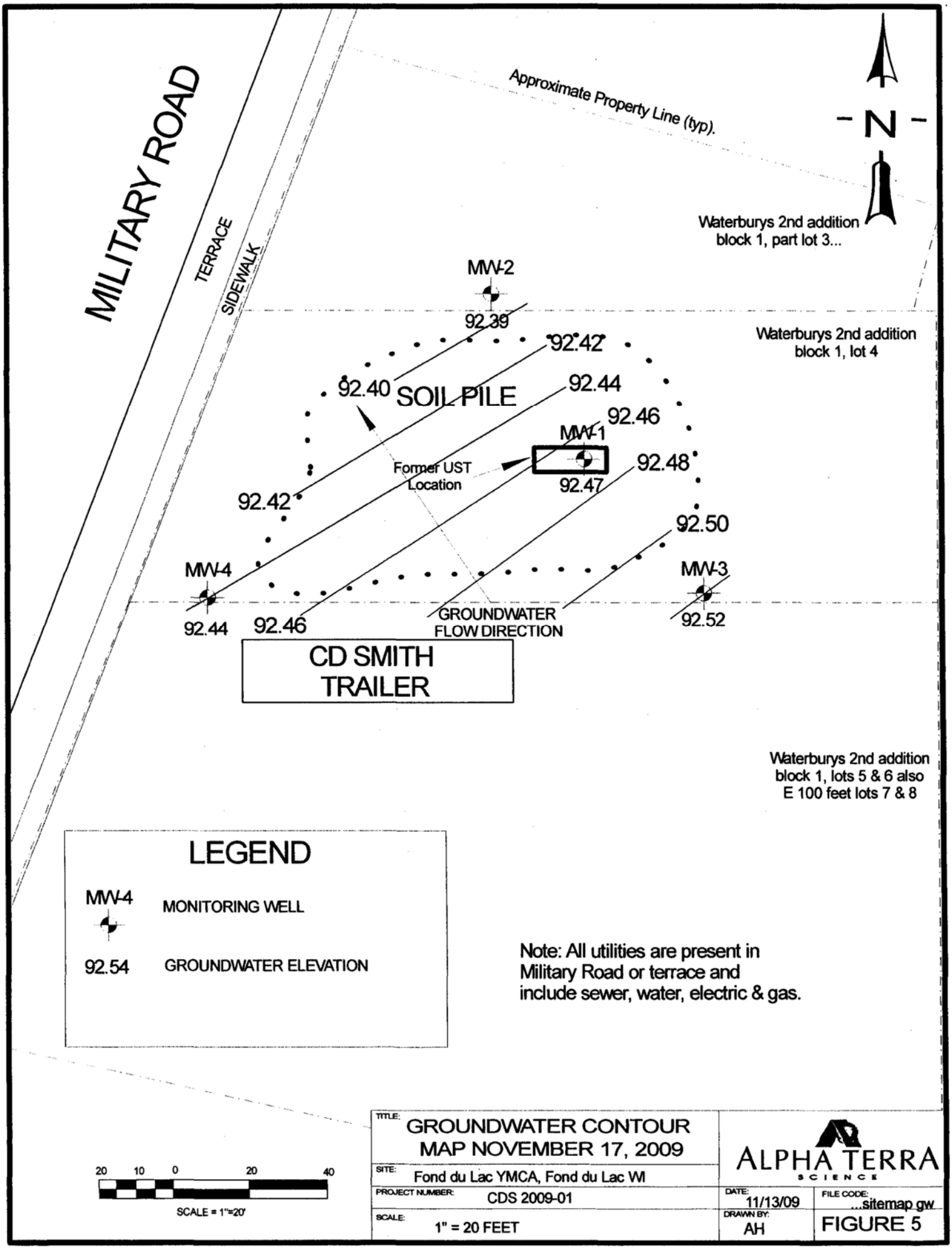
DRAWN BY: CLW	PROJECT: CKP08-1408-0186	DATE: 01/22/99
REV. DATE	THIS DRAWING AND ALL INFORMATION CONTAINED THEREON IS THE PROPERTY OF NORTHERN ENVIRONMENTAL INCORPORATED AND SHALL NOT BE COPIED OR USED EXCEPT FOR THE PURPOSE FOR WHICH IT IS EXPRESSLY FURNISHED.	

Northern Environmental℠
Hydrologists · Engineers · Geologists

FIGURE 5
GROUNDWATER ELEVATION AND FLOW DIRECTION
JUNE 2, 1999
CLAIRE KIRSCHENSTEIN PROPERTY
FOND DU LAC, WISCONSIN

FOR: JANET KAISER

K:\WAU\DWG\CKP\0186\030100-GW.DWG


MILITARY ROAD
TERRACE
SIDEWALK
Approximate Property Line (typ).
N
Waterburys 2nd addition
block 1, part lot 3...
Waterburys 2nd addition
block 1, lot 4
Waterburys 2nd addition
block 1, lots 5 & 6 also
E 100 feet lots 7 & 8
MW-2
92.39
92.42
92.40
SOIL PILE
92.44
92.46
MW-1
Former UST
Location
92.47
92.48
92.42
92.50
MW-4
MW-3
92.44
92.46
GROUNDWATER
FLOW DIRECTION
92.52
CD SMITH
TRAILER
LEGEND
MW-4
MONITORING WELL
92.54
GROUNDWATER ELEVATION
Note: All utilities are present in
Military Road or terrace and
include sewer, water, electric & gas.
20 10 0 20 40
SCALE = 1"=20'
TITLE: GROUNDWATER CONTOUR MAP NOVEMBER 17, 2009
SITE: Fond du Lac YMCA, Fond du Lac WI
PROJECT NUMBER: CDS 2009-01
SCALE: 1" = 20 FEET
ALPHA TERRA SCIENCE
DATE: 11/13/09
FILE CODE: ...sitemap gw
DRAWN BY: AH
FIGURE 5

Reference 16

Wisconsin Administrative Code

Department of Natural Resources (NR)

Environmental Protection – Water Supply

Chapter NR 810

REQUIREMENTS FOR THE OPERATION AND MAINTENANCE OF PUBLIC WATER SYSTEMS

NR 810.02 Definitions.

NR 810.02(6) "**Community water system**" means a public water system which serves at least 15 service connections used by year−round residents or regularly serves at least 25 year−round residents. Any water system serving 7 or more homes, 10 or more mobile homes, 10 or more apartment units, 10 or more duplex units, or 10 or more condominium units shall be considered a community water system unless information is provided by the owners indicating that 25 year−round residents will not be served.

NR 810.02(28) "**Municipal [community]**" or "MC" well/water system means a community water system owned by a city, village, county, town, town sanitary district, utility district, public inland lake and rehabilitation district, municipal water district or a federal, state, county or municipal owned institution for congregate care or correction, or a privately owned water utility serving the foregoing.

NR 810.02(29) "**Non−community water system**" means a public water system that is not a community water system. A non−community water system may be either a non−transient non−community water system or a transient non−community water system.

NR 810.02(30) **"Non-transient non-community"** or **"NTNC"** well/water system means a non-community water system that regularly serves at least 25 of the same persons over 6 months per year.

NR 810.02(33) **"Other-than-municipal"** or **"OTM"** well/water system means a community water system that is not a municipal water system.

NR 810.02(42) **"Transient non-community"** or **"TNC"** well/water system means a non-community water system that serves at least 25 people at least 60 days of the year but does not regularly serve at least 25 of the same persons over 6 months per year.

Reference 17

Circular Area Profiles Missouri Census Data Center

Circular Area Profiles (CAPS) — 2010

Using data from Summary File 1, 2010 Census

Request details:

- Center point name: **Centered on Quicfrez, FDL**
- Latitude **43.77238**
- Longitude **88.45186**
- Selected radii: **0.25 0.5 1.0**

[CSV file of aggregated data]

0.25-mile radius of specified point (Centered on Quicfrez, FDL)

Subject	Number	Percent
1. Total Population Trends, Etc.		
Universe: Total Population		
Total Population	1,202	
Total Population 2000	1,010	
Change in Population 2000-2010	192	19.0
Males	761	63.3
Females	441	36.7
Population Density	5973	
Land Area Sq. Miles	0	
2. Age		
Universe: Population		
Under 5 Years	78	6.5
Age 5 to 9 Years	68	5.7
10 to 14 Years	63	5.2
15 to 17 Years	37	3.1
18 to 19 Years	30	2.5
20 to 24 Years	147	12.2
25 to 34 Years	291	24.2
35 to 44 Years	175	14.6
45 to 54 Years	168	14.0
55 to 59 Years	43	3.6
Age 60 to 64 Years	31	2.6
65 to 74 Years	38	3.2

75 to 84 Years	21	1.7
85 Years and Over	12	1.0
Median Age	32.5	
Age 0 to 17	246	20.5
18 to 24 Years	177	14.7
25 to 44 Years	466	38.8
45 to 64 Years	242	20.1
62 Years and Over	88	7.3
65 Years and Over	71	5.9
3. Race		
Universe: Population		
One Race	1,184	98.5
White	1,007	83.8
Black or African American	106	8.8
American Indian and Alaska Native	6	0.5
Asian	22	1.8
Native Hawaiian and Other Pacific Islander	0	0.0
Some Other Race	43	3.6
Multi Race - Persons reporting more than one race	18	1.5
4. Hispanic or Latino and Race		
Universe: Hispanic or Latino Population		
Hispanic or Latino (of any race)	97	8.1
Mexican	NA	
Puerto Rican	NA	
Cuban	NA	
Other Hispanic or Latino	NA	
Not Hispanic or Latino	1,105	91.9
White Alone Not Hispanic	961	80.0
5. Relationship of Persons in Households		
Universe: Persons in Households		
Total Persons in Households	876	72.9
Householder	408	33.9
Spouse	70	5.8
Child	233	19.4
Own Child Under 18 Years	203	16.9
Other Relatives	50	4.2
Non Relatives	115	9.6
Non-rel Under 18	14	1.2
Non-rel Over 65	3	0.2
Unmarried Partner	NA	
6. Households by Type		
Universe: Households		
Total Households	408	

Family Households (Families)	147	36.0
With Own Children Under 18 Years	106	26.0
Married Couple Family	70	17.2
With Own Children Under 18 Years	46	11.3
Female householder, No Husband Present	45	11.0
With Own Children Under 18 Years	35	8.6
Non Family Households	261	64.0
Unmarried Partner Households	NA	
Same-Sex Unmarried Partner HHs	NA	
Householder Living Alone	219	53.7
Householder 65 Years and Over	65	15.9
Households With Individuals Under 18 Years	120	29.4
7. Group Quarters		
Universe: Population Living in Group Quarters		
Population in Group Quarters	326	27.1
Institutionalized Population	301	25.0
Pop In Correctional Institutions	301	25.0
Pop in Nursing Homes	0	0.0
Pop in Other Institutions	0	0.0
NonInstitutionalized GQ Pop	25	2.1
College Dormitories (Includes college quarters off	0	0.0
Military Quarters	0	0.0
Other NonInstitutional GQ Pop	25	2.1
8. Housing Occupancy and Tenure		
Universe: Housing Units		
Total Housing Units	457	
Occupied Housing Units	408	89.3
Owner Occupied	88	21.6
Renter Occupied	320	78.4
Vacant Housing Units	49	10.7
Vacant for Rent	35	7.7
Vacant for Sale	5	1.1
Vacant for Seasonal,Recreation or Occasional Use	0	0.0
Homeowner Vacancy Rate	5.38	
Rental Vacancy Rate	9.86	
Pop in Owner-occupied Units	248	20.6
Pop in Rented Units	628	52.2
Average Size of Owner-occupied Units	2.82	
Average Size of Renter-Occupied Units	1.96	

Note: *Varibles showing "NA" are not available at the blocks level. Specify tracts as the units to be aggregated to get values for these vars.*

0.5-mile radius of specified point (Centered on Quicfrez, FDL)

Subject	Number	Percent
1. Total Population Trends, Etc.		
Universe: Total Population		
Total Population	4,460	
Total Population 2000	4,361	
Change in Population 2000-2010	99	2.3
Males	2,401	53.8
Females	2,059	46.2
Population Density	5754	
Land Area Sq. Miles	1	
2. Age		
Universe: Population		
Under 5 Years	349	7.8
Age 5 to 9 Years	288	6.5
10 to 14 Years	257	5.8
15 to 17 Years	152	3.4
18 to 19 Years	119	2.7
20 to 24 Years	451	10.1
25 to 34 Years	947	21.2
35 to 44 Years	617	13.8
45 to 54 Years	598	13.4
55 to 59 Years	206	4.6
Age 60 to 64 Years	157	3.5
65 to 74 Years	164	3.7
75 to 84 Years	102	2.3
85 Years and Over	53	1.2
Median Age	32.5	
Age 0 to 17	1,046	23.5
18 to 24 Years	570	12.8
25 to 44 Years	1,564	35.1
45 to 64 Years	961	21.5
62 Years and Over	408	9.1
65 Years and Over	319	7.2
3. Race		
Universe: Population		
One Race	4,330	97.1
White	3,851	86.3
Black or African American	169	3.8
American Indian and Alaska Native	28	0.6
Asian	43	1.0

Native Hawaiian and Other Pacific Islander	0	0.0
Some Other Race	239	5.4
Multi Race - Persons reporting more than one race	130	2.9
4. Hispanic or Latino and Race		
Universe: Hispanic or Latino Population		
Hispanic or Latino (of any race)	460	10.3
Mexican	NA	
Puerto Rican	NA	
Cuban	NA	
Other Hispanic or Latino	NA	
Not Hispanic or Latino	4,000	89.7
White Alone Not Hispanic	3,668	82.2
5. Relationship of Persons in Households		
Universe: Persons in Households		
Total Persons in Households	4,106	92.1
Householder	1,799	40.3
Spouse	510	11.4
Child	1,139	25.5
Own Child Under 18 Years	920	20.6
Other Relatives	196	4.4
Non Relatives	462	10.4
Non-rel Under 18	44	1.0
Non-rel Over 65	11	0.2
Unmarried Partner	NA	
6. Households by Type		
Universe: Households		
Total Households	1,799	
Family Households (Families)	862	47.9
With Own Children Under 18 Years	504	28.0
Married Couple Family	510	28.3
With Own Children Under 18 Years	260	14.5
Female householder, No Husband Present	235	13.1
With Own Children Under 18 Years	173	9.6
Non Family Households	937	52.1
Unmarried Partner Households	NA	
Same-Sex Unmarried Partner HHs	NA	
Householder Living Alone	740	41.1
Householder 65 Years and Over	254	14.1
Households With Individuals Under 18 Years	557	31.0
7. Group Quarters		
Universe: Population Living in Group Quarters		
Population in Group Quarters	354	7.9
Institutionalized Population	320	7.2

Pop In Correctional Institutions	320	7.2
Pop in Nursing Homes	0	0.0
Pop in Other Institutions	0	0.0
NonInstitutionalized GQ Pop	34	0.8
College Dormitories (Includes college quarters off	0	0.0
Military Quarters	0	0.0
Other NonInstitutional GQ Pop	34	0.8
8. Housing Occupancy and Tenure		
Universe: Housing Units		
Total Housing Units	1,990	
Occupied Housing Units	1,799	90.4
Owner Occupied	638	35.5
Renter Occupied	1,161	64.5
Vacant Housing Units	191	9.6
Vacant for Rent	122	6.1
Vacant for Sale	25	1.3
Vacant for Seasonal,Recreation or Occasional Use	6	0.3
Homeowner Vacancy Rate	3.77	
Rental Vacancy Rate	9.51	
Pop in Owner-occupied Units	1,692	37.9
Pop in Rented Units	2,414	54.1
Average Size of Owner-occupied Units	2.65	
Average Size of Renter-Occupied Units	2.08	

Note: *Varibles showing "NA" are not available at the blocks level. Specify tracts as the units to be aggregated to get values for these vars.*

1-mile radius of specified point (Centered on Quicfrez, FDL)

Subject	Number	Percent
1. Total Population Trends, Etc.		
Universe: Total Population		
Total Population	16,323	
Total Population 2000	17,061	
Change in Population 2000-2010	-738	-4.3
Males	8,256	50.6
Females	8,067	49.4
Population Density	5415	
Land Area Sq. Miles	3	
2. Age		
Universe: Population		
Under 5 Years	1,188	7.3

Age 5 to 9 Years	1,087	6.7
10 to 14 Years	1,072	6.6
15 to 17 Years	591	3.6
18 to 19 Years	387	2.4
20 to 24 Years	1,235	7.6
25 to 34 Years	2,889	17.7
35 to 44 Years	2,120	13.0
45 to 54 Years	2,278	14.0
55 to 59 Years	978	6.0
Age 60 to 64 Years	763	4.7
65 to 74 Years	802	4.9
75 to 84 Years	567	3.5
85 Years and Over	366	2.2
Median Age	35.6	
Age 0 to 17	3,938	24.1
18 to 24 Years	1,622	9.9
25 to 44 Years	5,009	30.7
45 to 64 Years	4,019	24.6
62 Years and Over	2,148	13.2
65 Years and Over	1,735	10.6
3. Race		
Universe: Population		
One Race	15,913	97.5
White	14,684	90.0
Black or African American	395	2.4
American Indian and Alaska Native	130	0.8
Asian	187	1.1
Native Hawaiian and Other Pacific Islander	0	0.0
Some Other Race	517	3.2
Multi Race - Persons reporting more than one race	410	2.5
4. Hispanic or Latino and Race		
Universe: Hispanic or Latino Population		
Hispanic or Latino (of any race)	1,199	7.3
Mexican	NA	
Puerto Rican	NA	
Cuban	NA	
Other Hispanic or Latino	NA	
Not Hispanic or Latino	15,124	92.7
White Alone Not Hispanic	14,123	86.5
5. Relationship of Persons in Households		
Universe: Persons in Households		
Total Persons in Households	15,792	96.7
Householder	6,823	41.8

Spouse	2,487	15.2
Child	4,525	27.7
Own Child Under 18 Years	3,571	21.9
Other Relatives	562	3.4
Non Relatives	1,395	8.5
Non-rel Under 18	151	0.9
Non-rel Over 65	46	0.3
Unmarried Partner	NA	
6. Households by Type		
Universe: Households		
Total Households	6,823	
Family Households (Families)	3,722	54.6
With Own Children Under 18 Years	1,928	28.3
Married Couple Family	2,487	36.5
With Own Children Under 18 Years	1,098	16.1
Female householder, No Husband Present	868	12.7
With Own Children Under 18 Years	604	8.9
Non Family Households	3,101	45.4
Unmarried Partner Households	NA	
Same-Sex Unmarried Partner HHs	NA	
Householder Living Alone	2,491	36.5
Householder 65 Years and Over	1,206	17.7
Households With Individuals Under 18 Years	2,091	30.6
7. Group Quarters		
Universe: Population Living in Group Quarters		
Population in Group Quarters	531	3.3
Institutionalized Population	439	2.7
Pop In Correctional Institutions	320	2.0
Pop in Nursing Homes	119	0.7
Pop in Other Institutions	0	0.0
NonInstitutionalized GQ Pop	92	0.6
College Dormitories (Includes college quarters off	0	0.0
Military Quarters	0	0.0
Other NonInstitutional GQ Pop	92	0.6
8. Housing Occupancy and Tenure		
Universe: Housing Units		
Total Housing Units	7,364	
Occupied Housing Units	6,823	92.7
Owner Occupied	3,782	55.4
Renter Occupied	3,041	44.6
Vacant Housing Units	541	7.3
Vacant for Rent	232	3.2
Vacant for Sale	120	1.6

Vacant for Seasonal,Recreation or Occasional Use	24	0.3
Homeowner Vacancy Rate	3.08	
Rental Vacancy Rate	7.09	
Pop in Owner-occupied Units	9,386	57.5
Pop in Rented Units	6,406	39.2
Average Size of Owner-occupied Units	2.48	
Average Size of Renter-Occupied Units	2.11	

Note: *Varibles showing "NA" are not available at the blocks level. Specify tracts as the units to be aggregated to get values for these vars.*

Summary of true areas of circles vs. that of areas selected to estimate them

This report indicates how well we were able to approximate the circular area.

Radius	Estimated	True area	Ratio of estimate to true area
0.25	0.21	0.20	1.049
0.50	0.79	0.79	1.011
1.00	3.07	3.14	0.976

Auxiliary report: Counties contributing to circular areas, by concentric ring areas

Coordinates: 43.77238, 88.45186

Outer radius of ring (or circle)=0.25

County Cd	Total population
Fond du Lac WI	1,202

Outer radius of ring (or circle)=0.5

County Cd	Total population
Fond du Lac WI	3,258

Outer radius of ring (or circle)=1

County Cd	Total population
Fond du Lac WI	11,863
	16,323

See the CAPS index page for other versions of this program.

Citation: Missouri Census Data Center. (2018). *Circular Area Profiles 2010* [dataset application]. Available from http://mcdc.missouri.edu/applications/caps2010.html.

The **Missouri Census Data Center** is a Premier Local Partner of the U.S. Census Bureau and a sponsored program of the Missouri State Library.

Site published by the University of Missouri Office of Social and Economic Data Analysis.

Please send comments/questions about this site to Glenn Rice (riceg@missouri.edu).

Circular Area Profiles Missouri Census Data Center

Circular Area Profiles (CAPS) — 2010

Using data from Summary File 1, 2010 Census

Request details:

- Center point name: **Centered on Quicfrez, FDL**
- Latitude **43.77238**
- Longitude **88.45186**
- Selected radii: **1 2 3 4**

[CSV file of aggregated data]

1-mile radius of specified point (Centered on Quicfrez, FDL)

Subject	Number	Percent
1. Total Population Trends, Etc.		
Universe: Total Population		
Total Population	16,323	
Total Population 2000	17,061	
Change in Population 2000-2010	-738	-4.3
Males	8,256	50.6
Females	8,067	49.4
Population Density	5415	
Land Area Sq. Miles	3	
2. Age		
Universe: Population		
Under 5 Years	1,188	7.3
Age 5 to 9 Years	1,087	6.7
10 to 14 Years	1,072	6.6
15 to 17 Years	591	3.6
18 to 19 Years	387	2.4
20 to 24 Years	1,235	7.6
25 to 34 Years	2,889	17.7
35 to 44 Years	2,120	13.0
45 to 54 Years	2,278	14.0
55 to 59 Years	978	6.0
Age 60 to 64 Years	763	4.7
65 to 74 Years	802	4.9

75 to 84 Years	567	3.5
85 Years and Over	366	2.2
Median Age	35.6	
Age 0 to 17	3,938	24.1
18 to 24 Years	1,622	9.9
25 to 44 Years	5,009	30.7
45 to 64 Years	4,019	24.6
62 Years and Over	2,148	13.2
65 Years and Over	1,735	10.6
3. Race		
Universe: Population		
One Race	15,913	97.5
White	14,684	90.0
Black or African American	395	2.4
American Indian and Alaska Native	130	0.8
Asian	187	1.1
Native Hawaiian and Other Pacific Islander	0	0.0
Some Other Race	517	3.2
Multi Race - Persons reporting more than one race	410	2.5
4. Hispanic or Latino and Race		
Universe: Hispanic or Latino Population		
Hispanic or Latino (of any race)	1,199	7.3
Mexican	NA	
Puerto Rican	NA	
Cuban	NA	
Other Hispanic or Latino	NA	
Not Hispanic or Latino	15,124	92.7
White Alone Not Hispanic	14,123	86.5
5. Relationship of Persons in Households		
Universe: Persons in Households		
Total Persons in Households	15,792	96.7
Householder	6,823	41.8
Spouse	2,487	15.2
Child	4,525	27.7
Own Child Under 18 Years	3,571	21.9
Other Relatives	562	3.4
Non Relatives	1,395	8.5
Non-rel Under 18	151	0.9
Non-rel Over 65	46	0.3
Unmarried Partner	NA	
6. Households by Type		
Universe: Households		
Total Households	6,823	

Family Households (Families)	3,722	54.6
With Own Children Under 18 Years	1,928	28.3
Married Couple Family	2,487	36.5
With Own Children Under 18 Years	1,098	16.1
Female householder, No Husband Present	868	12.7
With Own Children Under 18 Years	604	8.9
Non Family Households	3,101	45.4
Unmarried Partner Households	NA	
Same-Sex Unmarried Partner HHs	NA	
Householder Living Alone	2,491	36.5
Householder 65 Years and Over	1,206	17.7
Households With Individuals Under 18 Years	2,091	30.6
7. Group Quarters		
Universe: Population Living in Group Quarters		
Population in Group Quarters	531	3.3
Institutionalized Population	439	2.7
Pop In Correctional Institutions	320	2.0
Pop in Nursing Homes	119	0.7
Pop in Other Institutions	0	0.0
NonInstitutionalized GQ Pop	92	0.6
College Dormitories (Includes college quarters off	0	0.0
Military Quarters	0	0.0
Other NonInstitutional GQ Pop	92	0.6
8. Housing Occupancy and Tenure		
Universe: Housing Units		
Total Housing Units	7,364	
Occupied Housing Units	6,823	92.7
Owner Occupied	3,782	55.4
Renter Occupied	3,041	44.6
Vacant Housing Units	541	7.3
Vacant for Rent	232	3.2
Vacant for Sale	120	1.6
Vacant for Seasonal,Recreation or Occasional Use	24	0.3
Homeowner Vacancy Rate	3.08	
Rental Vacancy Rate	7.09	
Pop in Owner-occupied Units	9,386	57.5
Pop in Rented Units	6,406	39.2
Average Size of Owner-occupied Units	2.48	
Average Size of Renter-Occupied Units	2.11	

Note: *Varibles showing "NA" are not available at the blocks level. Specify tracts as the units to be aggregated to get values for these vars.*

2-mile radius of specified point (Centered on Quicfrez, FDL)

Subject	Number	Percent
1. Total Population Trends, Etc.		
Universe: Total Population		
Total Population	37,869	
Total Population 2000	38,133	
Change in Population 2000-2010	-264	-0.7
Males	18,370	48.5
Females	19,499	51.5
Population Density	3277	
Land Area Sq. Miles	12	
2. Age		
Universe: Population		
Under 5 Years	2,590	6.8
Age 5 to 9 Years	2,424	6.4
10 to 14 Years	2,298	6.1
15 to 17 Years	1,288	3.4
18 to 19 Years	1,103	2.9
20 to 24 Years	2,913	7.7
25 to 34 Years	5,806	15.3
35 to 44 Years	4,463	11.8
45 to 54 Years	5,078	13.4
55 to 59 Years	2,364	6.2
Age 60 to 64 Years	1,971	5.2
65 to 74 Years	2,461	6.5
75 to 84 Years	1,978	5.2
85 Years and Over	1,132	3.0
Median Age	38.1	
Age 0 to 17	8,600	22.7
18 to 24 Years	4,016	10.6
25 to 44 Years	10,269	27.1
45 to 64 Years	9,413	24.9
62 Years and Over	6,696	17.7
65 Years and Over	5,571	14.7
3. Race		
Universe: Population		
One Race	37,093	98.0
White	34,284	90.5
Black or African American	864	2.3
American Indian and Alaska Native	238	0.6
Asian	650	1.7

Native Hawaiian and Other Pacific Islander	2	0.0
Some Other Race	1,055	2.8
Multi Race - Persons reporting more than one race	776	2.0
4. Hispanic or Latino and Race		
Universe: Hispanic or Latino Population		
Hispanic or Latino (of any race)	2,645	7.0
Mexican	NA	
Puerto Rican	NA	
Cuban	NA	
Other Hispanic or Latino	NA	
Not Hispanic or Latino	35,224	93.0
White Alone Not Hispanic	32,952	87.0
5. Relationship of Persons in Households		
Universe: Persons in Households		
Total Persons in Households	36,506	96.4
Householder	16,086	42.5
Spouse	6,493	17.1
Child	10,096	26.7
Own Child Under 18 Years	7,963	21.0
Other Relatives	1,137	3.0
Non Relatives	2,694	7.1
Non-rel Under 18	248	0.7
Non-rel Over 65	98	0.3
Unmarried Partner	NA	
6. Households by Type		
Universe: Households		
Total Households	16,086	
Family Households (Families)	9,149	56.9
With Own Children Under 18 Years	4,311	26.8
Married Couple Family	6,493	40.4
With Own Children Under 18 Years	2,607	16.2
Female householder, No Husband Present	1,885	11.7
With Own Children Under 18 Years	1,239	7.7
Non Family Households	6,937	43.1
Unmarried Partner Households	NA	
Same-Sex Unmarried Partner HHs	NA	
Householder Living Alone	5,632	35.0
Householder 65 Years and Over	3,715	23.1
Households With Individuals Under 18 Years	4,608	28.6
7. Group Quarters		
Universe: Population Living in Group Quarters		
Population in Group Quarters	1,363	3.6
Institutionalized Population	800	2.1

Pop In Correctional Institutions	320	0.8
Pop in Nursing Homes	480	1.3
Pop in Other Institutions	0	0.0
NonInstitutionalized GQ Pop	563	1.5
College Dormitories (Includes college quarters off	388	1.0
Military Quarters	0	0.0
Other NonInstitutional GQ Pop	175	0.5
8. Housing Occupancy and Tenure		
Universe: Housing Units		
Total Housing Units	17,205	
Occupied Housing Units	16,086	93.5
Owner Occupied	9,362	58.2
Renter Occupied	6,724	41.8
Vacant Housing Units	1,119	6.5
Vacant for Rent	560	3.3
Vacant for Sale	254	1.5
Vacant for Seasonal,Recreation or Occasional Use	51	0.3
Homeowner Vacancy Rate	2.64	
Rental Vacancy Rate	7.69	
Pop in Owner-occupied Units	22,618	59.7
Pop in Rented Units	13,888	36.7
Average Size of Owner-occupied Units	2.42	
Average Size of Renter-Occupied Units	2.07	

Note: *Varibles showing "NA" are not available at the blocks level. Specify tracts as the units to be aggregated to get values for these vars.*

3-mile radius of specified point (Centered on Quicfrez, FDL)

Subject	Number	Percent
1. Total Population Trends, Etc.		
Universe: Total Population		
Total Population	45,494	
Total Population 2000	44,158	
Change in Population 2000-2010	1,336	3.0
Males	22,073	48.5
Females	23,421	51.5
Population Density	1847	
Land Area Sq. Miles	25	
2. Age		
Universe: Population		
Under 5 Years	3,065	6.7

Age 5 to 9 Years	2,924	6.4
10 to 14 Years	2,837	6.2
15 to 17 Years	1,606	3.5
18 to 19 Years	1,282	2.8
20 to 24 Years	3,205	7.0
25 to 34 Years	6,677	14.7
35 to 44 Years	5,499	12.1
45 to 54 Years	6,232	13.7
55 to 59 Years	2,930	6.4
Age 60 to 64 Years	2,437	5.4
65 to 74 Years	3,020	6.6
75 to 84 Years	2,385	5.2
85 Years and Over	1,395	3.1
Median Age	38.9	
Age 0 to 17	10,432	22.9
18 to 24 Years	4,487	9.9
25 to 44 Years	12,176	26.8
45 to 64 Years	11,599	25.5
62 Years and Over	8,172	18.0
65 Years and Over	6,800	14.9
3. Race		
Universe: Population		
One Race	44,642	98.1
White	41,584	91.4
Black or African American	895	2.0
American Indian and Alaska Native	273	0.6
Asian	749	1.6
Native Hawaiian and Other Pacific Islander	3	0.0
Some Other Race	1,138	2.5
Multi Race - Persons reporting more than one race	852	1.9
4. Hispanic or Latino and Race		
Universe: Hispanic or Latino Population		
Hispanic or Latino (of any race)	2,896	6.4
Mexican	NA	
Puerto Rican	NA	
Cuban	NA	
Other Hispanic or Latino	NA	
Not Hispanic or Latino	42,598	93.6
White Alone Not Hispanic	40,108	88.2
5. Relationship of Persons in Households		
Universe: Persons in Households		
Total Persons in Households	44,127	97.0
Householder	19,251	42.3

Spouse	8,294	18.2
Child	12,290	27.0
Own Child Under 18 Years	9,698	21.3
Other Relatives	1,293	2.8
Non Relatives	2,999	6.6
Non-rel Under 18	294	0.6
Non-rel Over 65	111	0.2
Unmarried Partner	NA	
6. Households by Type		
Universe: Households		
Total Households	19,251	
Family Households (Families)	11,282	58.6
With Own Children Under 18 Years	5,227	27.2
Married Couple Family	8,294	43.1
With Own Children Under 18 Years	3,321	17.3
Female householder, No Husband Present	2,116	11.0
With Own Children Under 18 Years	1,380	7.2
Non Family Households	7,969	41.4
Unmarried Partner Households	NA	
Same-Sex Unmarried Partner HHs	NA	
Householder Living Alone	6,523	33.9
Householder 65 Years and Over	4,588	23.8
Households With Individuals Under 18 Years	5,574	29.0
7. Group Quarters		
Universe: Population Living in Group Quarters		
Population in Group Quarters	1,367	3.0
Institutionalized Population	800	1.8
Pop In Correctional Institutions	320	0.7
Pop in Nursing Homes	480	1.1
Pop in Other Institutions	0	0.0
NonInstitutionalized GQ Pop	567	1.2
College Dormitories (Includes college quarters off	388	0.9
Military Quarters	0	0.0
Other NonInstitutional GQ Pop	179	0.4
8. Housing Occupancy and Tenure		
Universe: Housing Units		
Total Housing Units	20,563	
Occupied Housing Units	19,251	93.6
Owner Occupied	11,888	61.8
Renter Occupied	7,363	38.2
Vacant Housing Units	1,312	6.4
Vacant for Rent	635	3.1
Vacant for Sale	290	1.4

Vacant for Seasonal,Recreation or Occasional Use	86	0.4
Homeowner Vacancy Rate	2.38	
Rental Vacancy Rate	7.94	
Pop in Owner-occupied Units	29,097	64.0
Pop in Rented Units	15,030	33.0
Average Size of Owner-occupied Units	2.45	
Average Size of Renter-Occupied Units	2.04	

Note: *Varibles showing "NA" are not available at the blocks level. Specify tracts as the units to be aggregated to get values for these vars.*

4-mile radius of specified point (Centered on Quicfrez, FDL)

Subject	Number	Percent
1. Total Population Trends, Etc.		
Universe: Total Population		
Total Population	52,330	
Total Population 2000	50,072	
Change in Population 2000-2010	2,258	4.5
Males	25,120	48.0
Females	27,210	52.0
Population Density	1175	
Land Area Sq. Miles	45	
2. Age		
Universe: Population		
Under 5 Years	3,388	6.5
Age 5 to 9 Years	3,273	6.3
10 to 14 Years	3,261	6.2
15 to 17 Years	1,893	3.6
18 to 19 Years	1,435	2.7
20 to 24 Years	3,561	6.8
25 to 34 Years	7,570	14.5
35 to 44 Years	6,523	12.5
45 to 54 Years	7,337	14.0
55 to 59 Years	3,466	6.6
Age 60 to 64 Years	2,894	5.5
65 to 74 Years	3,537	6.8
75 to 84 Years	2,684	5.1
85 Years and Over	1,508	2.9
Median Age	39.3	
Age 0 to 17	11,815	22.6
18 to 24 Years	4,996	9.5

25 to 44 Years	14,093	26.9
45 to 64 Years	13,697	26.2
62 Years and Over	9,344	17.9
65 Years and Over	7,729	14.8
3. Race		
Universe: Population		
One Race	51,419	98.3
White	47,885	91.5
Black or African American	1,147	2.2
American Indian and Alaska Native	322	0.6
Asian	859	1.6
Native Hawaiian and Other Pacific Islander	8	0.0
Some Other Race	1,198	2.3
Multi Race - Persons reporting more than one race	911	1.7
4. Hispanic or Latino and Race		
Universe: Hispanic or Latino Population		
Hispanic or Latino (of any race)	3,055	5.8
Mexican	NA	
Puerto Rican	NA	
Cuban	NA	
Other Hispanic or Latino	NA	
Not Hispanic or Latino	49,275	94.2
White Alone Not Hispanic	46,325	88.5
5. Relationship of Persons in Households		
Universe: Persons in Households		
Total Persons in Households	50,221	96.0
Householder	21,720	41.5
Spouse	9,803	18.7
Child	13,958	26.7
Own Child Under 18 Years	10,987	21.0
Other Relatives	1,438	2.7
Non Relatives	3,302	6.3
Non-rel Under 18	327	0.6
Non-rel Over 65	141	0.3
Unmarried Partner	NA	
6. Households by Type		
Universe: Households		
Total Households	21,720	
Family Households (Families)	13,070	60.2
With Own Children Under 18 Years	5,937	27.3
Married Couple Family	9,803	45.1
With Own Children Under 18 Years	3,859	17.8
Female householder, No Husband Present	2,295	10.6

With Own Children Under 18 Years	1,498	6.9
Non Family Households	8,650	39.8
Unmarried Partner Households	NA	
Same-Sex Unmarried Partner HHs	NA	
Householder Living Alone	7,048	32.4
Householder 65 Years and Over	5,168	23.8
Households With Individuals Under 18 Years	6,338	29.2
7. Group Quarters		
Universe: Population Living in Group Quarters		
Population in Group Quarters	2,109	4.0
Institutionalized Population	1,481	2.8
Pop In Correctional Institutions	990	1.9
Pop in Nursing Homes	480	0.9
Pop in Other Institutions	11	0.0
NonInstitutionalized GQ Pop	628	1.2
College Dormitories (Includes college quarters off	388	0.7
Military Quarters	0	0.0
Other NonInstitutional GQ Pop	240	0.5
8. Housing Occupancy and Tenure		
Universe: Housing Units		
Total Housing Units	23,161	
Occupied Housing Units	21,720	93.8
Owner Occupied	13,762	63.4
Renter Occupied	7,958	36.6
Vacant Housing Units	1,441	6.2
Vacant for Rent	670	2.9
Vacant for Sale	325	1.4
Vacant for Seasonal,Recreation or Occasional Use	111	0.5
Homeowner Vacancy Rate	2.31	
Rental Vacancy Rate	7.77	
Pop in Owner-occupied Units	33,921	64.8
Pop in Rented Units	16,300	31.1
Average Size of Owner-occupied Units	2.46	
Average Size of Renter-Occupied Units	2.05	

Note: *Varibles showing "NA" are not available at the blocks level. Specify tracts as the units to be aggregated to get values for these vars.*

Summary of true areas of circles vs. that of areas selected to estimate them

This report indicates how well we were able to approximate the circular area.

Radius	Estimated	True area	Ratio of estimate to true area

Radius	Estimated	True area	Ratio of estimate to true area
1	3.07	3.14	0.976
2	11.75	12.57	0.935
3	26.17	28.27	0.926
4	53.13	50.27	1.057

Auxiliary report: Counties contributing to circular areas, by concentric ring areas

Coordinates: 43.77238, 88.45186

Outer radius of ring (or circle)=1

County Cd	Total population
Fond du Lac WI	16,323

Outer radius of ring (or circle)=2

County Cd	Total population
Fond du Lac WI	21,546

Outer radius of ring (or circle)=3

County Cd	Total population
Fond du Lac WI	7,625

Outer radius of ring (or circle)=4

County Cd	Total population
Fond du Lac WI	6,836
	52,330

See the CAPS index page for other versions of this program.

Citation: Missouri Census Data Center. (2018). *Circular Area Profiles 2010* [dataset application]. Available from http://mcdc.missouri.edu/applications/caps2010.html.

The **Missouri Census Data Center** is a Premier Local Partner of the U.S. Census Bureau and a sponsored program of the Missouri State Library.

Site published by the University of Missouri Office of Social and Economic Data Analysis.

Please send comments/questions about this site to Glenn Rice (riceg@missouri.edu).

TABLE 1
Historical Groundwater Analytical Results
QuicFrez SFR Site - Fond du Lac, Wisconsin
SCS Engineers Project #25211406.63

Well	Date	Chlorinated Volatile Organic Compounds (EPA 8260)--µg/L											Petroleum-related Volatile Organic Compounds (EPA 8260)--µg/L													RCRA Metals--mg/L							
		Trichloroethene	cis-1,2 Dichloroethene	trans-1,2 Dichloroethene	Vinyl Chloride	Carbon Tetrachloride	Chloroform	1,2-Dichloroethane	1,1-Dichloroethene	Methylene Chloride	Tetrachloroethene	1,1,2-Trichloroethane	Benzene	tert-Butylbenzene	sec-Butylbenzene	n-Butylbenzene	Ethylbenzene	Isopropylbenzene	p-Isopropyltoluene	Naphthalene	n-Propylbenzene	Toluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Xylenes	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
MW4/MW4R	07/22/99																															
	12/12/01	Prior to Well Construction											Prior to Well Construction													Prior to Well Construction							
	03/07/02	34,000	1900	<22	770	<40	<20	<24	<22	<48	<30	240	18†	<16	<20	<22	170	<14	<24	<20	<30	<16	<22	<16	<68	8.8	0.039	<0.08	1.6†	<1	0.69	<1.0	1.1
	06/10/02	370,000	1400	100	1200	<40	240	<24	460	<48	140	3,200	32†	<16	<20	<22	110	<14	<24	<30	<30	50†	<22	<16	46†	8.3	0.221	0.3	88	10	<0.11	<1.0	2.7
	01/13/04	83,200	136,000	<1750	1550†	<1100	<3450	<1000	<2200	<12000	<2250	<2050	<850	<1550	<2150	<1100	<800	<550	<900	<1300	<950	<750	<700	<600	<2300	<0.005	<0.4	<0.0005	<0.01	<0.0015	<0.0002	<0.01	<0.01
	03/04/04	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	04/15/04	26,000	19,600	<440	980†	<320	<500	<580	<780	<1400	<1400	<500	<580	<620	<420	<780	<1120	<380	<600	<1200	<640	<1140	<1020	<1320	<3480	<0.005	<0.4	<0.0005	<0.01	<0.0015	<0.0002	<0.01	<0.01
	11/03/06	560,000	5200†	<4,750	1350†	<2600	<3050	<3600	<1500	<3450	<2600	<2,500	<2350	<3000	<3800	<5500	<1900	<4950	<4050	<11,000	<3050	<2950	<1950	<6000	<7100	<0.079	0.16	<0.0007	<0.0023	<0.0024	<0.00004	<0.0092	<0.0025
	12/14/06	876,000	14,900	<4,750	1750†	<2600	<3050	<3600	<1500	<3450	<2600	3400†	<2350	<3000	<3800	<5500	<1900	<4950	<4050	<11,000	<3050	<2950	<1950	<6000	<7100	---	---	---	---	---	---	---	---
	02/13/07	880,000	15,400	<4750	2300†	<2300	<2400	<2250	<2300	<3450	<2600	<2500	<2350	<1700	<1800	<2600	<1900	<2400	<1750	<9000	<1900	<2300	<6000	<1850	<4950	---	---	---	---	---	---	---	---
	05/08/07	680,000	23,400	<4750	1600†	<2300	<2400	<2250	<3200	<3450	<2600	<2500	<2350	<1700	<1800	<2600	<1900	<2400	<1750	<9000	<1900	<2300	<6000	<1850	<4950	---	---	---	---	---	---	---	---
	11/02/07	630,000	34,000	<4750	2500†	<2300	<2400	<2250	<3200	<3450	<2600	<2500	<2350	<1700	<1800	<2600	<1900	<2400	<1750	<9000	<1900	<2300	<6000	<1850	<4950	---	---	---	---	---	---	---	---
	02/14/08	680,000	83,000	<4750	1500†	<2300	<2400	<2250	<3200	<3450	<2600	<2500	<2350	<1700	<1800	<2600	<1900	<2400	<1750	<9000	<1900	<2300	<6000	<1850	<4950	---	---	---	---	---	---	---	---
	05/06/08	460,000	82,000	<3050	1250†	<1500	<2350	<2050	<2500	<4950	<2500	<1950	<1200	<1600	<3650	<2750	<1750	<3000	<3850	<9000	<2700	<1950	<2550	<1150	<8350	---	---	---	---	---	---	---	---
	09/10/08	530,000	72,000	<3050	1650†	<1500	<2350	<2050	<2500	<4950	<2500	<1950	<1200	<1600	<3650	<2750	<1750	<3000	<3850	<9000	<2700	<1950	<2550	<1150	<8350	---	---	---	---	---	---	---	---
	01/19/09	370,000	36,000	<3050	<1000	<1500	<2350	<2050	<2500	<4950	<2500	<1950	<1200	<1600	<3650	<2750	<1750	<3000	<3850	<9000	<2700	<1950	<2550	<1150	<8350	---	---	---	---	---	---	---	---
	08/06/09	224,000	126,000	<3050	<1000	<2150	<2400	<2150	<2350	<7500	<2100	<2050	<2050	<2300	<2150	<7500	<4350	<1950	<2850	<8500	<1650	<2550	<5500	<7500	<10650	0.0215	0.368	<0.0005	<0.0012	<0.0007	<0.00004	<0.0009	<0.0103
	05/26/10	97,000	75,000	<800	340 Ja	<1300	<320	<800	<800	<1600	<800	<400	<320	<320	<400	<320	<800	<320	<320	2000 Ja,B	<800	<800	<320	<320	<800	---	---	---	---	---	---	---	---
	08/25/10	130,000	150,000	<630	680 Ja	<1000	<250	<630	<630	<1300	<630	<310	<250	<250	<310	<250	<630	<250	<250	<310	<630	<630	<250	<250	<630	---	---	---	---	---	---	---	---
	11/29/10	110,000	160,000	<1300	<500	<2000	<500	<1300	<1300	<2500	<1300	<630	<500	<500	<630	<500	<1300	<500	<500	<630	<1300	<1300	<500	<500	<1300	---	---	---	---	---	---	---	---
	03/01/11	120,000	170,000	<1000	<400	<1600	<400	<1000	<1000	<2000	<1000	<500	<400	<400	<500	<400	<1000	<400	<400	<500	<1000	<1000	<400	<400	<1000	---	---	---	---	---	---	---	---
	05/16/11	85,000	170,000	<1300	<500	<2000	<500	<1300	<1300	<2500	<1300	<630	<500	<500	<630	<500	<1300	<500	<500	<630	<1300	<1300	<500	<500	<1300	---	---	---	---	---	---	---	---
	08/30/11	57,000	100,000	300 Jc	820 Jc	<1000	<1000	<1000	310 Jc	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<2500	<1000	<1000	<1000	<1000	<1000	---	---	---	---	---	---	---	---
	11/08/11	50,000	150,000	<1000	1800 Jc	<1600	<400	<1000	<1000	<2000	<1000	<500	<400	<400	<500	<400	<1000	<400	<400	<500	<1000	<1000	<400	<400	<1000	---	---	---	---	---	---	---	---
	02/20/12	52,000	110,000	<800	560 Jc	<1,300	<320	<800	<800	<1,600	<800	<400	<320	<320	<400	<320	<800	<320	<320	<400	<800	<800	<320	<320	<800	---	---	---	---	---	---	---	---
	05/31/12	89,000	180,000	350	3200	<13	<10	<14	790	<34	80	150	20 Jc	<7.0	<7.5	<6.5	23 Jc	<7.0	<8.5	<8.0	<6.5	25	<7.0	<9.0	19 Jc	---	---	---	---	---	---	---	---
	08/27/12	150,000	380,000	600	3,300	<26	<20	<28*	1,000	<68	87 Jc	140	<7.4	<14	<15	<13	<13	<14	<17	<16	<13	<11	<14	<18	<6.8	---	---	---	---	---	---	---	---
	11/26/12	49,000	160,000	320 Jc	2,000	<130	<100	<140	720	<340	<85	<140	<37	<70	<75	<65	<65	<70	<85	<80	<65	<55	<70	<90	<34	---	---	---	---	---	---	---	---
	02/28/13	67,000	130,000	<50	1,600	<52	<40	<56	650	<140	<34	120 Jc	<15	<28	<30	<26	<26	<28	<34	<32	<26	<22	<28	<36	<14	---	---	---	---	---	---	---	---
	05/23/13	79,000	140,000	<130	2,300	<130	<100	<140	530	<340	<85	<140	<37	<70	<75	<65	<65	<70	<85	<80	<65	<55	<70	<90	<34	---	---	---	---	---	---	---	---
	08/28/13	49,000	120,000	350	4,600	<1.3	<1.0	15	660	<3.4	44	100	14	<0.70	<0.75	<0.65	20	<0.70	<0.85	<0.80	<0.65	17	<0.70	<0.90	9.3	---	---	---	---	---	---	---	---
	11/12/13	110,000	290,000	<250	9,100	<260	<200	<280	<310	<680	<170	<280	<74	<140	<150	<130	<130	<140	<170	<160	<130	<110	<140	<180	<68	---	---	---	---	---	---	---	---
	03/25/14	Sample Destroyed in Shipment											Sample Destroyed in Shipment													---	---	---	---	---	---	---	---
	05/29/14	79,000	200,000	600	7,100	<26	<20	<28	1,200	<68	77 Jc	110	<7.4	<14	<15	<13	<13	<14	<17	<16	<13	27 Jc	<14	<18	<6.8	---	---	---	---	---	---	---	---
	08/28/14	88,000	210,000	470	6,400	<13	<10	<14	940	<34	79	130	17 Jc	<7.0	<7.5	<6.5 *	19 Jc	<7.0	<8.5	<8.0	<6.5	24 Jc	<7.0	<9.0	<3.4	---	---	---	---	---	---	---	---
	11/24/14	41,000	120,000	270	3,800	<52	<40	<56	506	<140	<34	<56	<15	<28	<30	<26	<26	<28	<34	<32	<26	<22	<28	<36	<14	---	---	---	---	---	---	---	---
	03/30/15	22,000	54,000	150	1,000	<13	<10	<14	270	<34	<8.5	<14	<3.7	<7.0	<7.5	<6.5	<6.5	<7.0	<8.5	<8.0	<6.5	<5.5	<7.0	<9.0	<3.4	---	---	---	---	---	---	---	---
NR 140 Enforcement Standard		5	70	100	0.2	5	6	5	7	5	5	5	5	--	--	--	700	--	--	100	--	800	480	480	2,000	0.01	2	0.005	0.1	0.015	0.002	0.05	0.05
NR 140 Preventive Action Limit		0.5	7	20	0.02	0.5	0.6	0.5	0.7	0.5	0.5	0.5	0.5	--	--	--	140	--	--	10	--	160	96	96	400	0.001	0.4	0.0005	0.01	0.0015	0.0002	0.01	0.01

† = Detected below the Limit of Quantitation
--- = Not Tested / Not Required
* = LCS or LCSD exceeds the control limits.
B = Analyte was detected in the associated Method Blank.
Ja = Results reported between the Method Detection Limit (MDL) and Limit of Quantitation (LOQ) are less certain than results at or above the LOQ.
Jc = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Note: The following compounds were detected in MW4R during the November 3, 2006 sampling event: Benzyl Alcohol (2.2 µg/L), o-Cresol (0.96† µg/L), Phenol (2.6† µg/L) and 1,4 Dichlorobenzene (1.3† µg/L).
Note: The following compounds were detected in MW4R during the August 2009 sampling event: Benzyl Alcohol (2.4 µg/L), m & p Cresol (12 µg/L), 1,4-Dichlorobenzene (2.2 µg/L).
Note: As of the December 2010 ch. NR 140 Wisconsin Administrative Code, eff. 1-1-11, the enforcement standards (ESs) and preventive action limits (PALs) have changed for Toluene and Xylenes. The previous standards were Toluene 1,000 ES/200 PAL; Xylenes 10,000 ES/1,000 PAL.
Note: The following compounds were detected in MW4R during the August 28, 2013 sampling event: Chlorobenzene (2.8 Jc µg/L).

Color-coding of select results applied by the WDNR

TABLE 1
Historical Groundwater Analytical Results
QuicFrez SFR Site - Fond du Lac, Wisconsin
SCS Engineers Project #25211406.63

		Chlorinated Volatile Organic Compounds (EPA 8260)--µg/L											Petroleum-related Volatile Organic Compounds (EPA 8260)--µg/L												RCRA Metals--mg/L							
Well	Date	Trichloroethene	cis-1,2 Dichloroethene	trans-1,2 Dichloroethene	Vinyl Chloride	Carbon Tetrachloride	Chloroform	1,2-Dichloroethane	1,1-Dichloroethene	Methylene Chloride	Tetrachloroethene	1,1,2-Trichloroethane	Benzene	tert-Butylbenzene	sec-Butylbenzene	n-Butylbenzene	Ethylbenzene	Isopropylbenzene	p-Isopropyltoluene	Naphthalene	n-Propylbenzene	Toluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Xylenes	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
MW4C	07/22/99 12/12/01 03/07/02 06/10/02 01/12/04 03/03/04 04/14/04 11/02/06 12/14/06 02/13/07 05/08/07 11/02/07 02/14/08 05/06/08 09/10/08 01/19/09 08/05/09	Prior to Well Construction											Prior to Well Construction													Prior to Well Construction							
	5/26/10 S6	7.3	3.3	<0.50	<0.20	<0.80	<0.20	<0.50	<0.50	<1.0	<0.50	<0.25	<0.20	<0.20	<0.25	<0.20	<0.50	<0.20	<0.20	1.3 Ja,B	<0.50	<0.50	<0.20	<0.20	<0.50	---	---	---	---	---	---	---	---
	08/25/10	9.3	9.5	<0.50	<0.20	<0.80	<0.20	<0.50	<0.50	<1.0	<0.50	<0.25	<0.20	<0.20	<0.25	<0.20	<0.50	<0.20	<0.20	<0.25	<0.50	<0.50	<0.20	<0.20	<0.50	---	---	---	---	---	---	---	---
	11/29/10	6.1	7.9	<0.50	<0.20	<0.80	<0.20	<0.50	<0.50	<1.0	<0.50	<0.25	<0.20	<0.20	<0.25	<0.20	<0.50	<0.20	<0.20	<0.25	<0.50	<0.50	<0.20	<0.20	<0.50	---	---	---	---	---	---	---	---
	03/01/11	3.9	4.1	<0.50	<0.20	<0.80	<0.20	<0.50	<0.50	<1.0	<0.50	<0.25	<0.20	<0.20	<0.25	<0.20	<0.50	<0.20	<0.20	<0.25	<0.50	<0.50	<0.20	<0.20	<0.50	---	---	---	---	---	---	---	---
	05/16/11	1.5 Jb	1.9 Jb	<0.50	<0.20	<0.80	<0.20	<0.50	<0.50	<1.0	<0.50	<0.25	<0.20	<0.20	<0.25	<0.20	<0.50	<0.20	<0.20	<0.25	<0.50	<0.50	<0.20	<0.20	<0.50	---	---	---	---	---	---	---	---
	08/30/11	0.70 Jc	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	---	---	---	---	---	---	---	---
	11/08/11	1.3 Jc	1.9 Jc	<0.50	<0.20	<0.80	<0.20	<0.50	<0.50	<1.0	<0.50	<0.25	<0.20	<0.20	<0.25	<0.20	<0.50	<0.20	<0.20	<0.25	<0.50	<0.50	<0.20	<0.20	<0.50	---	---	---	---	---	---	---	---
	02/20/12	1.9 Jc	2.8	<0.50	<0.20	<0.80	<0.20	<0.50	<0.50	<1.0	<0.50	<0.25	<0.20	<0.20	<0.25	<0.20	<0.50	<0.20	<0.20	<0.25	<0.50	<0.50	<0.20	<0.20	<0.50	---	---	---	---	---	---	---	---
	05/31/12	0.88	1.2	<0.25	<0.10	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	08/27/12	0.66	0.73 Jc	<0.25	<0.10	<0.26	<0.20	<0.28*	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	11/26/12	<0.19	<0.12	<0.25	<0.10	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	02/28/13	0.74	0.94 Jc	<0.25	<0.10	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	05/23/13	0.40 Jc	<0.12	<0.25	<0.10	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	08/28/13	3.4	6.2	<0.25	<0.10	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	11/12/13	<0.19	1.1	<0.25	<0.10	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	03/25/14	Sample Destroyed in Shipment											Sample Destroyed in Shipment													---	---	---	---	---	---	---	---
	05/29/14	0.27 Jc	<0.12	<0.25	<0.10	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	08/28/14	0.38 Jc	<0.12	<0.25	<0.10	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13*	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	11/24/14	0.42 Jc	0.83 Jc	<0.25	<0.10	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	03/30/15	<0.19	<0.12	<0.25	<0.10	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
NR 140 Enforcement Standard		5	70	100	0.2	5	6	5	7	5	5	5	5	--	--	--	700	--	--	100	--	800	480	480	2,000	0.01	2	0.005	0.1	0.015	0.002	0.05	0.05
NR 140 Preventive Action Limit		0.5	7	20	0.02	0.5	0.6	0.5	0.7	0.5	0.5	0.5	0.5	--	--	--	140	--	--	10	--	160	96	96	400	0.001	0.4	0.0005	0.01	0.0015	0.0002	0.01	0.01

† = Detected below the Limit of Quantitation
--- = Not Tested / Not Required
* = JCS or LCSD exceeds the control limits.
B = Analyte was detected in the associated Method Blank.
Ja = Results reported between the Method Detection Limit (MDL) and Limit of Quantitation (LOQ) are less certain than results at or above the LOQ.
Jb = Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of limited reliability.
Jc = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S6 = All compounds - Sediment present.

Note: The following compound was detected in MW4C during the May 26, 2010 sampling event: Chloromethane (0.48 µg/L Ja,S6).
Note: The following compound was detected in MW4C during the August 25, 2010 sampling event: Chloromethane (0.57 µg/L Ja).
Note: As of the December 2010 ch. NR 140 Wisconsin Administrative Code, eff. 1-1-11, the enforcement standards (ESs) and preventive action limits (PALs) have changed for Toluene and Xylenes. The previous standards were Toluene 1,000 ES/200 PAL; Xylenes 10,000 ES/1,000 PAL.

Color-coding of select results applied by the WDNR

TABLE 1
Historical Groundwater Analytical Results
QuicFrez SFR Site - Fond du Lac, Wisconsin
SCS Engineers Project #25211406.63

		Chlorinated Volatile Organic Compounds (EPA 8260)--µg/L											Petroleum-related Volatile Organic Compounds (EPA 8260)--µg/L												RCRA Metals--mg/L							
Well	Date	Trichloroethene	cis-1,2 Dichloroethene	trans-1,2 Dichloroethene	Vinyl Chloride	Carbon Tetrachloride	Chloroform	1,2-Dichloroethane	1,1-Dichloroethene	Methylene Chloride	Tetrachloroethene	1,1,2-Trichloroethane	Benzene	tert-Butylbenzene	sec-Butylbenzene	n-Butylbenzene	Ethylbenzene	Isopropylbenzene	p-Isopropyltoluene	Naphthalene	n-Propylbenzene	Toluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Xylenes	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
MW6	07/22/99																															
	12/12/01	Prior to Well Construction											Prior to Well Construction													Prior to Well Construction							
	03/07/02	4.3	<0.11	<0.11	<0.16	23	7.7	<0.16	<0.11	<0.24	<0.15	<0.19	<0.08	<0.08	<0.1	<0.11	<0.08	<0.07	<0.12	<0.1	<0.15	<0.08	<0.11	<0.08	<0.34	<1.3	0.081	<0.08	5.7	<1	1.7	3.6	0.85
	06/10/02	3.6	<0.11	<0.11	<0.16	16	4.3	<0.12	<0.11	<0.24	<0.15	<0.19	<0.08	<0.08	<0.1	<0.11	<0.08	<0.07	<0.12	<0.1	<0.15	<0.08	<0.11	<0.08	<0.34	<1.3	0.082	<0.08	5.6	<0.66	<0.11	2.3†	0.58†
	01/11/04	3.6	<0.25	<0.35	<0.11	4.1	2.7	<0.2	<0.44	<2.4	<0.45	<0.36	<0.17	<0.31	<0.43	<0.22	<0.16	<0.11	<0.18	<0.26	<0.19	<0.15	<0.14	<0.12	<0.46	<0.005	<0.4	<0.0005	<0.01	<0.0015	<0.0002	<0.01	<0.01
	03/04/04	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	04/14/04	3.3	<0.29	<0.22	<0.21	5.7	3.1	<0.29	<0.39	<0.7	<0.7	<0.25	<0.29	<0.31	<0.21	<0.39	<0.56	<0.19	<0.3	<0.6	<0.32	<0.57	<0.51	<0.66	<1.74	<0.005	<0.4	<0.0005	<0.01	<0.0015	<0.0002	<0.01	<0.01
	11/02/06	2.09†	<0.68	<0.95	<0.17	1.94	2.52	<0.72	<0.3	<0.69	<0.52	<0.5	<0.47	<0.6	<0.76	<1.1	<0.38	<0.99	<0.81	<2.2	<0.61	<0.59	<0.39	<1.2	<1.42	<0.0079	0.09	<0.0007	<0.0023	<0.0024	0.000061	0.01†	<0.0025
	12/14/06	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	02/13/07	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	05/08/07	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	11/02/07	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	02/14/08	28.5	39	<0.95	<0.2	1.16†	2.24	<0.45	<0.64	<0.69	<0.52	<0.5	<0.47	<0.34	<0.36	<0.52	<0.38	<0.48	<0.35	<1.8	<0.38	<0.46	<1.2	<0.37	<0.99	---	---	---	---	---	---	---	---
	05/06/08	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	09/10/08	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	01/19/09	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	08/05/09	22.1	78	1.14†	2.2	6	1.98	<0.43	<0.47	<1.5	<0.42	<0.41	<0.41	<0.46	<0.43	<1.5	<0.87	<0.39	<0.57	<1.7	<0.33	<0.51	<1.1	<1.5	<2.13								
	05/27/10	22	35	0.88 Ja	<0.20	4.8	6.1	<0.50	<0.50	<1.0	<0.50	<0.25	<0.20	<0.20	<0.25	<0.20	<0.50	<0.20	<0.20	<0.25	<0.50	<0.50	<0.20	<0.20	<0.50	---	---	---	---	---	---	---	---
	08/25/10	110	91	1.1 Ja	<0.20	<0.80	1.9 Ja	<0.50	<0.50	<1.0	<0.50	<0.25	<0.20	<0.20	<0.25	<0.20	<0.50	<0.20	<0.20	<0.25	<0.50	<0.50	<0.20	<0.20	<0.50	---	---	---	---	---	---	---	---
	11/29/10	110	86	1.2 Ja	1.2 Ja	<0.80	0.38 Ja	<0.50	<0.50	<1.0	<0.50	<0.25	<0.20	<0.20	<0.25	<0.20	<0.50	<0.20	<0.20	<0.25	<0.50	<0.50	<0.20	<0.20	<0.50	---	---	---	---	---	---	---	---
	03/01/11	49	100	<0.50	1.8 Jb	1.9 Jb	1.9 Jb	<0.50	<0.50	<1.0	<0.50	<0.25	<0.20	<0.20	<0.25	<0.20	<0.50	<0.20	<0.20	<0.25	<0.50	<0.50	<0.20	<0.20	<0.50	---	---	---	---	---	---	---	---
	05/16/11	37	63	<0.50	0.59 Jb	4.3	3.2	<0.50	<0.50	<1.0	<0.50	<0.25	<0.20	<0.20	<0.25	<0.20	<0.50	<0.20	<0.20	<0.25	<0.50	<0.50	<0.20	<0.20	<0.50	---	---	---	---	---	---	---	---
	08/30/11	17	25	<2.0	0.34 Jc	2.1	1.8 Jc	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	---	---	---	---	---	---	---	---
	11/08/11	20	83	0.66 Jc	6.5	<0.80	0.56 Jc	<0.50	<0.50	<1.0	<0.50	<0.25	<0.20	<0.20	<0.25	<0.20	<0.50	<0.20	<0.20	<0.25	<0.50	<0.50	<0.20	<0.20	<0.50	---	---	---	---	---	---	---	---
	02/20/12	25	79	<0.50	0.84 Jc	1.7 Jc	1.4 Jc	<0.50	<0.50	<1.0	<0.50	<0.25	<0.20	<0.20	<0.25	<0.20	<0.50	<0.20	<0.20	<0.25	<0.50	<0.50	<0.20	<0.20	<0.50	---	---	---	---	---	---	---	---
	02/20/12 Dup	23	78	<0.50	1.1 Jc	1.8 Jc	1.4 Jc	<0.50	<0.50	<1.0	<0.50	<0.25	<0.20	<0.20	<0.25	<0.20	<0.50	<0.20	<0.20	<0.25	<0.50	<0.50	<0.20	<0.20	<0.50	---	---	---	---	---	---	---	---
	05/31/12	51	48	0.43 Jc	3.0	0.73 Jc	2.3	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	08/27/12	31	140	0.90 Jc	<0.10	<0.26	<0.20	<0.28*	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	11/26/12	19	61	<0.25	6.4	0.97 Jc	0.93 Jc	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	02/28/13	41	30	<0.25	0.49 Jc	2.1	1.7	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	05/23/13	51	43	<0.25	0.69	3.2	3.4	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	08/28/13	38	97	<0.25	<0.10	2.6	1.8	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	11/12/13	23	21	<0.25	2.0	1.1	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	11/12/12 Dup	21	17	<0.25	1.6	1.8	1.1	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	03/25/14	78	45	<0.25	0.92	1.8	1.6	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	05/29/14	37	33	<0.25	0.53	3.1	2.9	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	08/28/14	18	45	<0.25	1.9	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13 *	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	11/24/14	73	69	0.54 Jc	<0.10	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	0.32 Jc	<0.14	<0.18	1.1	---	---	---	---	---	---	---	---
	03/30/15	47	29	<0.25	0.52	2.3	1.9	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
NR 140 Enforcement Standard		5	70	100	0.2	5	6	5	7	5	5	5	5	--	--	--	700	--	--	100	--	800	480	480	2,000	0.01	2	0.005	0.1	0.015	0.002	0.05	0.05
NR 140 Preventive Action Limit		0.5	7	20	0.02	0.5	0.6	0.5	0.7	0.5	0.5	0.5	0.5	--	--	--	140	--	--	10	--	160	96	96	400	0.001	0.4	0.0005	0.01	0.0015	0.0002	0.01	0.01

† = Detected below the Limit of Quantitation
--- = Not Tested / Not Required
* = LCS or LCSD exceeds the control limits.
A-01 = High concentration of non-target analyte present.
Ja = Results reported between the Method Detection Limit (MDL) and Limit of Quantitation (LOQ) are less certain than results at or above the LOQ.
Jb = Estimated value. Analyte detected at a level less than the Reporting (RL) and greater than or equal to the Method Detection Limit (MDL). The use of this data should be aware that this data is of limited reliability.
Jc = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Note: The following compounds were detected in MW6 during the August 2009 sampling event: Benzyl Alcohol (1.3 µg/L), Chloromethane (1.14† µg/L).
Note: As of the December 2010 ch. NR 140 Wisconsin Administrative Code, eff. 1-1-11, the enforcement standards (ESs) and preventive action limits (PALs) have changed for Toluene and Xylenes. The previous standards were Toluene 1,000 ES/200 PAL; Xylenes 10,000 ES/1,000 PAL.
Note: The following compound was detected in MW6 during the August 30, 2011 sampling event: Chloromethane (0.51 µg/L, Jc) .

Color-coding of select results applied by the WDNR

TABLE 1
Historical Groundwater Analytical Results
QuicFrez SFR Site - Fond du Lac, Wisconsin
SCS Engineers Project #25211406.63

		Chlorinated Volatile Organic Compounds (EPA 8260)--µg/L											Petroleum-related Volatile Organic Compounds (EPA 8260)--µg/L												RCRA Metals--mg/L							
Well	Date	Trichloroethene	cis-1,2 Dichloroethene	trans-1,2 Dichloroethene	Vinyl Chloride	Carbon Tetrachloride	Chloroform	1,2-Dichloroethane	1,1-Dichloroethene	Methylene Chloride	Tetrachloroethene	1,1,2-Trichloroethane	Benzene	tert-Butylbenzene	sec-Butylbenzene	n-Butylbenzene	Ethylbenzene	Isopropylbenzene	p-Isopropyltoluene	Naphthalene	n-Propylbenzene	Toluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Xylenes	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
MW7	07/22/99	Prior to Well Construction											Prior to Well Construction													Prior to Well Construction							
	12/12/01																																
	03/07/02	11	0.28†	<0.11	<0.16	<0.2	<0.1	<0.12	<0.11	<0.24	<0.15	<0.19	0.21†	<0.08	<0.1	<0.11	<0.08	<0.07	<0.12	<0.1	<0.15	0.37	<0.11	<0.08	<0.34	<1.3	0.18	<0.08	1.3†	<1	0.71	5.8	0.99
	06/10/02	1.4	1.1†	<0.11	<0.16	<0.2	<0.1	<0.12	<0.11	<0.24	<0.15	<0.19	<0.08	<0.08	<<0.1	<0.11	<0.08	<0.07	<0.12	<0.1	<0.15	0.13†	<0.11	<0.08	<0.34	1.5†	0.217	<0.08	2.7	<0.66	<0.11	<1.0	0.84
	01/11/04	0.9	1.2	<0.35	<0.11	<0.22	<0.69	<0.2	<0.44	<2.4	<0.45	<0.41	<0.17	<0.31	<0.43	<0.22	<0.16	<0.11	<0.18	<0.26	<0.19	0.37†	<0.14	<0.12	<0.46	<0.005	<0.4	<0.0005	<0.01	<0.0015	<0.0002	<0.01	<0.01
	03/04/04	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	04/15/04	0.32†	1.1	<0.22	0.45†	<0.16	<0.25	<0.29	<0.39	<0.7	<0.7	<0.25	<0.29	<0.31	<0.21	<0.39	<0.56	<0.19	<0.3	<0.6	<0.32	<0.57	<0.51	<0.66	<1.74	<0.005	<0.4	<0.0005	<0.01	0.0093	<0.0002	<0.01	<0.01
	11/02/06	0.8†	12.3	<0.95	0.9	<0.52	<0.61	<0.72	<0.3	<0.69	<0.52	<0.5	<0.47	<0.6	<0.76	<1.1	<0.38	<0.99	<0.81	<2.2	<0.61	<0.59	<0.39	<1.2	<1.42	<0.0079	0.12	<0.0007	<0.0023	<0.0024	0.00006†	0.62	<0.0025
	12/14/06	0.87†	11.8	<0.95	0.52†	<0.52	<0.61	<0.72	<0.3	<0.69	<0.52	<0.5	<0.47	<0.6	<0.76	<1.2	<0.38	<0.99	<0.81	<2.3	<0.61	<0.59	<0.40	<1.3	<1.43	---	---	---	---	---	---	---	---
	02/13/07	0.63†	7.5	<0.95	0.46†	<0.46	<0.48	<0.45	<0.64	<0.69	<0.52	<0.5	<0.47	<0.34	<0.36	<0.52	<0.38	<0.48	<0.35	<1.8	<0.38	<0.46	<1.2	<0.37	<0.99	---	---	---	---	---	---	---	---
	05/08/07	1.13†	4.5	<0.95	0.47†	<0.46	<0.48	<0.45	<0.64	<0.69	<0.52	<0.5	<0.47	<0.34	<0.36	<0.52	<0.38	<0.48	<0.35	<1.8	<0.38	0.63†	<1.2	<0.37	<0.99	---	---	---	---	---	---	---	---
	11/01/07	2.4	16.3	<0.95	8.8	<0.46	<0.48	<0.45	<0.64	<0.69	<0.52	<0.5	<0.47	<0.34	<0.36	<0.52	<0.38	<0.48	<0.35	<1.8	<0.38	<0.46	<1.2	<0.37	<0.99	---	---	---	---	---	---	---	---
	02/14/08	4.3	34	1.52†	3.8	<0.46	<0.48	<0.45	<0.64	<0.69	<0.52	<0.5	<0.47	<0.34	<0.36	<0.52	<0.38	<0.48	<0.35	<1.8	<0.38	<0.46	<1.2	<0.37	<0.99	---	---	---	---	---	---	---	---
	05/06/08	0.84†	4.6	<0.61	0.49†	<0.3	<0.47	<0.41	<0.5	<0.99	<0.5	<0.39	<0.24	<0.32	<0.73	<0.55	<0.35	<0.6	<0.77	<1.8	<0.54	<0.39	<0.51	<0.23	<1.67	---	---	---	---	---	---	---	---
	09/10/08	2.3	12.7	<0.61	2.24	<0.3	<0.47	<0.41	<0.5	<0.99	<0.5	<0.39	<0.24	<0.32	<0.73	<0.55	<0.35	<0.6	<0.77	<1.8	<0.54	<0.39	<0.51	<0.23	<1.67	---	---	---	---	---	---	---	---
	01/19/09	7.7	310	6.4	25	<0.3	<0.47	<0.41	1.49†	<0.99	<0.5	<0.39	1.09	<0.32	<0.73	<0.55	<0.35	<0.6	<0.77	<1.8	<0.54	<0.39	<0.51	<0.23	<1.67	---	---	---	---	---	---	---	---
	08/06/09	1.6	26	<0.61	2.29	<0.43	<0.48	<0.43	<0.47	<1.5	<0.42	<0.41	<0.41	<0.46	<0.43	<1.5	<0.87	<0.39	<0.57	<1.7	<0.33	<0.51	<1.1	<1.5	<2.13	<0.0006	0.0683	<0.0025	<0.006	<0.0007	<0.00004	<0.0009	<0.0515
	05/26/10	4	1.2 Ja	<0.50	<0.20	<0.80	<0.20	<0.50	<0.50	<1.0	<0.50	<0.25	<0.20	<0.20	<0.25	<0.20	<0.50	<0.20	<0.20	1.3 Ja, B	<0.50	<0.50	<0.20	<0.20	<0.50	---	---	---	---	---	---	---	---
	08/25/10	47	23	<0.50	0.76 Ja	<0.80	<0.20	<0.50	<0.50	<1.0	<0.50	<0.25	<0.20	<0.20	<0.25	<0.20	<0.50	<0.20	<0.20	<0.25	<0.50	<0.50	<0.20	<0.20	<0.50	---	---	---	---	---	---	---	---
	11/29/10	64	32	<0.50	1.9 Ja	<0.80	<0.20	<0.50	<0.50	<1.0	<0.50	<0.25	<0.20	<0.20	<0.25	<0.20	<0.50	<0.20	<0.20	<0.25	<0.50	<0.50	<0.20	<0.20	<0.50	---	---	---	---	---	---	---	---
	03/01/11	35	69	<0.50	2.5	<0.80	<0.20	<0.50	<0.50	<1.0	<0.50	<0.25	<0.20	<0.20	<0.25	<0.20	<0.50	<0.20	<0.20	<0.25	<0.50	<0.50	<0.20	<0.20	<0.50	---	---	---	---	---	---	---	---
	05/16/11	19	28	<0.50	<0.20	<0.80	<0.20	<0.50	<0.50	<1.0	<0.50	<0.25	<0.20	<0.20	<0.25	<0.20	<0.50	<0.20	<0.20	<0.25	<0.50	<0.50	<0.20	<0.20	<0.50	---	---	---	---	---	---	---	---
	08/30/11	3.3	5.2	<2.0	0.88 Jc	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<5.0	<2.0	<2.0	<2.0	<2.0	<2.0	---	---	---	---	---	---	---	---
	11/08/11	11	38	<0.50	2.0	<0.80	<0.20	<0.50	<0.50	<1.0	<0.50	<0.25	<0.20	<0.20	<0.25	<0.20	<0.50	<0.20	<0.20	<0.25	<0.50	<0.50	<0.20	<0.20	<0.50	---	---	---	---	---	---	---	---
	02/20/12	14	54	<0.50	0.25 Jc	<0.80	<0.20	<0.50	<0.50	<1.0	<0.50	<0.25	<0.20	<0.20	<0.25	<0.20	<0.50	<0.20	<0.20	<0.25	<0.50	<0.50	<0.20	<0.20	<0.50	---	---	---	---	---	---	---	---
	05/31/12	31	25	<0.25	<0.10	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	05/31/12 Dup	34	29	<0.25	<0.10	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	08/27/12	22	98	<0.25	<0.10	<0.26	<0.20	<0.28*	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	11/26/12	12	29	<0.25	<0.10	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	02/28/13	35	23	<0.25	0.35 Jc	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	05/23/13	39	26	<0.25	0.66	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	05/23/13 Dup	43	29	<0.25	0.57	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	08/28/13	24	50	<0.25	<0.10	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	08/28/13 Dup	24	56	<0.25	1.6	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	11/12/13	15	12	<0.25	0.85	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	03/25/14	Sample Destroyed in Shipment											Sample Destroyed in Shipment													---	---	---	---	---	---	---	---
	05/29/14	27	24	<0.25	<0.10	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	05/29/14 Dup	29	24	<0.25	1.1	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	08/28/14	14	29	<0.25	1.4	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	08/28/14 Dup	10	24	<0.25	1.4	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	11/24/14	32	27	<0.10	<0.10	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	03/30/15	38	22	<0.25	1.2	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	03/30/15 Dup	27	16	<0.25	1.4	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
NR 140 Enforcement Standard		5	70	100	0.2	5	6	5	7	5	5	5	5	--	--	--	700	--	--	100	--	800	480	480	2,000	0.01	2	0.005	0.1	0.015	0.002	0.05	0.05
NR 140 Preventive Action Limit		0.5	7	20	0.02	0.5	0.6	0.5	0.7	0.5	0.5	0.5	0.5	--	--	--	140	--	--	10	--	160	96	96	400	0.001	0.4	0.0005	0.01	0.0015	0.0002	0.01	0.01

† = Detected below the Limit of Quantitation
--- = Not Tested / Not Required
* = LCS or LCSD exceeds the control limits.
B = Analyte was detected in the associated Method Blank.
Ja = Results reported between the Method Detection Limit (MDL) and Limit of Quantitation (LOQ) are less certain than results at or above the LOQ. concentration is an approximate value.
Jc = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Note: The following compound was detected in MW7 during the November 2, 2006 sampling event: Butyl Benzyl Phthalate (0.78† µg/L) .
Note: The following compound was detected in MW7 during the February 14, 2008 sampling event: Chloroethane (0.94† µg/L) .
Note: The following compound was detected in MW7 during the August 2009 sampling event: Benzyl Alcohol (1.2 µg/L)
Note: As of the December 2010 ch. NR 140 Wisconsin Administrative Code, eff. 1-1-11, the enforcement standards (ESs) and preventive action limits (PALs) have changed for Toluene and Xylenes. The previous standards were Toluene 1,000 ES/200 PAL; Xylenes 10,000 ES/1,000 PAL.

Color-coding of select results applied by the WDNR

TABLE 1
Historical Groundwater Analytical Results
QuicFrez SFR Site - Fond du Lac, Wisconsin
SCS Engineers Project #25211406.63

		Chlorinated Volatile Organic Compounds (EPA 8260)--µg/L											Petroleum-related Volatile Organic Compounds (EPA 8260)--µg/L												RCRA Metals--mg/L							
Well	Date	Trichloroethene	cis-1,2 Dichloroethene	trans-1,2 Dichloroethene	Vinyl Chloride	Carbon Tetrachloride	Chloroform	1,2-Dichloroethane	1,1-Dichloroethene	Methylene Chloride	Tetrachloroethene	1,1,2-Trichloroethane	Benzene	tert-Butylbenzene	sec-Butylbenzene	n-Butylbenzene	Ethylbenzene	Isopropylbenzene	p-Isopropyltoluene	Naphthalene	n-Propylbenzene	Toluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Xylenes	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
MW15	07/22/99 12/12/01 03/07/02 06/10/02 01/12/04	Prior to Well Construction											Prior to Well Construction												Prior to Well Construction							
	03/04/04	122	67	0.97†	<0.11	0.42†	0.84†	<0.2	<0.44	<2.4	<0.45	0.58†	<0.17	<0.31	<0.43	<0.22	<0.16	<0.11	<0.18	<0.26	<0.19	1.4	<0.14	<0.12	<0.46	---	---	---	---	---	---	---	---
	04/13/04	65	36	0.94	<0.21	0.8	1.6	<0.29	<0.39	<0.7	<0.7	0.29†	<0.29	<0.31	<0.21	<0.39	<0.56	<0.19	<0.3	<0.6	<0.32	0.65†	<0.51	<0.66	<1.74	<0.005	<0.4	<0.0005	0.042	<0.0015	<0.0002	<0.01	<0.01
	11/03/06	13.8	0.84	1.68†	1.98	<0.52	<0.61	<0.72	0.33†	<0.69	<0.52	<0.5	<0.47	<0.6	<0.76	<1.1	<0.38	<0.99	<0.81	<2.2	<0.61	<0.59	<0.39	<1.2	<1.42	<0.0079	0.058	<0.0007	0.051†	0.004†	<0.00004	0.051	<0.0025
	12/14/06	52	141	6	1.4	<0.52	<0.61	<0.72	0.61†	6.8	<0.52	<0.5	1.14†	<0.6	<0.76	<1.1	<0.38	<0.99	<0.81	<2.2	<0.61	1.04†	<0.39	<1.2	0.7†	---	---	---	---	---	---	---	---
	02/13/07	12.2	157	1.94†	1.08	<0.46	<0.48	0.6†	<0.64	<0.69	<0.52	<0.5	1.83	<0.34	<0.36	<0.52	<0.38	<0.48	<0.35	<1.8	<0.38	1.06†	<1.2	<0.37	0.93†	---	---	---	---	---	---	---	---
	05/08/07	5.9	203	6	88	<0.46	<0.48	<0.45	<0.64	<0.69	<0.52	<0.5	16.8	<0.34	<0.36	<0.52	20.1	1.26†	<0.35	<1.8	1.37	22.6†	11.5	2.37	53.1	---	---	---	---	---	---	---	---
	11/01/07	320	900	16.4†	147	<4.6	<4.8	<4.5	<6.4	<6.9	<5.2	<5	17.3	<3.4	<3.6	<5.2	17.8	<4.8	<3.5	<18	<3.8	18.4†	<12	<3.7	25.9†	---	---	---	---	---	---	---	---
	02/14/08	760	1460	20.2†	2960	<4.6	<4.8	<4.5	<6.4	<6.9	<5.2	<5	36	<3.4	<3.6	<5.2	20.7	<4.8	<3.5	<18	<3.8	58	12†	<3.7	66.7	---	---	---	---	---	---	---	---
	05/06/08	85	330	<30.5	164	<15	<23.5	<20.5	<25	<49.5	<25	<19.5	<12	<16	<36.5	<27.5	<17.5	<30	<38.5	<90	<27	<19.5	<25.5	<11.5	<83.5	---	---	---	---	---	---	---	---
	09/10/08	1290	1300	24	97	<3	<4.7	<4.1	7.5†	<9.9	<5	<3.9	16.4	<3.2	<7.3	<5.5	14	<6	<7.7	<18	<5.4	40	7.8†	<2.3	37.6	---	---	---	---	---	---	---	---
	01/19/09	360	12400	115	129	<3	<4.7	<4.1	12.7†	<9.9	<5	<3.9	26.9	<3.2	<7.4	<5.6	10.3†	<6	<7.7	<18	<5.4	31	10.8†	2.8†	56	---	---	---	---	---	---	---	---
	08/05/09	7.7†	450	<6.1	340	<4.3	<4.8	<4.3	<4.7	<15	<4.2	<4.1	18.3	<4.6	<4.3	<15	<8.7	<3.9	<5.7	<17	<3.3	14.7†	<11	<15	7.7†	0.0036	0.0848	<0.0005	<0.012	<0.0007	<0.0002	<0.0009	<0.0103
	05/27/10	140	56	<1.0	22	<1.6	<0.40	<1.0	<1.0	<2.0	<1.0	<0.50	1.7 Ja	<0.40	<0.50	<0.40	1.7 Ja	<0.40	<0.40	0.8 Ja	<1.0	1.2 Ja	1.4 Ja	<0.40	5.5	---	---	---	---	---	---	---	---
	08/25/10	140	87	1.2 Ja	11	<1.6	<0.40	<1.0	<1.0	<2.0	<1.0	<0.50	2.9 Ja	<0.40	<0.50	<0.40	2.5 Ja	<0.40	<0.40	<0.50	<1.0	<1.0	1.2 Ja	<0.40	6.4	---	---	---	---	---	---	---	---
	11/30/10	110	68	1.0 Ja	9.1	<1.6	<0.40	<1.0	<1.0	<2.0	<1.0	<0.50	3.0 Ja	<0.40	<0.50	<0.40	2.1 Ja	<0.40	<0.40	<0.50	<1.0	<1.0	1.4 Ja	0.44 Ja	2.1 Ja	---	---	---	---	---	---	---	---
	03/01/11	21	100	<1.0	9.7	<1.6	<0.40	<1.0	<1.0	<2.0	<1.0	<0.50	<0.40	<0.40	<0.50	<0.40	<1.0	<0.40	<0.40	<0.50	<1.0	<1.0	<0.40	<0.40	<1.0	---	---	---	---	---	---	---	---
	05/17/11	44	77	<0.50	11	<0.80	<0.20	<0.50	<0.50	<1.0	<0.50	<0.25	0.85 Jb	<0.20	<0.25	<0.20	<0.50	<0.20	<0.20	<0.25	<0.50	<0.50	0.37 Jb	<0.20	<0.50	---	---	---	---	---	---	---	---
	05/17/11 Dup	45	72	<0.50	11	<0.80	<0.20	<0.50	<0.50	<1.0	<0.50	<0.25	0.82 Jb	<0.20	<0.25	<0.20	<0.50	<0.20	<0.20	<0.25	<0.50	<0.50	0.35 Jb	<0.20	<0.50	---	---	---	---	---	---	---	---
	08/30/11	2.5	3.0	<2.0	5.1	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	1.6 Jc	<2.0	<2.0	<2.0	1.2 Jc	<2.0	<2.0	<5.0	<2.0	<2.0	0.40 Jc	0.28 Jc	0.95 Jc	---	---	---	---	---	---	---	---
	11/09/11	46	79	0.60 Jc	13	<0.80	<0.20	<0.50	<0.50	<1.0	<0.50	<0.25	2.3	<0.20	<0.25	<0.20	0.77 Jc	<0.20	<0.20	<0.25	<0.50	<0.50	<0.20	<0.20	0.53 Jc	---	---	---	---	---	---	---	---
	11/09/11 Dup	45	77	0.62 Jc	13	<0.80	<0.20	<0.50	<0.50	<1.0	<0.50	<0.25	2.3	<0.20	<0.25	<0.20	0.75 Jc	<0.20	<0.20	<0.25	<0.50	<0.50	<0.20	<0.20	0.52 Jc	---	---	---	---	---	---	---	---
	02/20/12	25	70	0.57 Jc	30	<0.80	<0.20	<0.50	<0.50	<1.0	<0.50	<0.25	0.97 Jc	<0.20	<0.25	<0.20	<0.50	<0.20	<0.20	<0.25	<0.50	<0.50	<0.20	<0.20	<0.50	---	---	---	---	---	---	---	---
	05/31/12	68	55	0.68 Jc	14	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	2.5	<0.14	<0.15	<0.13	0.55	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	0.58 Jc	---	---	---	---	---	---	---	---
	08/27/12	8.6	260	2.3	65	<0.26	<0.20	<0.28*	0.64 Jc	<0.68	<0.17	<0.28	1.6	<0.14	<0.15	<0.13	0.65	<0.14	<0.17	<0.16	<0.13	0.25 Jc	<0.14	<0.18	0.44 Jc	---	---	---	---	---	---	---	---
	11/27/12	1.1	23	<0.25	23	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	1.2	<0.14	<0.15	<0.13	0.23 Jc	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	11/27/12 Dup	0.96	23	<0.25	27	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	1.3	<0.14	<0.15	<0.13	0.22 Jc	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	02/28/13	93	92	0.74 Jc	11	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	0.57	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	05/23/13	13	15	<0.25	3.6	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	0.74	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	08/28/13	260	310	1.4	25	<0.26	<0.20	<0.28	0.81 Jc	<0.68	<0.17	<0.28	2.2	<0.14	<0.15	<0.13	0.69	<0.14	<0.17	<0.16	<0.13	0.41 Jc	<0.14	<0.18	1.0	---	---	---	---	---	---	---	---
	11/13/13	<0.19	9.0	<0.25	<0.10	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	0.69	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	03/25/14	Sample Destroyed in Shipment											Sample Destroyed in Shipment													---	---	---	---	---	---	---	---
	05/29/14	86	39	<0.25	3.7	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	0.66	<0.14	<0.15	<0.13	0.28 Jc	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	0.48 Jc	---	---	---	---	---	---	---	---
	08/28/14	43	24	<0.25	1.2	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	0.23 Jc	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	11/25/14	35	16	<0.25	<0.10	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	0.46 Jc	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	03/30/15	61	33	<0.25	4.8	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	0.39 Jc	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
NR 140 Enforcement Standard		5	70	100	0.2	5	6	5	7	5	5	5	5	--	--	--	700	--	--	100	--	800	480	480	2,000	0.01	2	0.005	0.1	0.015	0.002	0.05	0.05
NR 140 Preventive Action Limit		0.5	7	20	0.02	0.5	0.6	0.5	0.7	0.5	0.5	0.5	0.5	--	--	--	140	--	--	10	--	160	96	96	400	0.001	0.4	0.0005	0.01	0.0015	0.0002	0.01	0.01

† = Detected below the Limit of Quantitation
--- = Not Tested / Not Required
* = LCS or LCSD exceeded the control limits.
Ja = Results reported between the Method Detection Limit (MDL) and Limit of Quantitation (LOQ) are less certain than results at or above the LOQ.
Jb = Estimated value. Analyte detected at a level less than the Reporting Limit (RL) and greater than or equal to the Method Detection Limit (MDL). The user of this data should be aware that this data is of limited reliability.
Jc = Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Note: The following compound was detected in MW15 during the August 2009 sampling event: Benzyl Alcohol (3.6 µg/L).
Note: As of the December 2010 ch. NR 140 Wisconsin Administrative Code, eff. 1-1-11, the enforcement standards (ESs) and preventive action limits (PALs) have changed for Toluene and Xylenes. The previous standards were Toluene 1,000 ES/200 PAL; Xylenes 10,000 ES/1,000 PAL.

Color-coding of select results applied by the WDNR

TABLE 1
Historical Groundwater Analytical Results
QuicFrez SFR Site - Fond du Lac, Wisconsin
SCS Engineers Project #25211406.63

		Chlorinated Volatile Organic Compounds (EPA 8260)--µg/L											Petroleum-related Volatile Organic Compounds (EPA 8260)--µg/L												RCRA Metals--mg/L							
Well	Date	Trichloroethene	cis-1,2 Dichloroethene	trans-1,2 Dichloroethene	Vinyl Chloride	Carbon Tetrachloride	Chloroform	1,2-Dichloroethane	1,1-Dichloroethene	Methylene Chloride	Tetrachloroethene	1,1,2-Trichloroethane	Benzene	tert-Butylbenzene	sec-Butylbenzene	n-Butylbenzene	Ethylbenzene	Isopropylbenzene	p-Isopropyltoluene	Naphthalene	n-Propylbenzene	Toluene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Xylenes	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
MW20	07/22/99 12/12/01 03/07/02 06/10/02 01/12/04	Prior to Well Construction											Prior to Well Construction												Prior to Well Construction							
	03/04/04	0.49	<0.25	<0.35	<0.11	<0.22	<0.69	<0.2	<0.44	<2.4	<0.45	<0.41	<0.17	<0.31	<0.43	<0.22	<0.16	<0.11	<0.18	<0.26	<0.19	3.4	<0.14	<0.12	<0.46	---	---	---	---	---	---	---	---
	04/13/04	0.33†	<0.29	<0.22	<0.21	<0.16	<0.25	<0.29	<0.39	<0.7	<0.7	<0.25	<0.29	<0.31	<0.21	<0.39	<0.56	<0.19	<0.3	<0.6	<0.32	1.4†	<0.51	<0.66	<1.74	<0.005	<0.4	<0.0005	<0.01	<0.0015	<0.0002	<0.01	<0.01
	11/02/06	<0.44	<0.68	<0.95	<0.17	<0.52	<0.61	<0.72	<0.3	<0.69	<0.52	<0.5	<0.47	<0.6	<0.76	<1.1	<0.38	<0.99	<0.81	<2.2	<0.61	<0.59	<0.39	<1.2	<1.42	<0.0079	0.014	<0.0007	<0.0023	<0.0024	0.000061	<0.0092	0.045
	12/14/06	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	02/13/07	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	05/08/07	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	11/02/07	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	02/14/08	<0.44	<0.68	<0.95	<0.2	<0.46	<0.48	<0.45	<0.64	<0.69	<0.52	<0.5	<0.47	<0.34	<0.36	<0.52	<0.38	<0.48	<0.35	<1.8	<0.38	0.49†	<0.5	<0.37	<0.99	---	---	---	---	---	---	---	---
	05/06/08	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	09/10/08	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	01/19/09	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	08/05/09	<0.39	<0.68	<0.61	<0.2	<0.43	<0.48	<0.43	<0.47	<1.5	<0.42	<0.41	<0.41	<0.46	<0.43	<1.5	<0.87	<0.39	<0.57	<1.7	<0.33	<0.51	<1.1	<1.5	<2.13	<0.0006	0.0171	<0.0005	<0.0012	<0.0007	<0.00004	<0.0009	<0.0103
	05/26/10	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	08/25/10	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	11/30/10	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	03/01/11	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	05/16/11	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	08/30/11	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	11/09/11	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	02/20/12	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	05/31/12	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	08/27/12	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	11/26/12	<0.19	2.6	<0.25	<0.10	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	02/28/13	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	05/23/13	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	08/28/13	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	11/13/13	3.5	4.3	<0.25	<0.10	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	03/25/14	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	05/29/14	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	08/28/14	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	11/25/14	5.8	3.1	<0.25	<0.10	<0.26	<0.20	<0.28	<0.31	<0.68	<0.17	<0.28	<0.074	<0.14	<0.15	<0.13	<0.13	<0.14	<0.17	<0.16	<0.13	<0.11	<0.14	<0.18	<0.068	---	---	---	---	---	---	---	---
	03/30/15	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
NR 140 Enforcement Standard		5	70	100	0.2	5	6	5	7	5	5	5	5	--	--	--	700	--	--	100	--	800	480	480	2,000	0.01	2	0.005	0.1	0.015	0.002	0.05	0.05
NR 140 Preventive Action Limit		0.5	7	20	0.02	0.5	0.6	0.5	0.7	0.5	0.5	0.5	0.5	--	--	--	140	--	--	10	--	160	96	96	400	0.001	0.4	0.0005	0.01	0.0015	0.0002	0.01	0.01

† =Detected below the Limit of Quantitation
--- =Not Tested / Not Required

Note: The following compound was detected in MW20 during the August 2009 sampling event: Benzyl Alcohol (0.91† µg/L).
Note: As of the December 2010 ch. NR 140 Wisconsin Administrative Code, eff. 1-1-11, the enforcement standards (ESs) and preventive action limits (PALs) have changed for Toluene and Xylenes. The previous standards were Toluene 1,000 ES/200 PAL; Xylenes 10,000 ES/1,000 PAL.

Color-coding of select results applied by the WDNR

QuicFrez

Attachment D. - Groundwater Analytical Results Table

Detected Volatile Organic Compounds (VOC) (µg/L)

Reference 18b

Chemical Name			n-Propylbenzene	1,2-Dichloroethane	Toluene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	m&p-Xylene	Carbon Tetrachloride	Chloroform	Benzene	Chloromethane	Vinyl Chloride	1,1-Dichloroethene	Trichloroethene (TCE)	o-Xylene	1,2,4-Trimethylbenzene	Isopropylbenzene
ES (µg/L)				5	1000	70	100		5	6	5	30	0.2	7	5			
PAL (µg/L)				0.5	200	7	20		0.5	0.6	0.5	3	0.02	0.7	0.5			
strWellName	*Date*	*100-41-4*	*103-65-1*	*107-06-2*	*108-88-3*	*156-59-2*	*156-60-5*	*179601-23-1*	*56-23-5*	*67-66-3*	*71-43-2*	*74-87-3*	*75-01-4*	*75-35-4*	*79-01-6*	*95-47-6*	*95-63-6*	*98-82-8*
MW1RR	7/18/2018	0.8 J	< 0.61	< 0.25	0.27 J	5.1	< 0.34	< 0.43	< 0.31	< 0.26	***7.2***	0.79 J	***4***	< 0.42	< 0.3	< 0.29	< 0.8	< 0.78
MW4R	7/18/2018	< 520	< 1220	< 500	< 380	***282000***	***760 J***	< 860	< 620	< 520	< 440	< 1080	***4000***	***920 J***	***62000***	< 580	< 1600	< 1560
MW5A	7/18/2018	9.1	1.63 J	< 0.25	0.4 J	*15.6*	1.59	2.24	< 0.31	< 0.26	*2.77*	< 0.54	***17.1***	< 0.42	0.43 J	0.96	7.9	0.94 J
MW5R	7/18/2018	< 13	< 30.5	< 12.5	< 9.5	***1140***	< 17	< 21.5	< 15.5	< 13	< 11	< 27	***590***	< 21	***460***	< 14.5	< 40	< 39
MW14	7/18/2018	< 0.26	< 0.61	0.32 J	< 0.19	***78***	1.99	< 0.43	< 0.31	< 0.26	0.43 J	< 0.54	***15.5***	< 0.42	***21***	< 0.29	< 0.8	< 0.78
MW15	7/18/2018	< 0.26	< 0.61	< 0.25	< 0.19	2.62	< 0.34	< 0.43	0.34 J	*1.81*	< 0.22	< 0.54	***0.66***	< 0.42	*1.76*	< 0.29	< 0.8	< 0.78
MW16	7/18/2018	< 0.26	< 0.61	< 0.25	< 0.19	3.2	< 0.34	< 0.43	< 0.31	< 0.26	0.3 J	0.57 J	***1.35***	< 0.42	0.47 J	< 0.29	< 0.8	< 0.78
MW21	7/18/2018	58	< 30.5	< 12.5	62	***35000***	***142***	40 J	< 15.5	< 13	***93***	< 27	***5800***	***94***	***7500***	25.5 J	< 40	< 39

BOLD entries indicate concentration detected above NR 140 Enforcement Standard (ES)

Italic entries indicate concentration above NR 140 Preventive Action Limit (PAL)

J = Analyte detected between the limit of detection and limit of quantitation.

All concentrations in µg/L.

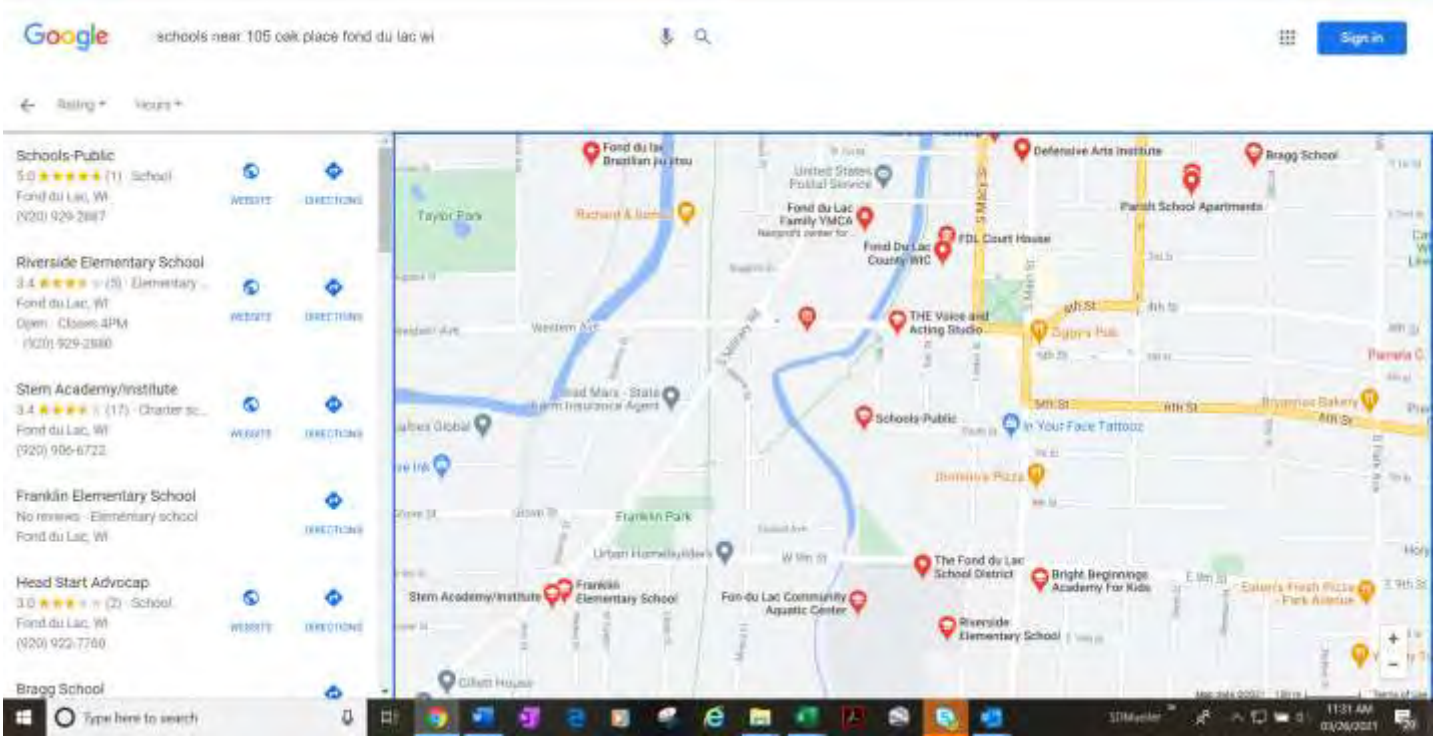
February 2017 NR 140 PAL and ES values used.

Detect in groundwater exceeding ES

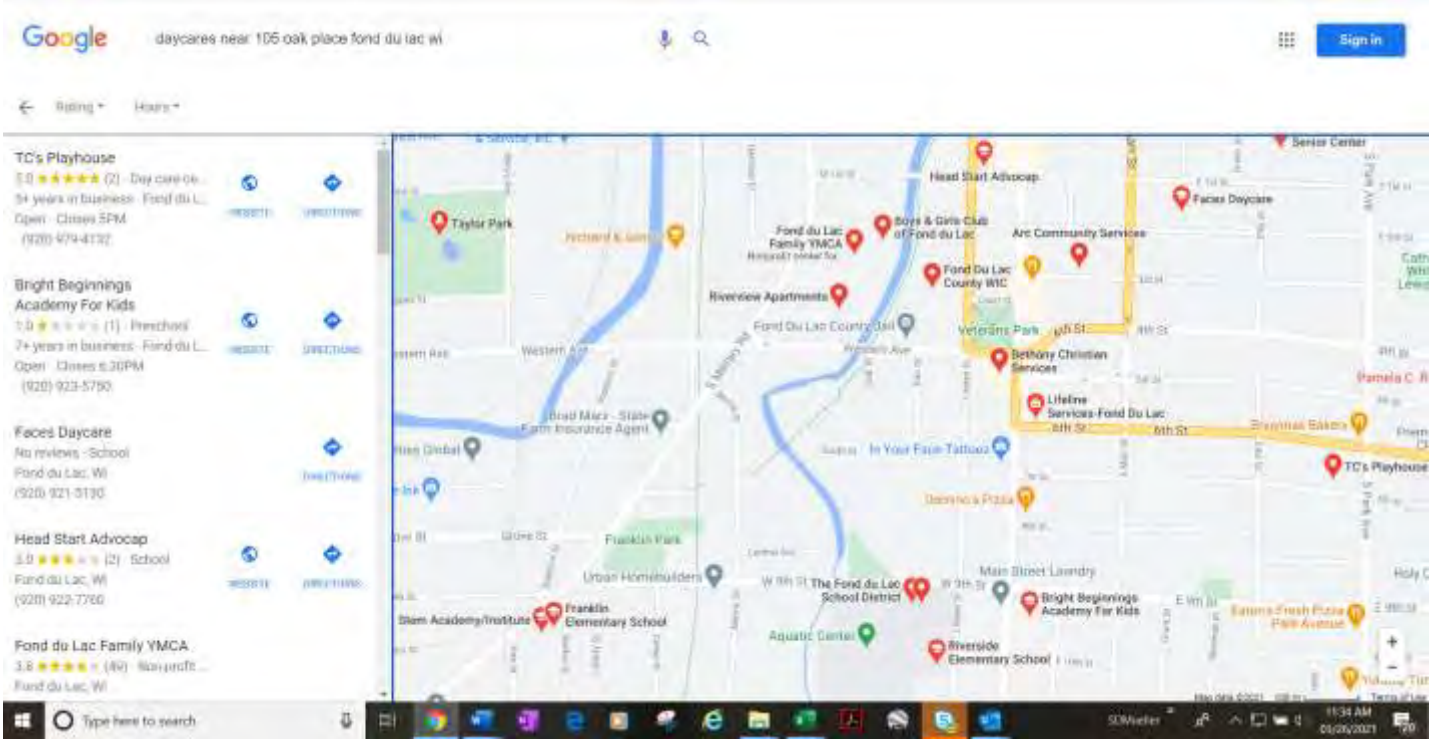
Detect in groundwater exceeding PAL

Detect in groundwater between LOD and PAL

Schools near Quic Frez Site



Daycares near Quic Frez Site



State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
2984 Shawano Avenue
Green Bay WI 54313-6727

Tony Evers, Governor
Preston D. Cole, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711

Reference 20

March 25, 2020

ROBERT J GROSS
420 CEDAR CREEK DR APT #3
FOND DU LAC WI 54935

SUBJECT: Vapor Sampling Results - Contaminant Detection **Below** DNR Screening Level
PROPERTY: QuicFrez - LGU SL, 105 Oak Place, Fond du Lac, WI; BRRTS #: 02-20-118383

Dear Mr. Gross,

Included are the findings of a recent investigation on your property at 224 Oak Street by the Wisconsin Department of Natural Resources (DNR).

As you are aware, this investigation was conducted because of the potential for contaminant vapors from the nearby QuicFrez property, identified above, to migrate through soils, accumulate beneath the foundation of your business, and possibly enter your indoor air. The contaminant of concern at the QuicFrez property is trichloroethene, or TCE. The history of this site and the potential concerns to neighboring residents were described in detail in the original letter sent to your business.

On March 4, 2020, an environmental consultant hired by DNR installed three sampling devices into the floor of your foundation and collected a soil vapor sample from each location. The samples were then submitted to the Synergy Environmental Lab, where they underwent laboratory analysis for sixty-four volatile organic compounds (VOCs), including perchloroethylene (PCE), trichloroethylene (TCE), cis-1,2-dichloroethylene, trans-1,2-dichloroethylene and vinyl chloride (VC).

Your Test Results
Attached is a copy of the laboratory report for your sub-slab and indoor air samples. The results show that a small amount of trichloroethylene was detected in two of the samples taken from beneath your foundation, and one of the indoor air samples. Although TCE was detected in soil vapors beneath your foundation floor, the level at which it was detected is such that it does not pose a threat to you or your business. This is called “a detection below screening level” and is explained in the enclosed fact sheet.

At this time, there does not appear to be a risk of TCE vapor entering your business from beneath the foundation. Additional sampling needs to be conducted in order to confirm these results. Dan O’Connell with OMNNI Associates or I will contact you to schedule another sampling visit.

The laboratory report also shows very low levels of volatile organic compounds (VOCs) other than TCE in soil vapor from beneath your building and the indoor air. This is likely due to trace amounts of VOCs from products such as paints, adhesives, fragrances, etc. that are commonly found in the typical home or office, and unrelated to the activities that took place at QuicFrez in the past. The level at which they were detected is such that they do not pose a threat to you or your business.

Please feel free to contact me at (920) 662-5443 or by email to Sarah.Krueger@wisconsin.gov if you have any questions about these results.

Sincerely,

Sarah Krueger
Project Manager
Remediation & Redevelopment Program

cc: Jordan Skiff, City of Fond du Lac, jskiff@fdl.wi.gov

Encl. Understanding Chemical Vapor Testing Results, RR977

Att. Laboratory Analytical Report
Sample Location Figure

Quic Frez
Table 1 - Vapor Investigation Results Summary - Gross Building
TO-15 (ug/m3)
BRRTS #02-20-118383

	WI Residential VRSL based on U.S. EPA RSL (ug/m3) AF=0.03		WI Small Commercial VRSL based on U.S. EPA RSL (ug/m3) AF=0.03		WI Industrial VRSL based on U.S. EPA RSL (ug/m3) AF=0.01			Sample ID/Type	Outdoor-1 Outdoor Air	Indoor-A-1 Area A 1st floor	Indoor-A2 Area A Basement	VP-5 Area A Sub-Slab	VP-6 Area C Sub-Slab	VP-7 Area B Sub-Slab
								Sample Date	3/4/2020	3/4/2020	3/4/2020	3/4/2020	3/4/2020	3/4/2020
	Indoor Air VAL	Sub-Slab Vapor VRSL	Indoor Air VAL	Sub-Slab Vapor VRSL	Indoor Air VAL	Sub-Slab Vapor VRSL	U.S. EPA RSL Basis							
Acetone	33000	1100000	140000	4600000	140000	4600000	nc		10.8	26.9	26.7	70	350	12.5
Acrolein	0.021	0.70	0.088	3	0.088	3	nc		<0.094	<0.094	<0.094	<0.094	<0.094	<0.094
Benzene	3.6	120	16	530	16	1600	c		0.45	1.76	1.98	1.56	1.15	1.53
Bromomethane	5.2	180	22	730	22	730	nc		<0.2	<0.2	0.39J	<0.2	<0.2	<0.2
Carbon Disulfide	730	24000	3100	110000	3100	110000	nc		0.62	0.50	1.56	0.311J	20.5	0.87
Carbon Tetrachloride	4.7	160	20	670	20	2000	c		0.57J	0.63J	0.88J	**91**	**81**	0.50J
Chloroethane	11000	350000	44000	1500000	44000	4400000	nc		<0.159	<0.159	1.4	<0.159	<0.159	<0.159
chloroform	1.2	10	5.3	180	5.3	530	c		<0.3	<0.3	1.07	**6.4**	**8.0**	<0.3
Chloromethane	94	3100	390	13000	390	39000	n		1.09J	1.03J	3.5	<0.831	<0.831	<0.831
Cyclohexane	6300	210000	27000	880000	27000	880000	nc		<0.212	0.34J	0.34J	5.0	5.2	0.93
Dichlorodifuoromethane	100	3300	440	15000	440	44000	n		2.67	2.92	2.97	2.97	2.62	2.72
cis-1,2-Dichloroethene	---	---	---	---	---	---	---		<0.197	<0.197	<0.197	<0.197	<0.24	<0.197
Ethanol	---	---	---	---	---	---	---		4.9	14.6	13	26.5	56	65
Ethyl Acetate	73	2500	310	11000	310	11000	nc		<0.176	1.69	<0.176	<0.176	<0.176	<0.176
Ethylbenzene	11	370	49	1600	49	4900	c		<0.203	0.82	0.78	1.34	0.78	1.78
4-Ethyloluene	---	---	---	---	---	---	---		<0.214	0.294J	0.294J	0.294J	<0.214	<0.214
Heptane	420	14000	1800	59000	1800	59000	nc		<0.265	0.86	0.78J	9.2	5.2	2.98
Hexane	730	25000	3100	110000	3100	110000	nc		0.60J	2.33	2.64	14.4	10.3	4.3
2-Hexanone	32	1100	140	4400	140	4400	nc		<0.222	0.82	0.286J	<0.222	<0.222	<0.222
Isopropyl Alcohol	210	70000	880	30000	880	30000	nc		1.23	13.4	2.19	3.6	4.8	3.2
Methyl ethyl ketone (MEK)	5300	180000	22000	730000	22000	730000	nc		1.5	6.2	3.6	4.8	8.4	2.03
Methyl isobutyl ketone (MIBK)	3200	110000	14000	440000	14000	440000	nc		<0.168	0.61	0.41J	0.49J	3.2	0.33J
Methylene chloride	630	21000	2600	87000	2600	260000	n		<15	<15	<15	<15	<15	<15
Naphthalene	0.83	28	3.6	120	3.6	360	c		<0.675	<0.675	<0.675	<0.675	<0.675	<0.675
Propene	3200	110000	14000	440000	14000	440000	nc		<0.079	<0.079	6.0	<0.079	<0.079	<0.079
Styrene	1100	35000	4400	150000	4400	150000	nc		<0.181	<0.181	<0.181	<0.181	<0.181	<0.181
Tetrachloroethene	42	1400	180	6000	180	18000	nc		<0.278	<0.278	<0.278	1.29	0.75J	<0.278
Tetrahydrofuran	---	---	---	---	---	---	---		<0.131	0.97	<0.131	1.59	0.59	<0.131
Toluene	5200	170000	22000	730000	22000	2200000	n		0.64	5.2	4.9	4.9	3.09	3.7
Trichloroethene (TCE)	2.1	70	8.8	290	8.8	880	n		<0.237	<0.237	0.59J	**18.2**	**7.0**	<0.237
Trichlorofluoromethane	---	---	---	---	---	---	---		1.57	1.52	1.52	1.4	1.29	1.46
Trichlorotrifluoroethane	5300	180000	22000	730000	22000	730000	nc		0.69J	0.69J	0.69J	0.61J	0.61J	0.61J
1,2,4-Trimethylbenzene	63	2100	260	8700	260	26000	n		0.44J	1.23	1.37	1.32	0.69J	0.78J
1,3,5-Trimethylbenzene	63	2100	260	8700	260	26000	n		<0.232	0.294J	0.294J	0.34J	<0.232	<0.232
m&p-Xylene	100	3300	440	15000	440	44000	n		0.65J	2.64	2.47	2.77	1.47	2.47
o-Xylene	100	3300	440	15000	440	44000	n		0.303J	1	0.95	1.13	0.65J	1.04

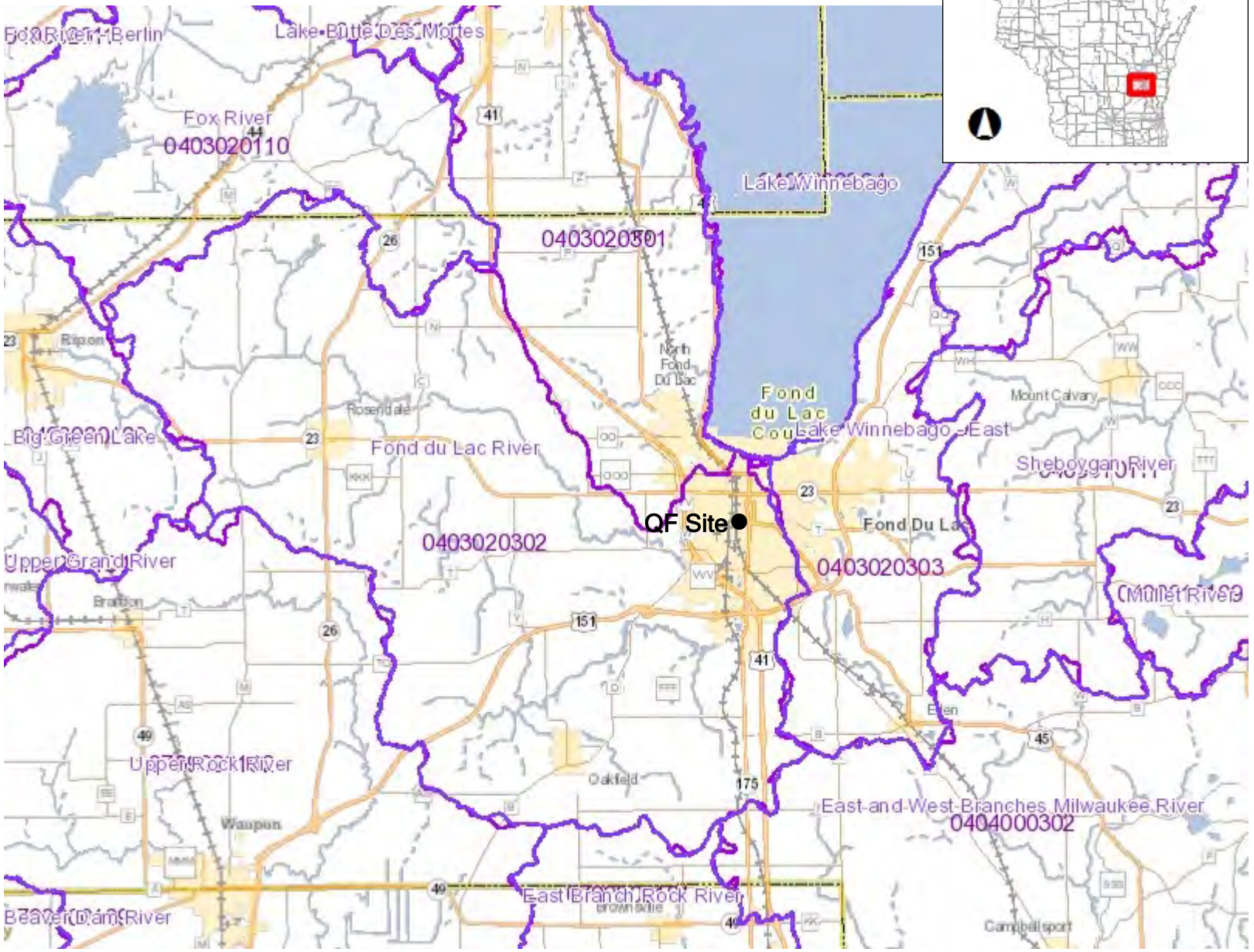
Notes:
WI Vapor Quick Look-Up Table Indoor Air Vapor Action Levels and Vapor Risk Screening Levels Based on November 2017 U.S. EPA Regional Screening Levels
U.S. EPA Regional Screening Levels used 3/17/2020
AF = Attenuation Factor
VAL = Vapor Action Level
VRSL = Vapor Risk Screening Level
--- = Inhalation toxicity values are *not* available from U.S. EPA
U.S. EPA RSL = Regional Screening Level
n = noncancer
c = carcinogenic
Bold = Exceeds WI residential VRSL Indoor Air VAL, Sub-Slab VRSL; WI Small Commercial VRSL Indoor Air VAL, Sub-Slab VRSL; and WI Industrial VRSl Indoor Air VAL, Sub-Slab VRSL

Figure 1 Site Detail Map

Note: Sub-Slab, Indoor, and Outdoor vapor samples locations are approximate

Reference 21

Surface Water Data Viewer Map



Legend

- DNR Priority Watersheds
- 10-digit HUCs (Watersheds)
- Municipality
- State Boundaries
- County Boundaries
- Major Roads
  - Interstate Highway
  - State Highway
  - US Highway
- County and Local Roads
  - County HWY
  - Local Road
- Railroads
- Tribal Lands
- Rivers and Streams
- Intermittent Streams
- Lakes and Open water

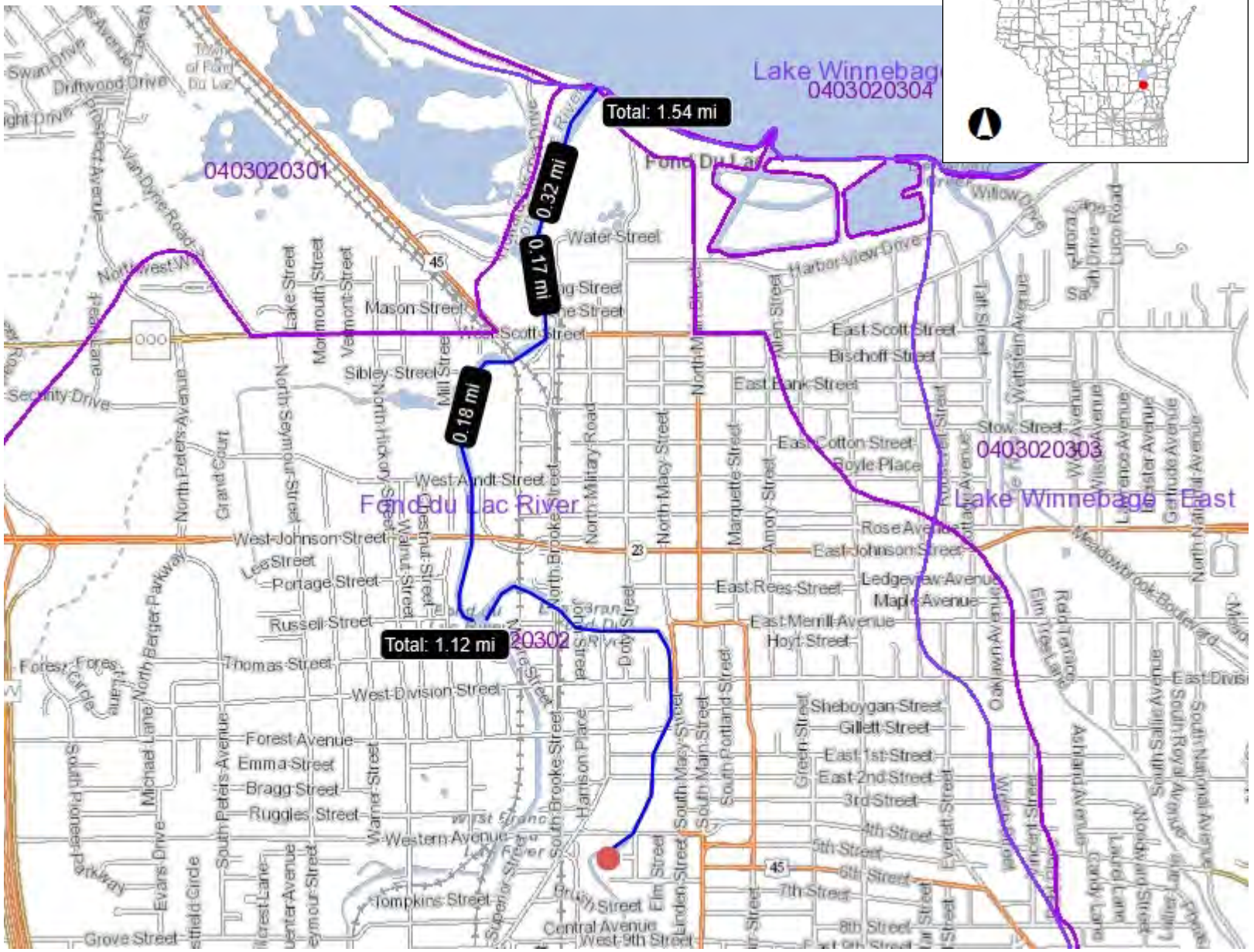
Notes

8.0 0 4.00 8.0 Miles

NAD_1983_HARN_Wisconsin_TM

1: 253,440

Surface Water Data Viewer Map



Legend

- DNR Priority Watersheds
- 10-digit HUCs (Watersheds)
- Municipality
- State Boundaries
- County Boundaries
- Major Roads
  - Interstate Highway
  - State Highway
  - US Highway
- County and Local Roads
  - County HWY
  - Local Road
- Railroads
- Tribal Lands
- Rivers and Streams
- Intermittent Streams
- Lakes and Open water

Notes

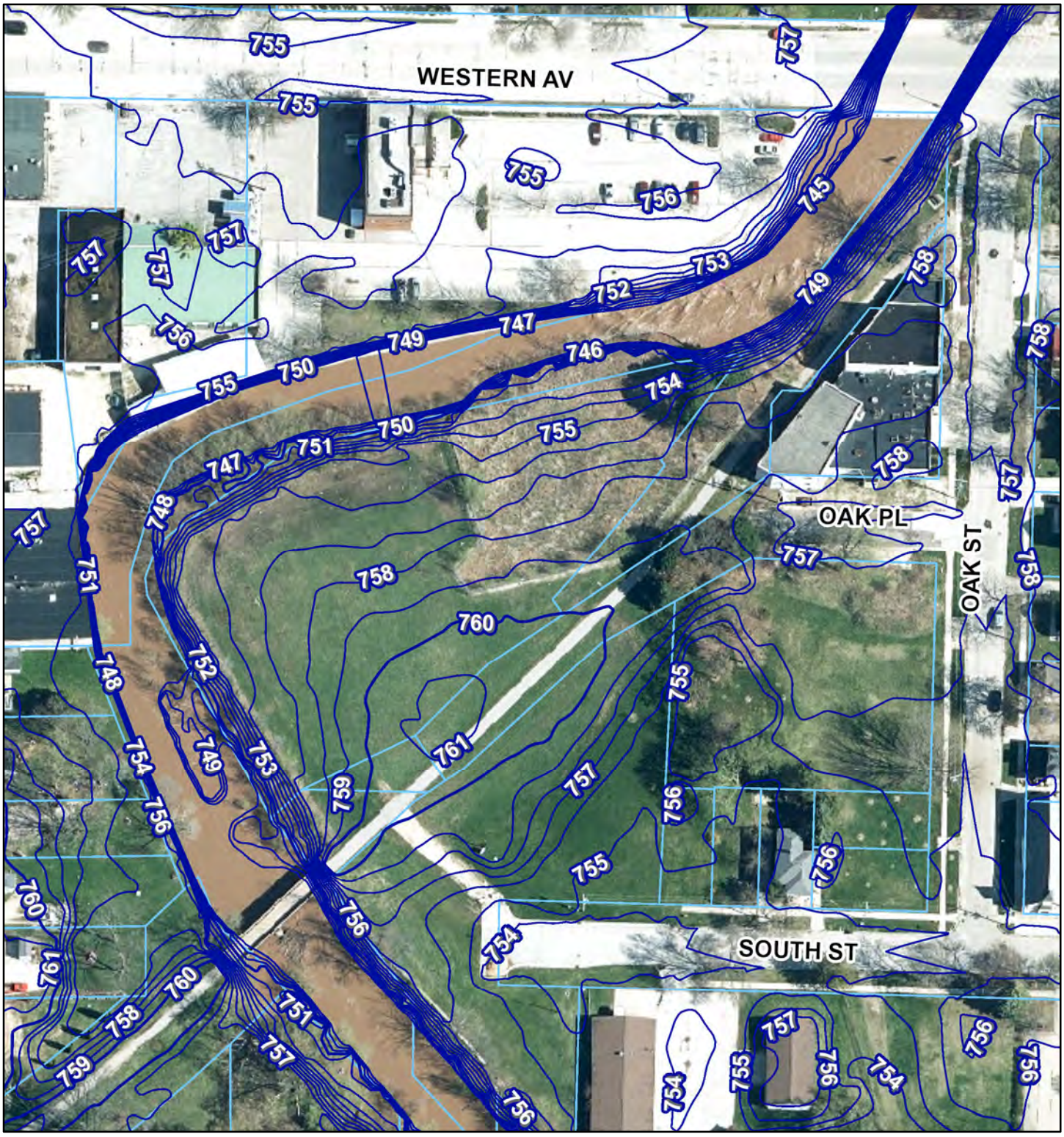
0.8 0 0.38 0.8 Miles

NAD_1983_HARN_Wisconsin_TM

1: 23,760

Reference 22

Fond du Lac County, WI



September 15, 2020

1:1,200

0 55 110 220 ft

0 15 30 60 m

Fond du Lac County

Reference 23

National Water Information System: Web Interface

USGS Water Resources

Data Category: Surface Water ▼ Geographic Area: Wisconsin ▼ GO

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USGS Surface-Water Annual Statistics for Wisconsin

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During the winter, river stage may be significantly affected by backwater from ice, resulting in incorrect discharge data. Consequently, discharge data may not be displayed during periods of ice effect.

The statistics generated from this site are based on approved daily-mean data and may not match those published by the USGS in official publications. The user is responsible for assessment and use of statistics from this site. For more details on why the statistics may not match, click here.

USGS 04083500 EAST BRANCH FOND DU LAC RIVER AT FOND DU LAC, WI

Available data for this site Time-series: Annual statistics ▼ GO

Fond Du Lac County, Wisconsin Hydrologic Unit Code 04030203 Latitude 43°45'15", Longitude 88°27'10" NAD27 Drainage area 78.40 square miles Gage datum 762.82 feet above NGVD29	**Output formats** HTML table of all data Tab-separated data Reselect output format

Water Year	00060, Discharge, cubic feet per second
1940	22.6
1941	30.8
1942	37.8
1943	47.3
1944	14.4
1945	29.8
1946	58.2
1947	27.8
1948	29
1949	14.1
1950	21.9
1951	53
1952	54.3
1953	34
1954	5.36

** No Incomplete data have been used for statistical calculation

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National Water Information System: Web Interface

USGS Water Resources

Data Category: Surface Water ▼ Geographic Area: United States ▼ GO

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USGS Surface-Water Annual Statistics for the Nation

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USGS 04083545 FOND DU LAC RIVER @ W. ARNDT ST. AT FOND DU LAC,WI

Available data for this site Time-series: Annual statistics ▼ GO

Fond Du Lac County, Wisconsin Hydrologic Unit Code 04030203 Latitude 43°47'11.0", Longitude 88°27'32.2" NAD83 Drainage area 168 square miles Gage datum 755 feet above NAVD88	**Output formats** HTML table of all data Tab-separated data Reselect output format

Water Year	00060, Discharge, cubic feet per second
2008	215
2009	115.7
2010	128.4

Water Year	00060, Discharge, cubic feet per second
2011	125.1
** No Incomplete data have been used for statistical calculation	

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U.S. Department of the Interior | U.S. Geological Survey

Title: Surface Water data for USA: USGS Surface-Water Annual Statistics
URL: https://waterdata.usgs.gov/nwis/annual?

Page Contact Information: Wisconsin Water Data Support Team
Page Last Modified: 2021-03-25 19:07:45 EDT
0.28 0.26 sdww02

Reference 24

Soil Map—Fond du Lac County, Wisconsin

Map Scale: 1:2,150 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 30 60 120 180

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Fond du Lac County, Wisconsin
Survey Area Data: Version 21, Jun 8, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
DcA	Depere silty clay loam, 0 to 3 percent slopes	3.7	16.1%
KoB	Kewaunee silty clay loam, 2 to 6 percent slopes	13.1	56.2%
KoD2	Kewaunee silty clay loam, 12 to 20 percent slopes, eroded	0.7	2.9%
McA	Manawa silty clay loam, 0 to 3 percent slopes	0.4	1.9%
Py	Poygan silty clay loam, 0 to 2 percent slopes, occasionally ponded, drained	3.6	15.5%
W	Water	1.8	7.5%
Totals for Area of Interest		**23.3**	**100.0%**

Fond du Lac County, Wisconsin

KoB—Kewaunee silty clay loam, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: g8qt
Elevation: 750 to 1,260 feet
Mean annual precipitation: 30 to 34 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 135 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Kewaunee and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kewaunee

Setting

Landform: Till plains
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Fine-silty loess over fine-loamy till

Typical profile

Ap, E - 0 to 7 inches: silty clay loam
Bt, 2Bt - 7 to 24 inches: clay
2C - 24 to 60 inches: silty clay

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.57 in/hr)
Depth to water table: About 60 to 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Available water capacity: Moderate (about 8.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Forage suitability group: Mod AWC, adequately drained (G095AY005WI)
Other vegetative classification: Mod AWC, adequately drained (G095AY005WI)

Fond du Lac County, Wisconsin

Py—Poygan silty clay loam, 0 to 2 percent slopes, occasionally ponded, drained

Map Unit Setting

National map unit symbol: 2ygzh
Elevation: 610 to 1,210 feet
Mean annual precipitation: 27 to 33 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 130 to 170 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Poygan, occassionally ponded, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Poygan, Occassionally Ponded

Setting

Landform: Depressions
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Silty and clayey till

Typical profile

Ap - 0 to 10 inches: silty clay loam
Bg - 10 to 27 inches: silty clay
C - 27 to 79 inches: clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Occasional
Calcium carbonate, maximum content: 35 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Minor Components

Manawa, occassionally ponded

Percent of map unit: 10 percent
Landform: Drainageways
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Other vegetative classification: Mod AWC, high water table (G095AY004WI)
Hydric soil rating: No

Kewaunee

Percent of map unit: 3 percent
Landform: Moraines
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Willette, muck, ponded

Percent of map unit: 2 percent
Landform: Depressions
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Linear
Other vegetative classification: Frequently flooded, organics (G095AY010WI)
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Fond du Lac County, Wisconsin
Survey Area Data: Version 21, Jun 8, 2020

Fond du Lac County, Wisconsin

DcA—Depere silty clay loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: g8ph
Elevation: 750 to 1,210 feet
Mean annual precipitation: 30 to 34 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 135 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Depere and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Depere

Setting

Landform: Flood plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Silty and clayey alluvium

Typical profile

A - 0 to 9 inches: silty clay loam
C - 9 to 82 inches: silty clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 0.57 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: NoneRareOccasional
Frequency of ponding: Rare
Calcium carbonate, maximum content: 40 percent
Available water capacity: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Forage suitability group: Mod AWC, adequately drained (G095AY005WI)
Other vegetative classification: Mod AWC, adequately drained (G095AY005WI)

Hydric soil rating: No

Minor Components

Poygan

Percent of map unit: 5 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Fond du Lac County, Wisconsin
Survey Area Data: Version 21, Jun 8, 2020

Fond du Lac County, Wisconsin

McA—Manawa silty clay loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2t732
Elevation: 730 to 1,000 feet
Mean annual precipitation: 29 to 31 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 130 to 178 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Manawa and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Manawa

Setting

Landform: Drainageways
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Clayey till and/or calcareous, dense clayey till

Typical profile

Ap - 0 to 9 inches: silty clay loam
Bt - 9 to 35 inches: silty clay
Cd - 35 to 79 inches: silty clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 31 to 36 inches to densic material
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 7 to 24 inches
Frequency of flooding: NoneRare
Frequency of ponding: Occasional
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: D

Forage suitability group: Mod AWC, high water table (G095AY004WI)
Other vegetative classification: Mod AWC, high water table (G095AY004WI)
Hydric soil rating: No

Minor Components

Kewaunee
Percent of map unit: 6 percent
Landform: Ground moraines
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Poygan, occassionally ponded
Percent of map unit: 4 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

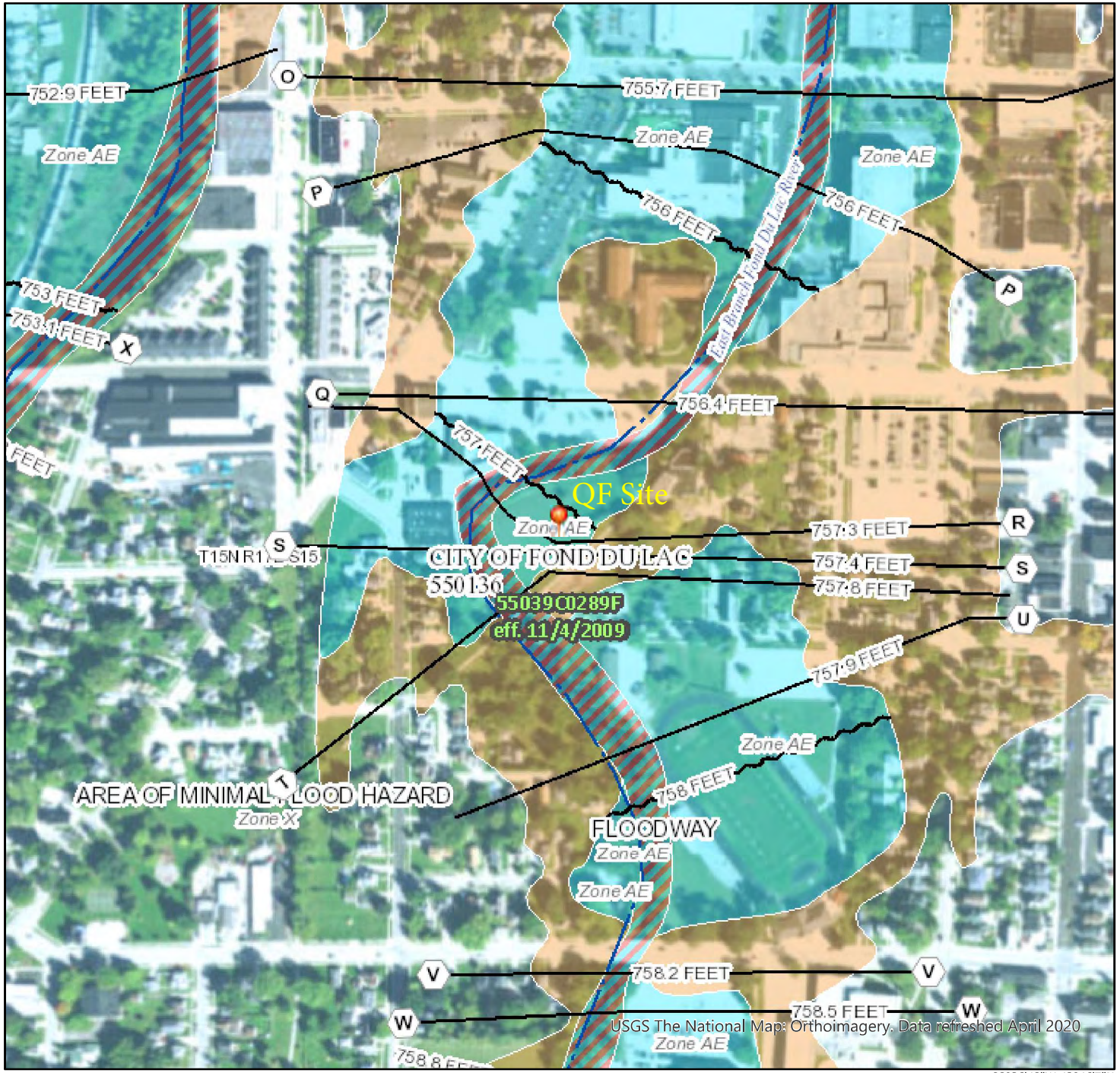
Data Source Information

Soil Survey Area: Fond du Lac County, Wisconsin
Survey Area Data: Version 21, Jun 8, 2020

Reference 25

National Flood Hazard Layer FIRMette

FEMA



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

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FEMA

Flood Zones

Flood hazard areas identified on the Flood Insurance Rate Map are identified as a Special Flood Hazard Area (SFHA). SFHA are defined as the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood. SFHAs are labeled as Zone A, Zone AO, Zone AH, Zones A1-A30, Zone AE, Zone A99, Zone AR, Zone AR/AE, Zone AR/AO, Zone AR/A1-A30, Zone AR/A, Zone V, Zone VE, and Zones V1-V30. Moderate flood hazard areas, labeled Zone B or Zone X (shaded) are also shown on the FIRM, and are the areas between the limits of the base flood and the 0.2-percent-annual-chance (or 500-year) flood. The areas of minimal flood hazard, which are the areas outside the SFHA and higher than the elevation of the 0.2-percent-annual-chance flood, are labeled Zone C or Zone X (unshaded).

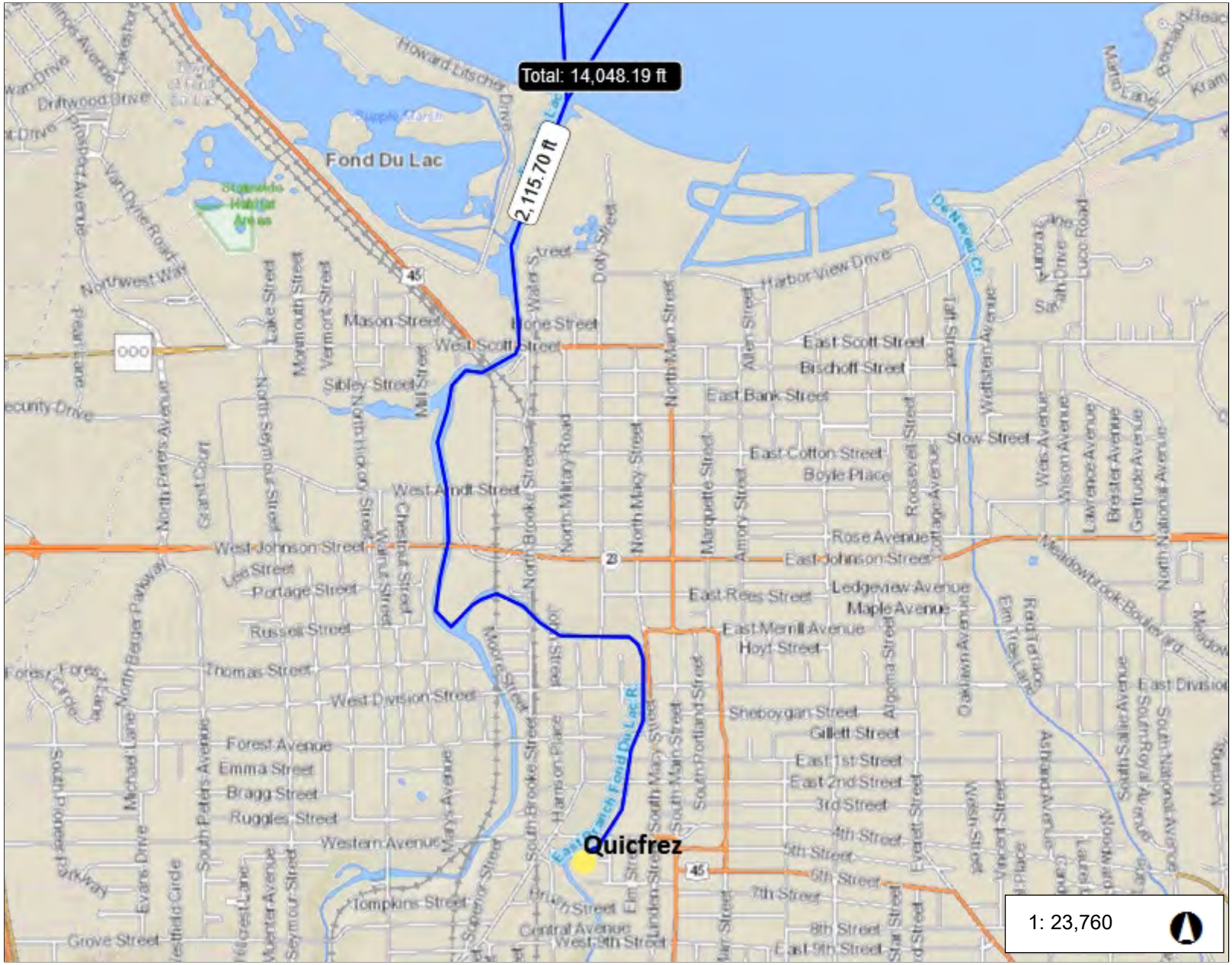
Glossary Section
NFIP - National Flood Insurance Program

Last updated July 8, 2020

FEMA

Water Withdrawal Locations

Reference 26



Legend

- SW Sources
- Trout Stream Lines
  - Class 1
  - Class 2
  - Class 3
- Trout Spring Ponds
  - Class 1
  - Class 2
  - Class 3
- Outstanding and Exceptional S
  - Exceptional
  - Outstanding
- Outstanding and Exceptional L
  - Exceptional
  - Outstanding
- Surveyed Springs >= 1 CFS
- Rivers and Streams
- City, Town & Village
- County Boundary
- Open Water
- Major Basins
  - Lake Michigan
  - Lake Superior
  - Mississippi River
- Municipality

0.8 0 0.38 0.8 Miles

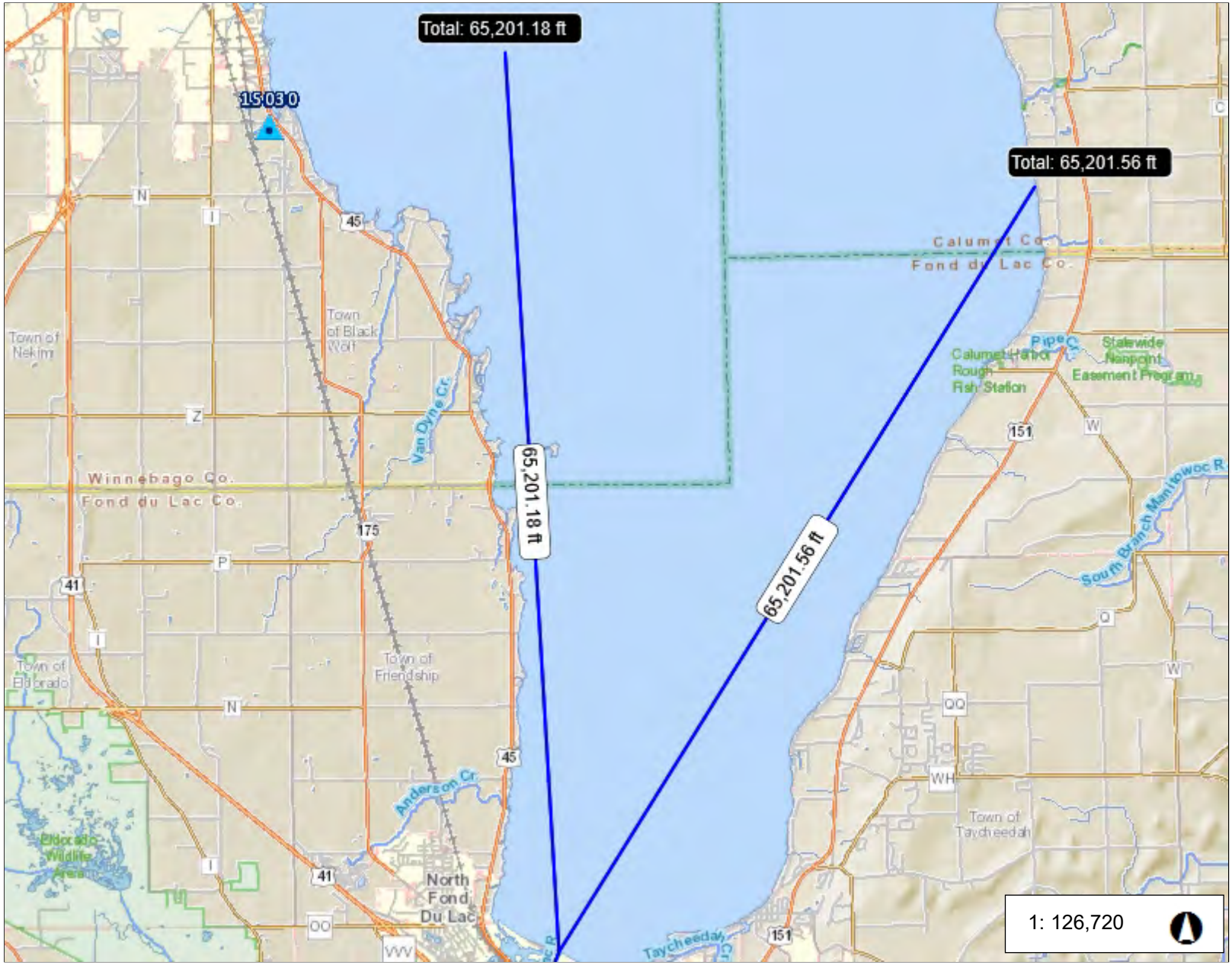
NAD_1983_HARN_Wisconsin_TM

Map created: 4/20/2020

DISCLAIMER: The information shown on these maps has been obtained from various sources, and are of varying age, reliability and resolution. These maps are not intended to be used for navigation, nor are these maps an authoritative source of information about legal land ownership or public access. No warranty, expressed or implied, is made regarding accuracy, applicability for a particular use, completeness, or legality of the information depicted on this map. For more information, see the DNR Legal Notices web page: http://dnr.wi.gov/org/legal/

The specific locations of public drinking water wells, surface water intakes, and assessment areas are sensitive information protected by security measures implemented by the DNR. To prevent misuse, access to this sensitive information must be limited, and any public dissemination requires prior Department approval. Any public requests for release of this sensitive information should be directed to Bob Smail (608) 267-4581 Robert.Smail@Wisconsin.Gov.

Water Withdrawal Locations



Legend

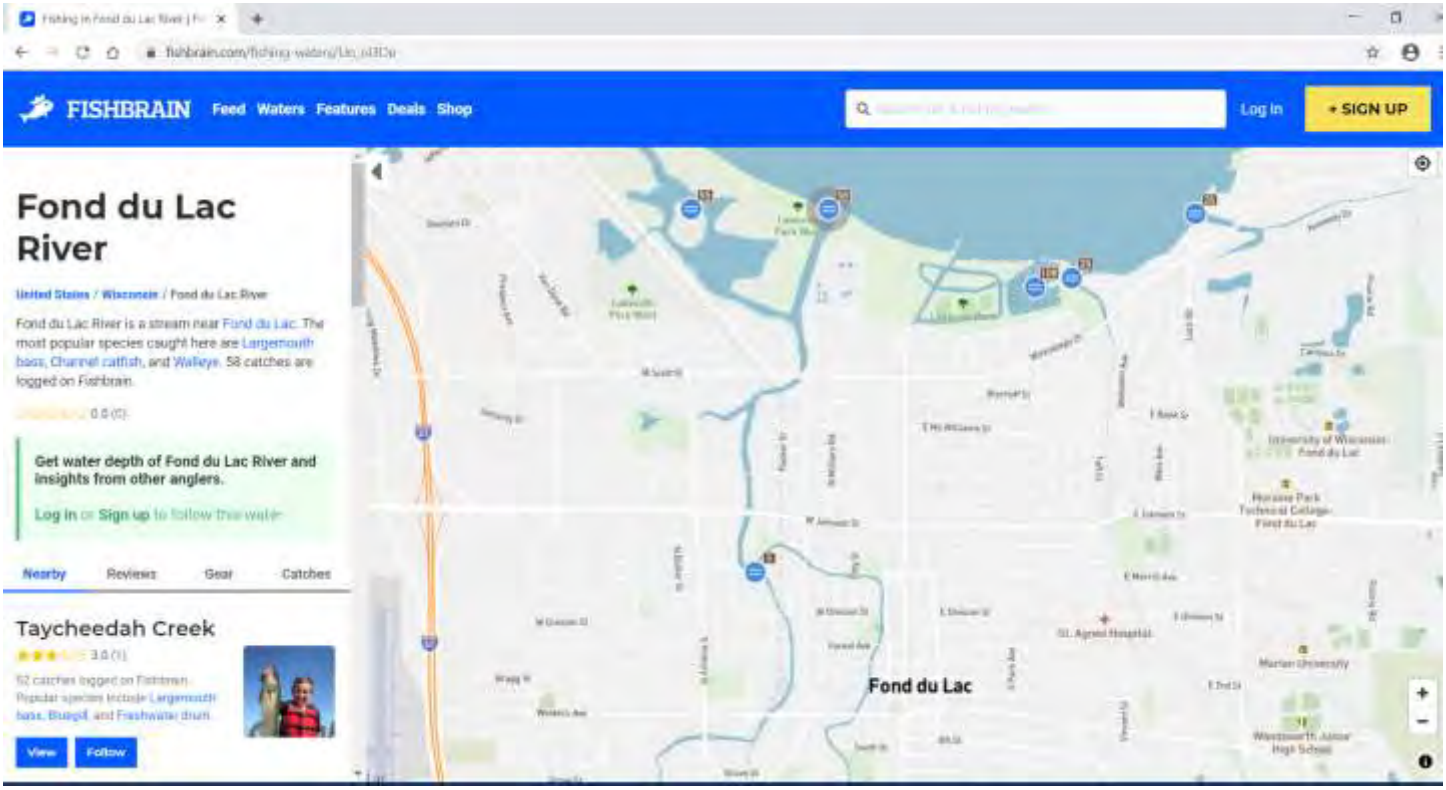
- SW Sources
- Trout Stream Lines
  - Class 1
  - Class 2
  - Class 3
- Trout Spring Ponds
  - Class 1
  - Class 2
  - Class 3
- Outstanding and Exceptional S
  - Exceptional
  - Outstanding
- Outstanding and Exceptional L
  - Exceptional
  - Outstanding
- Surveyed Springs >= 1 CFS
- Rivers and Streams
- City, Town & Village
- County Boundary
- Open Water
- Major Basins
  - Lake Michigan
  - Lake Superior
  - Mississippi River
- Municipality

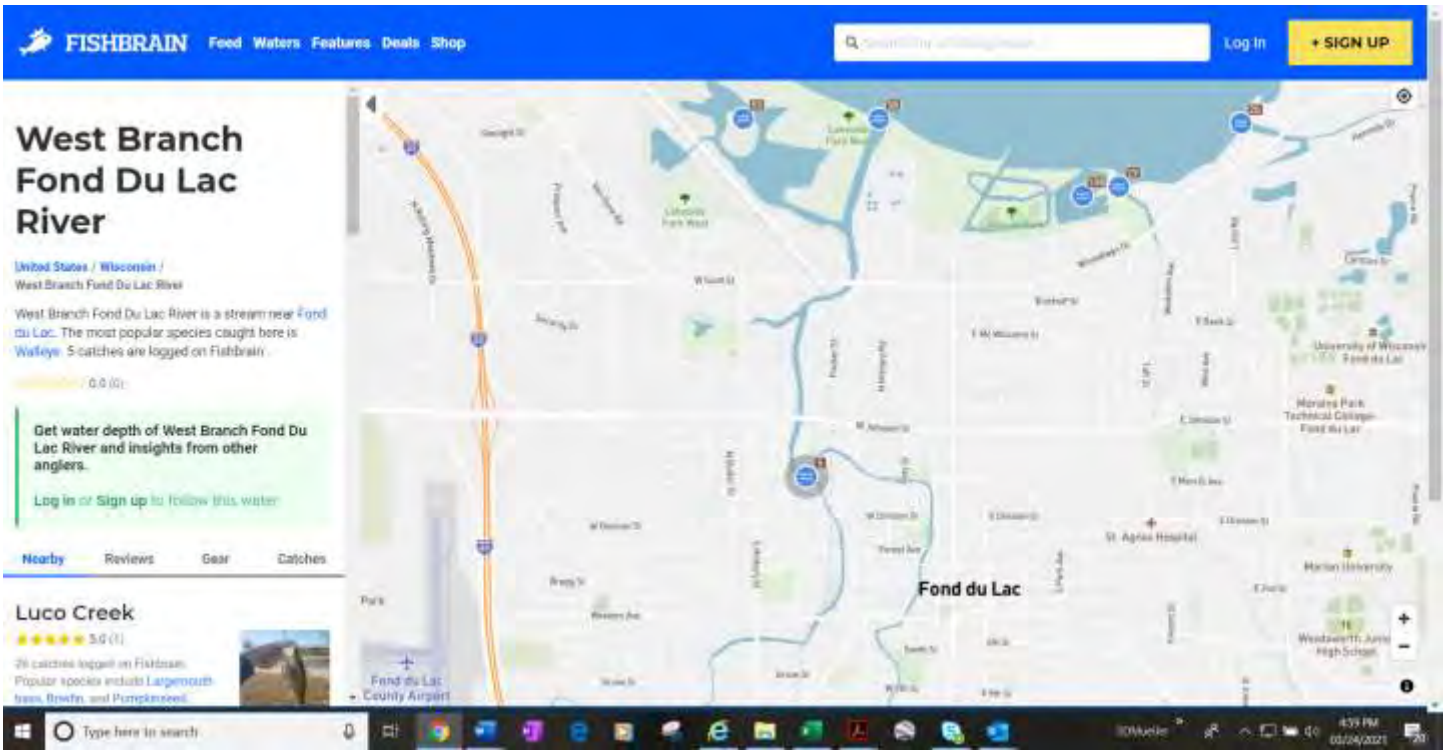
4.0 0 2.00 4.0 Miles

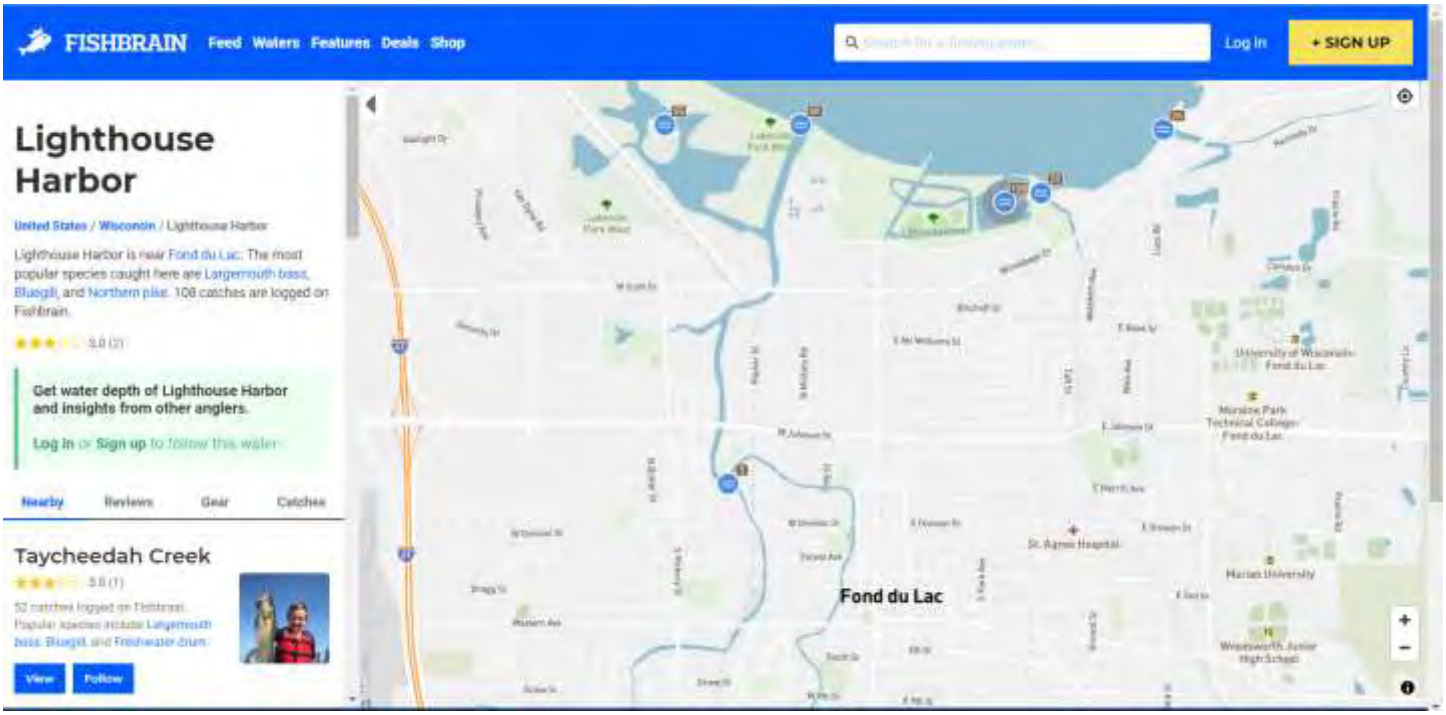
NAD_1983_HARN_Wisconsin_TM

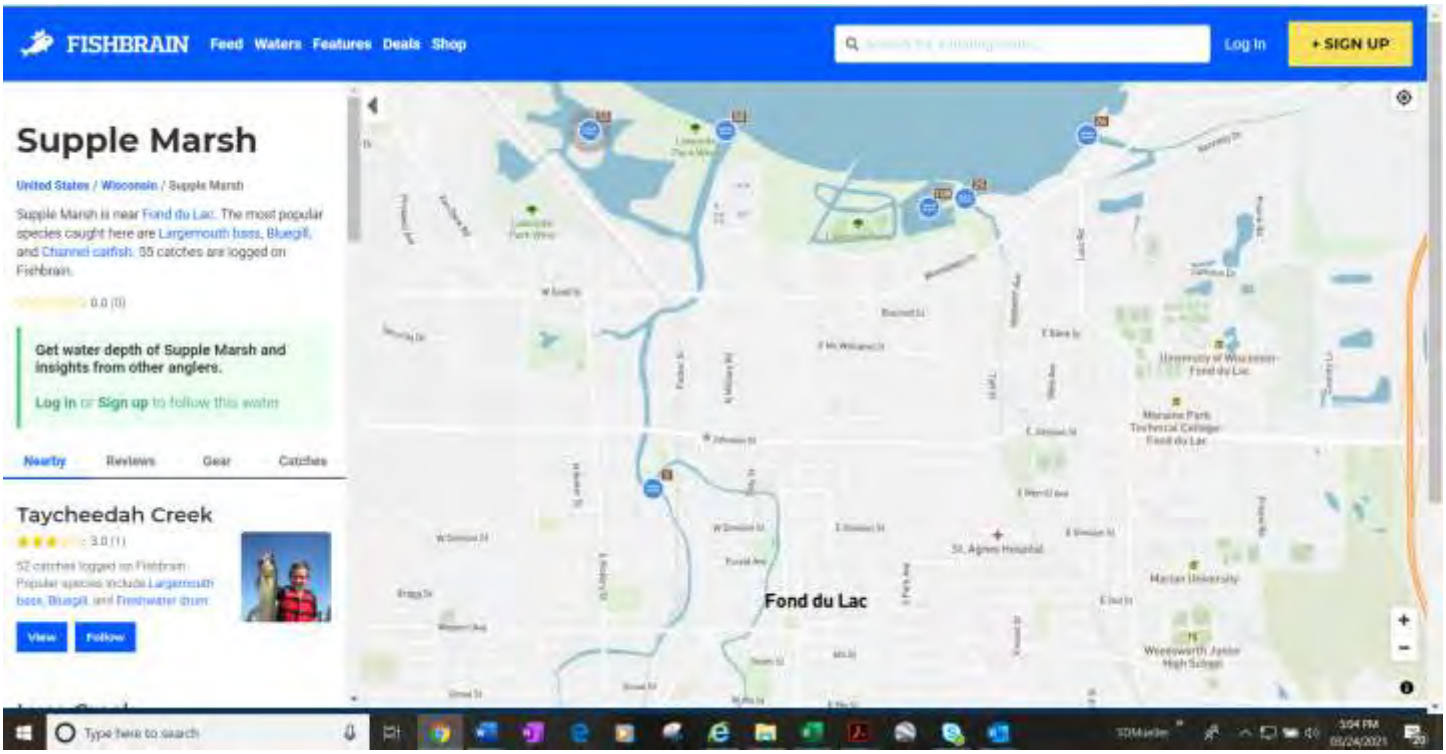
Map created: 4/20/2020

The specific locations of public drinking water wells, surface water intakes, and assessment areas are sensitive information protected by security measures implemented by the DNR. To prevent misuse, access to this sensitive information must be limited, and any public dissemination requires prior Department approval. Any public requests for release of this sensitive information should be directed to Bob Smail (608) 267-4581 Robert.Smail@Wisconsin.Gov.


FISHBRAIN
Feed Waters Features Deals Shop
Log In
+ SIGN UP
Fond du Lac River
United States / Wisconsin / Fond du Lac River
Fond du Lac River is a stream near Fond du Lac. The most popular species caught here are Largemouth bass, Channel catfish, and Walleye. 58 catches are logged on Fishbrain.
Get water depth of Fond du Lac River and insights from other anglers.
Log in or Sign up to follow this water
Nearby
Reviews
Gear
Catches
Taycheedah Creek
View
Follow
Fond du Lac


FISHBRAIN
Feed Waters Features Deals Shop
Log In
+ SIGN UP
West Branch Fond Du Lac River
United States / Wisconsin /
West Branch Fond Du Lac River
West Branch Fond Du Lac River is a stream near Fond du Lac. The most popular species caught here is Walleye. 5 catches are logged on Fishbrain.
Get water depth of West Branch Fond Du Lac River and insights from other anglers.
Log in or Sign up to follow this water
Nearby
Reviews
Gear
Catches
Luco Creek
Fond du Lac
Fond du Lac County Airport
Type here to search


FISHBRAIN
Feed Waters Features Deals Shop
Log In
+ SIGN UP
Lighthouse Harbor
United States / Wisconsin / Lighthouse Harbor
Lighthouse Harbor is near Fond du Lac. The most popular species caught here are Largemouth bass, Bluegill, and Northern pike. 108 catches are logged on Fishbrain.
Get water depth of Lighthouse Harbor and insights from other anglers.
Log In or Sign up to follow this water
Nearby
Reviews
Gear
Catches
Taycheedah Creek
Fond du Lac


FISHBRAIN
Feed Waters Features Deals Shop
Log In
+ SIGN UP
Supple Marsh
United States / Wisconsin / Supple Marsh
Supple Marsh is near Fond du Lac. The most popular species caught here are Largemouth bass, Bluegill, and Channel catfish. 55 catches are logged on Fishbrain.
Get water depth of Supple Marsh and insights from other anglers.
Log In or Sign up to follow this water
Nearby
Reviews
Gear
Catches
Taycheedah Creek
Fond du Lac
Type here to search

Reference 28

WISCONSIN PUBLIC RADIO
Wisconsin and the World. npr

Published on *Wisconsin Public Radio* (https://www.wpr.org)

Lake Winnebago Already Seeing Highest Sturgeon Spearing Harvest In 6 Years

So Far, 67 Fish Weighing More Than 100 Pounds Have Been Harvested

By Danielle Kaeding
Updated:
Thursday, February 25, 2021, 11:46am

The sturgeon spearing season hasn't ended yet, but the harvest on Lake Winnebago [1] is the highest it's been since 2015.

The Wisconsin Department of Natural Resources reported that 1,297 sturgeon had been speared as of Wednesday on Lake Winnebago. The season started on Feb. 13 and runs for 16 days or until harvest caps have been reached. Deputy Secretary Todd Ambs said the harvest may have been a little lower at the beginning due to a cold opening weekend.

"But, water clarity on Lake Winnebago generally maintained throughout the season right around 12 feet on average," said Ambs. "Spearers have been able to move out deeper in the lake this season while still having the ability to see the bottom."

As of Wednesday, a total of 1,661 sturgeon had been harvested across Lake Winnebago and the Upriver Lakes, which include Butte des Morts, Winneconne, and Poyganas. That's more than double the 811 sturgeon that were harvested on the system last year, according to DNR data [2].

The sturgeon spearing season on the Upriver Lakes lasted for eight days, yielding a harvest of 364 fish. That's the biggest harvest since a lottery system [3] went into effect in 2007.

Spearers have harvested 259 juvenile females, 664 adult females and 738 males across the entire system. So far, 67 sturgeon that weigh more than 100 pounds have been speared this season, which is about 4 percent of the total harvest.

"With the spearing effort likely to decrease throughout this week, we anticipate the Lake Winnebago season to last the full 16 days," said Ambs.

Ambs said one spearer harvested the longest male sturgeon on record at 73.1 inches.

He added there have also been some heavy hitters, with four fish harvested so far this season weighing more than 150 pounds. That includes the biggest fish of the year — a 77-inch sturgeon weighing in at 160 pounds.

The heaviest lake sturgeon ever harvested from the Winnebago System was speared in 2010 and weighed in at 212.2 pounds, according to records dating back to 1941 [2].

The DNR sold more than 12,000 licenses [4] for the sturgeon spearing season as the agency implemented a contactless registration system this year due to the pandemic.

Just before the season began, the agency's sturgeon biologist, Ryan Koenigs, was charged with obstructing a conservation warden's investigation [5] into an illegal trade of sturgeon caviar. Since then, three Fond du Lac County residents have been charged [6] in the illegal bartering scheme.

Links

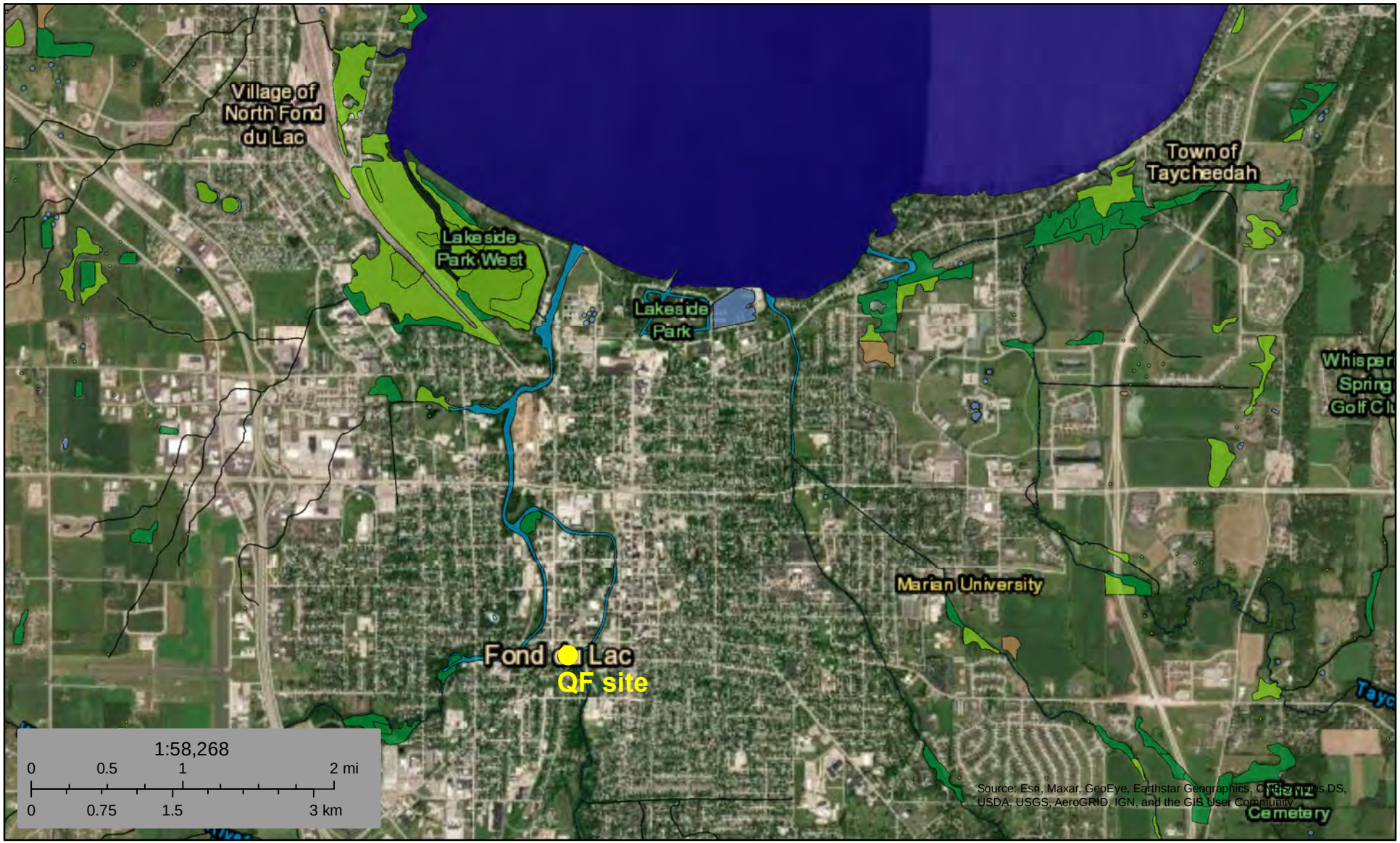
[1] https://widnr.widen.net/view/pdf/gsokc7ixbd/DailySturgeonTally_2.24.2021.pdf?t.download=true&u=jxqttz
[2] https://widnr.widen.net/s/rjkbsvcjkn/2020-lake-sturgeon-harvest-report_final
[3] https://dnr.wi.gov/topic/fishing/documents/sturgeon/VignetteHistoryUpriverLakes.pdf
[4] https://www.wpr.org/dnr-announces-contactless-fish-registration-sturgeon-spearing-season
[5] https://www.wpr.org/dnr-biologist-bartender-charged-after-investigation-illegal-caviar-trade
[6] https://www.usnews.com/news/best-states/wisconsin/articles/2021-02-12/bartender-charged-in-sturgeon-caviar-investigation#:~:text=(AP)%20%E2%80%94%20Prosecutors%20have%20charged,unlawfully%20selling%20or%20bartering%20eggs.

U.S. Fish and Wildlife Service

National Wetlands Inventory

Reference 29

QF site to Lk Winnebago



March 24, 2021

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

U.S. Fish and Wildlife Service

National Wetlands Inventory

South end Lk Winnebago(2)

March 24, 2021

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

U.S. Fish & Wildlife Service

ECOS

Reference 30

ECOS / Species Reports / Species County Report

Listed species believed to or known to occur in Fond du Lac, Wisconsin

The following report contains Species that are known to or are believed to occur in this county. Species with range unrefined past the state level are now excluded from this report. If you are looking for the Section 7 range (for Section 7 Consultations), please visit theIPaC application.

CSV

Show 10 entries

Search:

6 Species Listings

Group	Name	Population	Status	Lead Office	Recovery Plan	Recovery Plan Action Status
Insects	monarch butterfly (Danaus plexippus)	Wherever found	Candidate	3		
Flowering Plants	Eastern prairie fringed orchid (Platanthera leucophaea)	Wherever found	Threatened	3	Eastern Prairie Fringed Orchid	Implementation Progress
Insects	Rusty patched bumble bee (Bombus affinis)	Wherever found	Endangered	3	Draft Recovery Plan for the Rusty Patched Bumble Bee (Bombus affinis)	Implementation Progress

Group	Name	Population	Status	Lead Office	Recovery Plan	Recovery Plan Action Status
Birds	Whooping crane (Grus americana)	U.S.A. (AL, AR, CO, FL, GA, ID, IL, IN, IA, KY, LA, MI, MN, MS, MO, NC, NM, OH, SC, TN, UT, VA, WI, WV, western half of WY)	Experimental Population, Non-Essential	2		
Birds	Whooping crane (Grus americana)	Wherever found, except where listed as an experimental population	Endangered	2	Whooping Crane Recovery Plan, Final Third Revision	Implementation Progress
Mammals	Northern Long-Eared Bat (Myotis septentrionalis)	Wherever found	Threatened	3		

Showing 1 to 6 of 6 entries

Previous 1 Next

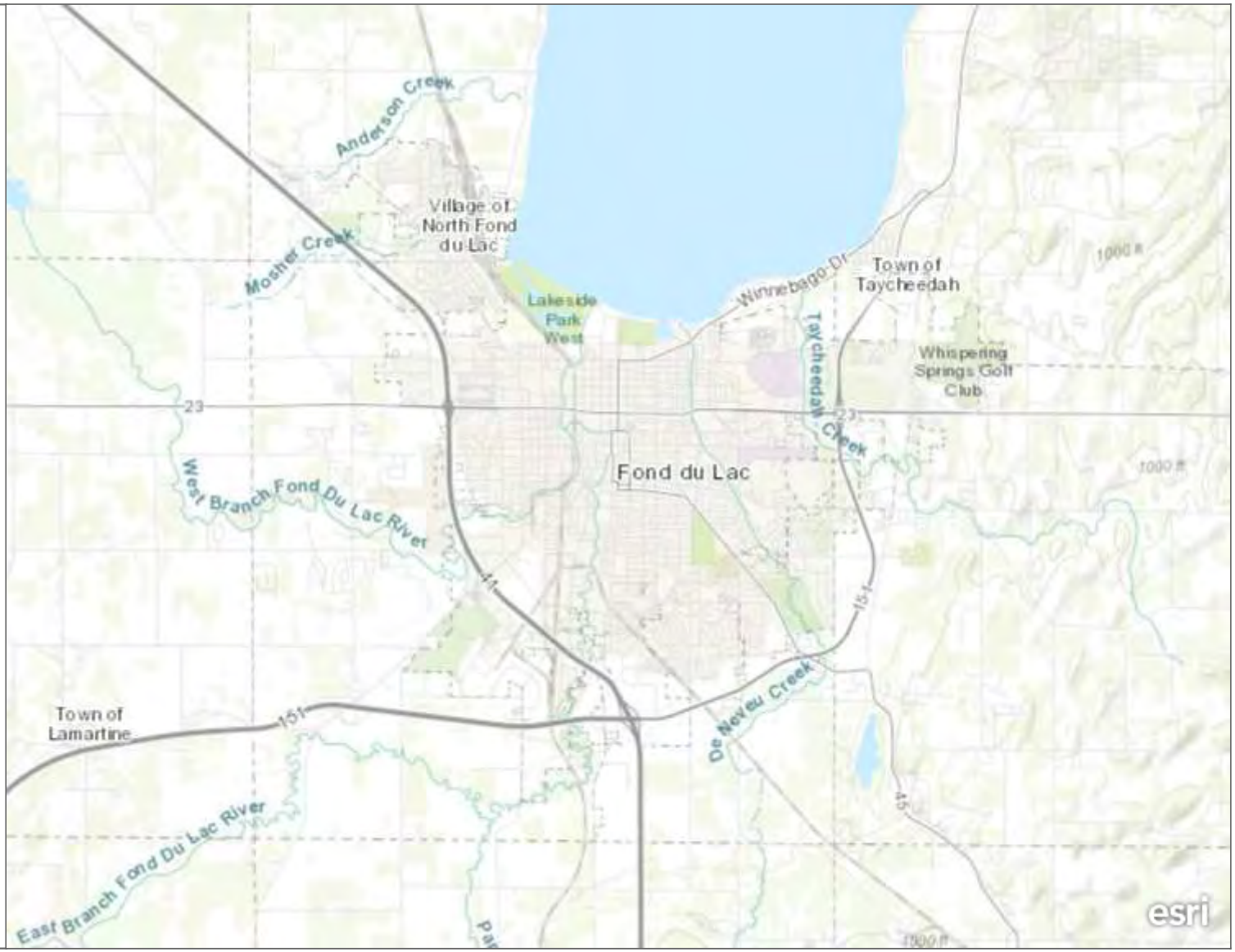
Critical Habitat for Threatened & Endangered Species [USFWS]

Final Linear Features

Final Polygon Features

Proposed Linear Features

Proposed Polygon Features



A specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection.

Esri Canada, Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS | U.S. Fish and Wildlife Service | The data found in this file were developed by the U.S. Fish & Wildlife Service field offices. For more information please refer to the species level metadata found with the individual shapefiles. The ECOS Joint Development Team is responsible for creating and serving this conglomerate file. No data alterations are made by ECOS.

APPENDIX C

Laboratory Analytical Reports

Region 5 ESAT DCN: 00015
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND AND EMERGENCY MANAGEMENT DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: May 6, 2021

FROM: Steffanie Tobin, ICF, Inc.
Contractor, Environmental Services Assistance Team (ESAT)

THROUGH: Michelle Kerr
Region 5 ESAT Contracting Officer's Representative

TO: Data User: WDNR
Contact Persons: Nuria Muniz
Stephen Mueller
Email Address: Nuria.Munoz@epa.gov
StephenD.Mueller@wisconsin.gov

Stage_3_Validation_Electronic_and_Manual (S3VEM)

We have reviewed the data for the following case:

Site Name: Quic Frez Site, Fon Du Lac (WI)

Case Number: 49392 SDG Number: E4543
Number and Type of Samples: 13 waters (low level VOA)

Sample Numbers: E4543 – E4545, E4547 – E4556

Laboratory: Pace Analytical Services, LLC Hrs. for Review**:**
Following are our findings:

Case No: 49392 SDG No: E4543
Site Name: Quic Fres Site, Fon Du Lac (WI) Laboratory: PAS

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Thirteen (13) preserved water samples; labeled E4543 – E4545, E4547 – E4556 were shipped to Pace Analytical Service, LLC located in West Columbia, SC. All samples were collected on 04/13/2021 and received on 04/14/2021 intact and properly cooled.

All samples were analyzed for the low level volatile analytes. The samples were analyzed according to CLP SOW SFAM01.0 (11/2020). The sample results were reviewed according to the Wisconsin state QAPP, the NFG for Organic Superfund Methods Data Review_11_24_2020_Final_508 and the Region 5 Organic CLP Validation SOP (R5-LSASD-005-r0).

Sample E4547 was designated for MS/MSD analyses.

Sample E4556 was identified as a trip blank. Samples E4551 and E4555 were identified as field duplicate samples but their counterpart samples were not clearly identified.

The sample results have been reviewed for compliance with the QAPP worksheets and all non-compliances are described in Section 17. – QAPP Compliance.

Only the qualifications reflected in the EXES Sample Summary report are described in this narrative.

Case No: 49392 SDG No: E4543
Site Name: Quic Fres Site, Fon Du Lac (WI) Laboratory: PAS

1. PRESERVATION AND HOLDING TIMES

NONE FOUND.

2. GC/MS and GC/ECD INSTRUMENT PERFORMANCE CHECK

NONE FOUND.

3. INITIAL CALIBRATION

NONE FOUND.

4. INITIAL CALIBRATION VERIFICATION

NONE FOUND.

5. CONTINUING CALIBRATION

NONE FOUND.

6. BLANKS

The following samples have analyte results reported greater than or equal to 10X the CRQLs. The associated storage blank results are less than CRQLs. Detects and non-detects are not qualified.

cis-1,2-Dichloroethene
E4543DL, E4547MS, E4547MSD

The following samples have analyte results reported less than the CRQLs. The associated storage blank results are less than CRQLs. Detected compounds are qualified “U”. Non-detected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

cis-1,2-Dichloroethene
E4545, E4548

7. DEUTERATED MONITORING COMPOUNDS / SURROGATES

NONE FOUND.

8. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

NONE FOUND.

9. CLEANUP PROCEDURES

Not required for this analysis.

10. LABORATORY CONTROL SAMPLE

Not required for this analysis.

11. INTERNAL STANDARD

NONE FOUND.

12. TARGET ANALYTE IDENTIFICATION

EXES-790
The following samples have analyte results greater than or equal to method detection limit (MDL) and below contract required quantitation limit (CRQL). Detects are qualified as estimated J.

E4543
trans-1,2-Dichloroethene

E4545
Chloroform, Carbon tetrachloride, 1,2,4-Trichlorobenzene

E4548
Vinyl chloride, Benzene, Trichloroethene

E4549
1,1-Dichloroethene

E4552
Benzene

E4556
Acetone, Toluene

VHBLK01
cis-1,2-Dichloroethene

13. TENTATIVELY IDENTIFIED COMPOUNDS

Not Validated.

14. SYSTEM PERFORMANCE

NONE FOUND.

15. FIELD QC SAMPLES

Sample E4556 was identified as a trip blank. Samples E4551 and E4555 were identified as field duplicate samples but their counterpart samples were not clearly identified. Acetone (7.8 µg/L) and Toluene (0.61 µg/L) were detected in the trip blank. Acetone and Toluene were not detected in any samples. No qualification was required.

16. SAMPLE RESULTS

NONE FOUND.

17. QAPP COMPLIANCE

The analytical package fulfilled the component QC requirements of the Wisconsin QAPP.

Case No: 49392 SDG No: E4543
Site Name: Quic Fres Site, Fon Du Lac (WI) Laboratory: PAS

Validation Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the results may be biased high.
J-	The result is an estimated quantity, but the results may be biased low.
NJ	The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
C	The target Pesticide or Aroclor analyte identification has been confirmed by Gas Chromatograph/Mass Spectrometer (GC/MS).
X	The target Pesticide or Aroclor analyte identification was not confirmed when GC/MS analysis was performed.

Reviewed by: Steffanie Tobin /ICF-ESAT
Date: May 11, 2021

Sample Summary Report

Project Name: QUIC FREZ Project | **GroupID: 49392/68HERH20D0015/E4543** | **Lab Name: Pace Analytical Services, LLC**

Sample Number: E4543	Method: Volatile Organics	Matrix: Water	MA Number:
Sample Location: MW04R	pH: 2.0	Sample Date: 04/13/2021	Sample Time: 00:00:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
Chloromethane	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
Vinyl chloride	Target	4400		ug/L	4400	D	500.0	YES	S3VEM
Bromomethane	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
Chloroethane	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
Trichlorofluoromethane	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
1,1-Dichloroethene	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
Acetone	Target	5000	U	ug/L	5000	U	500.0	YES	S3VEM
Carbon disulfide	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
Methyl acetate	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
Methylene chloride	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
trans-1,2-Dichloroethene	Target	590	J	ug/L	590	J D	500.0	YES	S3VEM
Methyl tert-butyl ether	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
1,1-Dichloroethane	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
cis-1,2-Dichloroethene	Target	280000		ug/L	280000	D	5000.0	YES	S3VEM
2-Butanone	Target	5000	U	ug/L	5000	U	500.0	YES	S3VEM
Bromochloromethane	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
Chloroform	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
1,1,1-Trichloroethane	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
Cyclohexane	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
Carbon tetrachloride	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
Benzene	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
1,2-Dichloroethane	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
Trichloroethene	Target	69000		ug/L	69000	D	500.0	YES	S3VEM
Methylcyclohexane	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
1,2-Dichloropropane	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
Bromodichloromethane	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
cis-1,3-Dichloropropene	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
4-Methyl-2-pentanone	Target	5000	U	ug/L	5000	U	500.0	YES	S3VEM
Toluene	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
trans-1,3-Dichloropropene	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
1,1,2-Trichloroethane	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
Tetrachloroethene	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
2-Hexanone	Target	5000	U	ug/L	5000	U	500.0	YES	S3VEM
Dibromochloromethane	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
1,2-Dibromoethane	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
Chlorobenzene	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
Ethylbenzene	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
o-Xylene	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
m, p-Xylene	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
Styrene	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
Bromoform	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
Isopropylbenzene	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
1,2,3-Trichloropropane	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
1,1,2,2-Tetrachloroethane	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
1,3-Dichlorobenzene	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
1,4-Dichlorobenzene	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
1,2-Dichlorobenzene	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
1,2-Dibromo-3-chloropropane	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
1,2,4-Trimethylbenzene	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
1,3,5-Trimethylbenzene	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM
1,2,4-Trichlorobenzene	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project **GroupID: 49392/68HERH20D0015/E4543** **Lab Name: Pace Analytical Services, LLC**

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,3-Trichlorobenzene	Target	2500	U	ug/L	2500	U	500.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project | **GroupID: 49392/68HERH20D0015/E4543** | **Lab Name: Pace Analytical Services, LLC**

Sample Number: E4544	Method: Volatile Organics	Matrix: Water	MA Number:
Sample Location: MW04C	pH: 2.0	Sample Date: 04/13/2021	Sample Time: 00:00:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Vinyl chloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromomethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Trichlorofluoromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Acetone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Carbon disulfide	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methyl acetate	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methylene chloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
trans-1,2-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methyl tert-butyl ether	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1-Dichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
cis-1,2-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
2-Butanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Bromochloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloroform	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,1-Trichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Cyclohexane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Carbon tetrachloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Benzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Trichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methylcyclohexane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromodichloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
cis-1,3-Dichloropropene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
4-Methyl-2-pentanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Toluene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
trans-1,3-Dichloropropene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2-Trichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Tetrachloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
2-Hexanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Dibromochloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dibromoethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Ethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
o-Xylene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
m, p-Xylene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Styrene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromoform	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Isopropylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,3-Trichloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2,2-Tetrachloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,3-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,4-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dibromo-3-chloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,4-Trimethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,3,5-Trimethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project **GroupID: 49392/68HERH20D0015/E4543** **Lab Name: Pace Analytical Services, LLC**

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,4-Trichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,3-Trichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project | **GroupID: 49392/68HERH20D0015/E4543** | **Lab Name: Pace Analytical Services, LLC**

Sample Number: E4545	Method: Volatile Organics	Matrix: Water	MA Number:
Sample Location: MW06	pH: 2.0	Sample Date: 04/13/2021	Sample Time: 00:00:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Vinyl chloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromomethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Trichlorofluoromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Acetone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Carbon disulfide	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methyl acetate	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methylene chloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
trans-1,2-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methyl tert-butyl ether	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1-Dichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
cis-1,2-Dichloroethene	Target	5.0	U	ug/L	1.4	J	1.0	YES	S3VEM
2-Butanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Bromochloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloroform	Target	2.5	J	ug/L	2.5	J	1.0	YES	S3VEM
1,1,1-Trichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Cyclohexane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Carbon tetrachloride	Target	4.4	J	ug/L	4.4	J	1.0	YES	S3VEM
Benzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Trichloroethene	Target	5.7		ug/L	5.7		1.0	YES	S3VEM
Methylcyclohexane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromodichloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
cis-1,3-Dichloropropene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
4-Methyl-2-pentanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Toluene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
trans-1,3-Dichloropropene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2-Trichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Tetrachloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
2-Hexanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Dibromochloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dibromoethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Ethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
o-Xylene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
m, p-Xylene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Styrene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromoform	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Isopropylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,3-Trichloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2,2-Tetrachloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,3-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,4-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dibromo-3-chloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,4-Trimethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,3,5-Trimethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project **GroupID: 49392/68HERH20D0015/E4543** **Lab Name: Pace Analytical Services, LLC**

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,4-Trichlorobenzene	Target	0.56	J	ug/L	0.56	J	1.0	YES	S3VEM
1,2,3-Trichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project | **GroupID: 49392/68HERH20D0015/E4543** | **Lab Name: Pace Analytical Services, LLC**

Sample Number: E4547	Method: Volatile Organics	Matrix: Water	MA Number:
Sample Location: MW12	pH: 2.0	Sample Date: 04/13/2021	Sample Time: 00:00:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Vinyl chloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromomethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Trichlorofluoromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Acetone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Carbon disulfide	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methyl acetate	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methylene chloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
trans-1,2-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methyl tert-butyl ether	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1-Dichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
cis-1,2-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
2-Butanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Bromochloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloroform	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,1-Trichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Cyclohexane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Carbon tetrachloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Benzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Trichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methylcyclohexane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromodichloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
cis-1,3-Dichloropropene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
4-Methyl-2-pentanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Toluene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
trans-1,3-Dichloropropene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2-Trichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Tetrachloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
2-Hexanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Dibromochloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dibromoethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Ethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
o-Xylene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
m, p-Xylene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Styrene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromoform	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Isopropylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,3-Trichloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2,2-Tetrachloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,3-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,4-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dibromo-3-chloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,4-Trimethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,3,5-Trimethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project **GroupID: 49392/68HERH20D0015/E4543** **Lab Name: Pace Analytical Services, LLC**

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,4-Trichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,3-Trichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project | **GroupID: 49392/68HERH20D0015/E4543** | **Lab Name: Pace Analytical Services, LLC**

Sample Number: E4547MS	Method: Volatile Organics	Matrix: Water	MA Number:
Sample Location:	pH: 2.0	Sample Date: 04/13/2021	Sample Time: 00:00:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	72		ug/L	72		1.0	YES	S3VEM
Chloromethane	Target	63		ug/L	63		1.0	YES	S3VEM
Vinyl chloride	Target	66		ug/L	66		1.0	YES	S3VEM
Bromomethane	Target	60		ug/L	60		1.0	YES	S3VEM
Chloroethane	Target	61		ug/L	61		1.0	YES	S3VEM
Trichlorofluoromethane	Target	71		ug/L	71		1.0	YES	S3VEM
1,1-Dichloroethene	Spike	57		ug/L	57		1.0	YES	S3VEM
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	63		ug/L	63		1.0	YES	S3VEM
Acetone	Target	87		ug/L	87		1.0	YES	S3VEM
Carbon disulfide	Target	58		ug/L	58		1.0	YES	S3VEM
Methyl acetate	Target	53		ug/L	53		1.0	YES	S3VEM
Methylene chloride	Target	53		ug/L	53		1.0	YES	S3VEM
trans-1,2-Dichloroethene	Target	54		ug/L	54		1.0	YES	S3VEM
Methyl tert-butyl ether	Target	51		ug/L	51		1.0	YES	S3VEM
1,1-Dichloroethane	Target	54		ug/L	54		1.0	YES	S3VEM
cis-1,2-Dichloroethene	Target	52		ug/L	52		1.0	YES	S3VEM
2-Butanone	Target	96		ug/L	96		1.0	YES	S3VEM
Bromochloromethane	Target	52		ug/L	52		1.0	YES	S3VEM
Chloroform	Target	53		ug/L	53		1.0	YES	S3VEM
1,1,1-Trichloroethane	Target	59		ug/L	59		1.0	YES	S3VEM
Cyclohexane	Target	55		ug/L	55		1.0	YES	S3VEM
Carbon tetrachloride	Target	59		ug/L	59		1.0	YES	S3VEM
Benzene	Spike	55		ug/L	55		1.0	YES	S3VEM
1,2-Dichloroethane	Target	53		ug/L	53		1.0	YES	S3VEM
Trichloroethene	Spike	56		ug/L	56		1.0	YES	S3VEM
Methylcyclohexane	Target	61		ug/L	61		1.0	YES	S3VEM
1,2-Dichloropropane	Target	53		ug/L	53		1.0	YES	S3VEM
Bromodichloromethane	Target	55		ug/L	55		1.0	YES	S3VEM
cis-1,3-Dichloropropene	Target	55		ug/L	55		1.0	YES	S3VEM
4-Methyl-2-pentanone	Target	110		ug/L	110		1.0	YES	S3VEM
Toluene	Spike	56		ug/L	56		1.0	YES	S3VEM
trans-1,3-Dichloropropene	Target	54		ug/L	54		1.0	YES	S3VEM
1,1,2-Trichloroethane	Target	52		ug/L	52		1.0	YES	S3VEM
Tetrachloroethene	Target	58		ug/L	58		1.0	YES	S3VEM
2-Hexanone	Target	110		ug/L	110		1.0	YES	S3VEM
Dibromochloromethane	Target	55		ug/L	55		1.0	YES	S3VEM
1,2-Dibromoethane	Target	53		ug/L	53		1.0	YES	S3VEM
Chlorobenzene	Spike	55		ug/L	55		1.0	YES	S3VEM
Ethylbenzene	Target	57		ug/L	57		1.0	YES	S3VEM
o-Xylene	Target	53		ug/L	53		1.0	YES	S3VEM
m, p-Xylene	Target	55		ug/L	55		1.0	YES	S3VEM
Styrene	Target	53		ug/L	53		1.0	YES	S3VEM
Bromoform	Target	53		ug/L	53		1.0	YES	S3VEM
Isopropylbenzene	Target	57		ug/L	57		1.0	YES	S3VEM
1,2,3-Trichloropropane	Target	52		ug/L	52		1.0	YES	S3VEM
1,1,2,2-Tetrachloroethane	Target	52		ug/L	52		1.0	YES	S3VEM
1,3-Dichlorobenzene	Target	55		ug/L	55		1.0	YES	S3VEM
1,4-Dichlorobenzene	Target	54		ug/L	54		1.0	YES	S3VEM
1,2-Dichlorobenzene	Target	55		ug/L	55		1.0	YES	S3VEM
1,2-Dibromo-3-chloropropane	Target	51		ug/L	51		1.0	YES	S3VEM
1,2,4-Trimethylbenzene	Target	55		ug/L	55		1.0	YES	S3VEM
1,3,5-Trimethylbenzene	Target	54		ug/L	54		1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project **GroupID: 49392/68HERH20D0015/E4543** **Lab Name: Pace Analytical Services, LLC**

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,4-Trichlorobenzene	Target	54		ug/L	54		1.0	YES	S3VEM
1,2,3-Trichlorobenzene	Target	55		ug/L	55		1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project | **GroupID: 49392/68HERH20D0015/E4543** | **Lab Name: Pace Analytical Services, LLC**

Sample Number: E4547MSD	Method: Volatile Organics	Matrix: Water	MA Number:
Sample Location:	pH: 2.0	Sample Date: 04/13/2021	Sample Time: 00:00:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	71		ug/L	71		1.0	YES	S3VEM
Chloromethane	Target	61		ug/L	61		1.0	YES	S3VEM
Vinyl chloride	Target	64		ug/L	64		1.0	YES	S3VEM
Bromomethane	Target	59		ug/L	59		1.0	YES	S3VEM
Chloroethane	Target	59		ug/L	59		1.0	YES	S3VEM
Trichlorofluoromethane	Target	68		ug/L	68		1.0	YES	S3VEM
1,1-Dichloroethene	Spike	56		ug/L	56		1.0	YES	S3VEM
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	62		ug/L	62		1.0	YES	S3VEM
Acetone	Target	84		ug/L	84		1.0	YES	S3VEM
Carbon disulfide	Target	56		ug/L	56		1.0	YES	S3VEM
Methyl acetate	Target	50		ug/L	50		1.0	YES	S3VEM
Methylene chloride	Target	51		ug/L	51		1.0	YES	S3VEM
trans-1,2-Dichloroethene	Target	53		ug/L	53		1.0	YES	S3VEM
Methyl tert-butyl ether	Target	50		ug/L	50		1.0	YES	S3VEM
1,1-Dichloroethane	Target	53		ug/L	53		1.0	YES	S3VEM
cis-1,2-Dichloroethene	Target	52		ug/L	52		1.0	YES	S3VEM
2-Butanone	Target	91		ug/L	91		1.0	YES	S3VEM
Bromochloromethane	Target	52		ug/L	52		1.0	YES	S3VEM
Chloroform	Target	52		ug/L	52		1.0	YES	S3VEM
1,1,1-Trichloroethane	Target	56		ug/L	56		1.0	YES	S3VEM
Cyclohexane	Target	53		ug/L	53		1.0	YES	S3VEM
Carbon tetrachloride	Target	56		ug/L	56		1.0	YES	S3VEM
Benzene	Spike	52		ug/L	52		1.0	YES	S3VEM
1,2-Dichloroethane	Target	52		ug/L	52		1.0	YES	S3VEM
Trichloroethene	Spike	54		ug/L	54		1.0	YES	S3VEM
Methylcyclohexane	Target	59		ug/L	59		1.0	YES	S3VEM
1,2-Dichloropropane	Target	50		ug/L	50		1.0	YES	S3VEM
Bromodichloromethane	Target	52		ug/L	52		1.0	YES	S3VEM
cis-1,3-Dichloropropene	Target	52		ug/L	52		1.0	YES	S3VEM
4-Methyl-2-pentanone	Target	100		ug/L	100		1.0	YES	S3VEM
Toluene	Spike	53		ug/L	53		1.0	YES	S3VEM
trans-1,3-Dichloropropene	Target	51		ug/L	51		1.0	YES	S3VEM
1,1,2-Trichloroethane	Target	49		ug/L	49		1.0	YES	S3VEM
Tetrachloroethene	Target	55		ug/L	55		1.0	YES	S3VEM
2-Hexanone	Target	100		ug/L	100		1.0	YES	S3VEM
Dibromochloromethane	Target	52		ug/L	52		1.0	YES	S3VEM
1,2-Dibromoethane	Target	50		ug/L	50		1.0	YES	S3VEM
Chlorobenzene	Spike	52		ug/L	52		1.0	YES	S3VEM
Ethylbenzene	Target	55		ug/L	55		1.0	YES	S3VEM
o-Xylene	Target	51		ug/L	51		1.0	YES	S3VEM
m, p-Xylene	Target	53		ug/L	53		1.0	YES	S3VEM
Styrene	Target	51		ug/L	51		1.0	YES	S3VEM
Bromoform	Target	48		ug/L	48		1.0	YES	S3VEM
Isopropylbenzene	Target	53		ug/L	53		1.0	YES	S3VEM
1,2,3-Trichloropropane	Target	47		ug/L	47		1.0	YES	S3VEM
1,1,2,2-Tetrachloroethane	Target	49		ug/L	49		1.0	YES	S3VEM
1,3-Dichlorobenzene	Target	51		ug/L	51		1.0	YES	S3VEM
1,4-Dichlorobenzene	Target	50		ug/L	50		1.0	YES	S3VEM
1,2-Dichlorobenzene	Target	51		ug/L	51		1.0	YES	S3VEM
1,2-Dibromo-3-chloropropane	Target	46		ug/L	46		1.0	YES	S3VEM
1,2,4-Trimethylbenzene	Target	52		ug/L	52		1.0	YES	S3VEM
1,3,5-Trimethylbenzene	Target	51		ug/L	51		1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project **GroupID: 49392/68HERH20D0015/E4543** **Lab Name: Pace Analytical Services, LLC**

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,4-Trichlorobenzene	Target	50		ug/L	50		1.0	YES	S3VEM
1,2,3-Trichlorobenzene	Target	50		ug/L	50		1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project | **GroupID: 49392/68HERH20D0015/E4543** | **Lab Name: Pace Analytical Services, LLC**

Sample Number: E4548	Method: Volatile Organics	Matrix: Water	MA Number:
Sample Location: MW15	pH: 2.0	Sample Date: 04/13/2021	Sample Time: 00:00:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Vinyl chloride	Target	1.5	J	ug/L	1.5	J	1.0	YES	S3VEM
Bromomethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Trichlorofluoromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Acetone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Carbon disulfide	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methyl acetate	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methylene chloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
trans-1,2-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methyl tert-butyl ether	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1-Dichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
cis-1,2-Dichloroethene	Target	5.0	U	ug/L	1.7	J	1.0	YES	S3VEM
2-Butanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Bromochloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloroform	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,1-Trichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Cyclohexane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Carbon tetrachloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Benzene	Target	0.58	J	ug/L	0.58	J	1.0	YES	S3VEM
1,2-Dichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Trichloroethene	Target	1.7	J	ug/L	1.7	J	1.0	YES	S3VEM
Methylcyclohexane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromodichloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
cis-1,3-Dichloropropene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
4-Methyl-2-pentanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Toluene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
trans-1,3-Dichloropropene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2-Trichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Tetrachloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
2-Hexanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Dibromochloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dibromoethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Ethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
o-Xylene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
m, p-Xylene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Styrene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromoform	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Isopropylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,3-Trichloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2,2-Tetrachloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,3-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,4-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dibromo-3-chloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,4-Trimethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,3,5-Trimethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project **GroupID: 49392/68HERH20D0015/E4543** **Lab Name: Pace Analytical Services, LLC**

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,4-Trichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,3-Trichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project | **GroupID: 49392/68HERH20D0015/E4543** | **Lab Name: Pace Analytical Services, LLC**

Sample Number: E4549	Method: Volatile Organics	Matrix: Water	MA Number:
Sample Location: MW20	pH: 2.0	Sample Date: 04/13/2021	Sample Time: 00:00:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Vinyl chloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromomethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Trichlorofluoromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1-Dichloroethene	Target	0.60	J	ug/L	0.60	J	1.0	YES	S3VEM
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Acetone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Carbon disulfide	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methyl acetate	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methylene chloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
trans-1,2-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methyl tert-butyl ether	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1-Dichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
cis-1,2-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
2-Butanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Bromochloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloroform	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,1-Trichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Cyclohexane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Carbon tetrachloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Benzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Trichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methylcyclohexane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromodichloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
cis-1,3-Dichloropropene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
4-Methyl-2-pentanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Toluene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
trans-1,3-Dichloropropene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2-Trichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Tetrachloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
2-Hexanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Dibromochloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dibromoethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Ethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
o-Xylene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
m, p-Xylene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Styrene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromoform	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Isopropylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,3-Trichloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2,2-Tetrachloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,3-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,4-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dibromo-3-chloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,4-Trimethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,3,5-Trimethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project **GroupID: 49392/68HERH20D0015/E4543** **Lab Name: Pace Analytical Services, LLC**

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,4-Trichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,3-Trichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project | **GroupID: 49392/68HERH20D0015/E4543** | **Lab Name: Pace Analytical Services, LLC**

Sample Number: E4550	Method: Volatile Organics	Matrix: Water	MA Number:
Sample Location: MW22	pH: 2.0	Sample Date: 04/13/2021	Sample Time: 00:00:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Vinyl chloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromomethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Trichlorofluoromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Acetone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Carbon disulfide	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methyl acetate	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methylene chloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
trans-1,2-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methyl tert-butyl ether	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1-Dichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
cis-1,2-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
2-Butanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Bromochloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloroform	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,1-Trichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Cyclohexane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Carbon tetrachloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Benzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Trichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methylcyclohexane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromodichloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
cis-1,3-Dichloropropene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
4-Methyl-2-pentanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Toluene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
trans-1,3-Dichloropropene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2-Trichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Tetrachloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
2-Hexanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Dibromochloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dibromoethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Ethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
o-Xylene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
m, p-Xylene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Styrene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromoform	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Isopropylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,3-Trichloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2,2-Tetrachloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,3-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,4-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dibromo-3-chloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,4-Trimethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,3,5-Trimethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project **GroupID: 49392/68HERH20D0015/E4543** **Lab Name: Pace Analytical Services, LLC**

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,4-Trichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,3-Trichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project | **GroupID: 49392/68HERH20D0015/E4543** | **Lab Name: Pace Analytical Services, LLC**

Sample Number: E4551	Method: Volatile Organics	Matrix: Water	MA Number:
Sample Location: MW101	pH: 2.0	Sample Date: 04/13/2021	Sample Time: 00:00:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Vinyl chloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromomethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Trichlorofluoromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Acetone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Carbon disulfide	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methyl acetate	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methylene chloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
trans-1,2-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methyl tert-butyl ether	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1-Dichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
cis-1,2-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
2-Butanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Bromochloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloroform	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,1-Trichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Cyclohexane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Carbon tetrachloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Benzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Trichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methylcyclohexane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromodichloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
cis-1,3-Dichloropropene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
4-Methyl-2-pentanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Toluene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
trans-1,3-Dichloropropene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2-Trichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Tetrachloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
2-Hexanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Dibromochloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dibromoethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Ethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
o-Xylene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
m, p-Xylene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Styrene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromoform	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Isopropylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,3-Trichloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2,2-Tetrachloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,3-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,4-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dibromo-3-chloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,4-Trimethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,3,5-Trimethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project **GroupID: 49392/68HERH20D0015/E4543** **Lab Name: Pace Analytical Services, LLC**

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,4-Trichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,3-Trichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project | **GroupID: 49392/68HERH20D0015/E4543** | **Lab Name: Pace Analytical Services, LLC**

Sample Number: E4552	Method: Volatile Organics	Matrix: Water	MA Number:
Sample Location: MW23	pH: 2.0	Sample Date: 04/13/2021	Sample Time: 00:00:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Vinyl chloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromomethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Trichlorofluoromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Acetone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Carbon disulfide	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methyl acetate	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methylene chloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
trans-1,2-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methyl tert-butyl ether	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1-Dichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
cis-1,2-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
2-Butanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Bromochloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloroform	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,1-Trichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Cyclohexane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Carbon tetrachloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Benzene	Target	0.58	J	ug/L	0.58	J	1.0	YES	S3VEM
1,2-Dichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Trichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methylcyclohexane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromodichloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
cis-1,3-Dichloropropene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
4-Methyl-2-pentanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Toluene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
trans-1,3-Dichloropropene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2-Trichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Tetrachloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
2-Hexanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Dibromochloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dibromoethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Ethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
o-Xylene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
m, p-Xylene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Styrene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromoform	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Isopropylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,3-Trichloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2,2-Tetrachloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,3-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,4-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dibromo-3-chloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,4-Trimethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,3,5-Trimethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project **GroupID: 49392/68HERH20D0015/E4543** **Lab Name: Pace Analytical Services, LLC**

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,4-Trichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,3-Trichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project | **GroupID: 49392/68HERH20D0015/E4543** | **Lab Name: Pace Analytical Services, LLC**

Sample Number: E4553	Method: Volatile Organics	Matrix: Water	MA Number:
Sample Location: MW24	pH: 2.0	Sample Date: 04/13/2021	Sample Time: 00:00:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Vinyl chloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromomethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Trichlorofluoromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Acetone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Carbon disulfide	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methyl acetate	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methylene chloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
trans-1,2-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methyl tert-butyl ether	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1-Dichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
cis-1,2-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
2-Butanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Bromochloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloroform	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,1-Trichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Cyclohexane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Carbon tetrachloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Benzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Trichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methylcyclohexane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromodichloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
cis-1,3-Dichloropropene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
4-Methyl-2-pentanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Toluene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
trans-1,3-Dichloropropene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2-Trichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Tetrachloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
2-Hexanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Dibromochloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dibromoethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Ethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
o-Xylene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
m, p-Xylene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Styrene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromoform	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Isopropylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,3-Trichloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2,2-Tetrachloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,3-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,4-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dibromo-3-chloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,4-Trimethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,3,5-Trimethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project **GroupID: 49392/68HERH20D0015/E4543** **Lab Name: Pace Analytical Services, LLC**

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,4-Trichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,3-Trichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project | **GroupID: 49392/68HERH20D0015/E4543** | **Lab Name: Pace Analytical Services, LLC**

Sample Number: E4554	Method: Volatile Organics	Matrix: Water	MA Number:
Sample Location: MW25	pH: 2.0	Sample Date: 04/13/2021	Sample Time: 00:00:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Vinyl chloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromomethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Trichlorofluoromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Acetone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Carbon disulfide	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methyl acetate	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methylene chloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
trans-1,2-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methyl tert-butyl ether	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1-Dichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
cis-1,2-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
2-Butanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Bromochloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloroform	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,1-Trichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Cyclohexane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Carbon tetrachloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Benzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Trichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methylcyclohexane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromodichloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
cis-1,3-Dichloropropene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
4-Methyl-2-pentanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Toluene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
trans-1,3-Dichloropropene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2-Trichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Tetrachloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
2-Hexanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Dibromochloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dibromoethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Ethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
o-Xylene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
m, p-Xylene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Styrene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromoform	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Isopropylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,3-Trichloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2,2-Tetrachloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,3-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,4-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dibromo-3-chloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,4-Trimethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,3,5-Trimethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project **GroupID: 49392/68HERH20D0015/E4543** **Lab Name: Pace Analytical Services, LLC**

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,4-Trichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,3-Trichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project | **GroupID: 49392/68HERH20D0015/E4543** | **Lab Name: Pace Analytical Services, LLC**

Sample Number: E4555	Method: Volatile Organics	Matrix: Water	MA Number:
Sample Location: MW102	pH: 2.0	Sample Date: 04/13/2021	Sample Time: 00:00:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Vinyl chloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromomethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Trichlorofluoromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Acetone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Carbon disulfide	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methyl acetate	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methylene chloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
trans-1,2-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methyl tert-butyl ether	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1-Dichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
cis-1,2-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
2-Butanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Bromochloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloroform	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,1-Trichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Cyclohexane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Carbon tetrachloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Benzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Trichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methylcyclohexane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromodichloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
cis-1,3-Dichloropropene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
4-Methyl-2-pentanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Toluene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
trans-1,3-Dichloropropene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2-Trichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Tetrachloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
2-Hexanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Dibromochloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dibromoethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Ethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
o-Xylene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
m, p-Xylene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Styrene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromoform	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Isopropylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,3-Trichloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2,2-Tetrachloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,3-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,4-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dibromo-3-chloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,4-Trimethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,3,5-Trimethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project **GroupID: 49392/68HERH20D0015/E4543** **Lab Name: Pace Analytical Services, LLC**

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,4-Trichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,3-Trichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project | **GroupID: 49392/68HERH20D0015/E4543** | **Lab Name: Pace Analytical Services, LLC**

Sample Number: E4556	Method: Volatile Organics	Matrix: Water	MA Number:
Sample Location: TB1	pH: 2.0	Sample Date: 04/13/2021	Sample Time: 00:00:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Vinyl chloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromomethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Trichlorofluoromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Acetone	Target	7.8	J	ug/L	7.8	J	1.0	YES	S3VEM
Carbon disulfide	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methyl acetate	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methylene chloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
trans-1,2-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methyl tert-butyl ether	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1-Dichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
cis-1,2-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
2-Butanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Bromochloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloroform	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,1-Trichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Cyclohexane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Carbon tetrachloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Benzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Trichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methylcyclohexane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromodichloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
cis-1,3-Dichloropropene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
4-Methyl-2-pentanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Toluene	Target	0.61	J	ug/L	0.61	J	1.0	YES	S3VEM
trans-1,3-Dichloropropene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2-Trichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Tetrachloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
2-Hexanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Dibromochloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dibromoethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Ethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
o-Xylene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
m, p-Xylene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Styrene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromoform	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Isopropylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,3-Trichloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2,2-Tetrachloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,3-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,4-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dibromo-3-chloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,4-Trimethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,3,5-Trimethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project **GroupID: 49392/68HERH20D0015/E4543** **Lab Name: Pace Analytical Services, LLC**

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,4-Trichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,3-Trichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project | **GroupID: 49392/68HERH20D0015/E4543** | **Lab Name: Pace Analytical Services, LLC**

Sample Number: VBLKMP	Method: Volatile Organics	Matrix: Water	MA Number:
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Vinyl chloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromomethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Trichlorofluoromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Acetone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Carbon disulfide	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methyl acetate	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methylene chloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
trans-1,2-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methyl tert-butyl ether	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1-Dichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
cis-1,2-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
2-Butanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Bromochloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloroform	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,1-Trichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Cyclohexane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Carbon tetrachloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Benzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Trichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methylcyclohexane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromodichloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
cis-1,3-Dichloropropene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
4-Methyl-2-pentanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Toluene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
trans-1,3-Dichloropropene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2-Trichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Tetrachloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
2-Hexanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Dibromochloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dibromoethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Ethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
o-Xylene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
m, p-Xylene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Styrene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromoform	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Isopropylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,3-Trichloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2,2-Tetrachloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,3-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,4-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dibromo-3-chloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,4-Trimethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,3,5-Trimethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project **GroupID: 49392/68HERH20D0015/E4543** **Lab Name: Pace Analytical Services, LLC**

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,4-Trichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,3-Trichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project | **GroupID: 49392/68HERH20D0015/E4543** | **Lab Name: Pace Analytical Services, LLC**

Sample Number: VHBLK01	Method: Volatile Organics	Matrix: Water	MA Number:
Sample Location:	pH: 2.0	Sample Date:	Sample Time:
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Vinyl chloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromomethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Trichlorofluoromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Acetone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Carbon disulfide	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methyl acetate	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methylene chloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
trans-1,2-Dichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methyl tert-butyl ether	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1-Dichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
cis-1,2-Dichloroethene	Target	0.44	J	ug/L	0.44	J	1.0	YES	S3VEM
2-Butanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Bromochloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chloroform	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,1-Trichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Cyclohexane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Carbon tetrachloride	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Benzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Trichloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Methylcyclohexane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromodichloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
cis-1,3-Dichloropropene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
4-Methyl-2-pentanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Toluene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
trans-1,3-Dichloropropene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2-Trichloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Tetrachloroethene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
2-Hexanone	Target	10	U	ug/L	10	U	1.0	YES	S3VEM
Dibromochloromethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dibromoethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Chlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Ethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
o-Xylene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
m, p-Xylene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Styrene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Bromoform	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
Isopropylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,3-Trichloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,1,2,2-Tetrachloroethane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,3-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,4-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2-Dibromo-3-chloropropane	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,4-Trimethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,3,5-Trimethylbenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM

Sample Summary Report

Project Name: QUIC FREZ Project **GroupID: 49392/68HERH20D0015/E4543** **Lab Name: Pace Analytical Services, LLC**

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
1,2,4-Trichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM
1,2,3-Trichlorobenzene	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VEM

Sample Summary Report

Edit History Report

Project Name: QUIC FREZ Project | **GroupID: 49392/68HERH20D0015/E4543** | **Lab Name: Pace Analytical Services, LLC**

Method: Volatile Organics

Sample	Matrix	Analyte	Data Field	Old Value	New Value	User	Edit Date Time
E4543	Water	All	Validation Level		S3VEM	Steffanie Tobin	2021-05-07 10:17:19
E4543	Water	cis-1,2-Dichloroethene	Validation Flag	J+		Steffanie Tobin	2021-05-10 20:13:05
E4543	Water	cis-1,2-Dichloroethene	Validation Result		280000	Steffanie Tobin	2021-05-10 20:13:05
E4544	Water	All	Validation Level		S3VEM	Steffanie Tobin	2021-05-07 10:17:19
E4545	Water	All	Validation Level		S3VEM	Steffanie Tobin	2021-05-07 10:17:19
E4545	Water	cis-1,2-Dichloroethene	Validation Flag	J	U	Steffanie Tobin	2021-05-10 20:13:05
E4545	Water	cis-1,2-Dichloroethene	Validation Result	1.4	5.0	Steffanie Tobin	2021-05-10 20:13:05
E4547	Water	All	Validation Level		S3VEM	Steffanie Tobin	2021-05-07 10:17:19
E4547MS	Water	All	Validation Level		S3VEM	Steffanie Tobin	2021-05-07 10:17:19
E4547MS	Water	cis-1,2-Dichloroethene	Validation Flag	J+		Steffanie Tobin	2021-05-10 20:13:05
E4547MS	Water	cis-1,2-Dichloroethene	Validation Result		52	Steffanie Tobin	2021-05-10 20:13:05
E4547MSD	Water	All	Validation Level		S3VEM	Steffanie Tobin	2021-05-07 10:17:19
E4547MSD	Water	cis-1,2-Dichloroethene	Validation Flag	J+		Steffanie Tobin	2021-05-10 20:13:05
E4547MSD	Water	cis-1,2-Dichloroethene	Validation Result		52	Steffanie Tobin	2021-05-10 20:13:05
E4548	Water	All	Validation Level		S3VEM	Steffanie Tobin	2021-05-07 10:17:19
E4548	Water	cis-1,2-Dichloroethene	Validation Flag	J	U	Steffanie Tobin	2021-05-10 20:13:05
E4548	Water	cis-1,2-Dichloroethene	Validation Result	1.7	5.0	Steffanie Tobin	2021-05-10 20:13:05
E4549	Water	All	Validation Level		S3VEM	Steffanie Tobin	2021-05-07 10:17:19
E4550	Water	All	Validation Level		S3VEM	Steffanie Tobin	2021-05-07 10:17:19
E4551	Water	All	Validation Level		S3VEM	Steffanie Tobin	2021-05-07 10:17:19
E4552	Water	All	Validation Level		S3VEM	Steffanie Tobin	2021-05-07 10:17:19
E4553	Water	All	Validation Level		S3VEM	Steffanie Tobin	2021-05-07 10:17:19
E4554	Water	All	Validation Level		S3VEM	Steffanie Tobin	2021-05-07 10:17:19
E4555	Water	All	Validation Level		S3VEM	Steffanie Tobin	2021-05-07 10:17:19
E4556	Water	All	Validation Level		S3VEM	Steffanie Tobin	2021-05-07 10:17:19
VBLKMP	Water	All	Validation Level		S3VEM	Steffanie Tobin	2021-05-07 10:17:19
VHBLK01	Water	All	Validation Level		S3VEM	Steffanie Tobin	2021-05-07 10:17:19

Data Validation Report

Data Review Results

Thu, 6 May 2021 09:53:53

Project Name: QUIC FREZ Project	**GroupID: 49392/68HERH20D0015/E4543**	**Lab Name: Pace Analytical Services, LLC**
Submission Group Id: 32349506	**Organization: EPA Region 5**	**SOW: SFAM01.1**

HoldingTimes_Preservation

NONE FOUND

Data Validation Report

Data Review Results

Project Name: QUIC FREZ Project | **GroupID: 49392/68HERH20D0015/E4543** | **Lab Name: Pace Analytical Services, LLC**

Submission Group Id: 32349506 | **Organization: EPA Region 5** | **SOW: SFAM01.1**

TUNE

NONE FOUND

Data Validation Report

Data Review Results

Thu, 6 May 2021 09:53:53

Project Name: QUIC FREZ Project | **GroupID: 49392/68HERH20D0015/E4543** | **Lab Name: Pace Analytical Services, LLC**

Submission Group Id: 32349506 | **Organization: EPA Region 5** | **SOW: SFAM01.1**

InitialCalibration

NONE FOUND

Data Validation Report

Data Review Results

Thu, 6 May 2021 09:53:53

Project Name: QUIC FREZ Project	**GroupID: 49392/68HERH20D0015/E4543**	**Lab Name: Pace Analytical Services, LLC**
Submission Group Id: 32349506	**Organization: EPA Region 5**	**SOW: SFAM01.1**

InitialCalibrationVerification

NONE FOUND

Data Validation Report

Data Review Results

Thu, 6 May 2021 09:53:53

Project Name: QUIC FREZ Project	**GroupID: 49392/68HERH20D0015/E4543**	**Lab Name: Pace Analytical Services, LLC**
Submission Group Id: 32349506	**Organization: EPA Region 5**	**SOW: SFAM01.1**

ContinuingCalibrationVerification

NONE FOUND

Data Validation Report

Data Review Results

Project Name: QUIC FREZ Project | **GroupID: 49392/68HERH20D0015/E4543** | **Lab Name: Pace Analytical Services, LLC**

Submission Group Id: 32349506 | **Organization: EPA Region 5** | **SOW: SFAM01.1**

Blanks

Method - Volatile Organics

Test Name: EXES-1161
Defect Message: The following samples have analyte results reported greater than or equal to CRQLs. The associated storage blank results are less than CRQLs. Detects are qualified as estimated J+ or no qualification.

Associated Samples: E4543, E4547MS, E4547MSD

Defective Analyte	Defective Samples/Analyses
cis-1,2-Dichloroethene	E4543[Dilution-01], E4547MS, E4547MSD

Data Validation Report

Data Review Results

Project Name: QUIC FREZ Project	**GroupID: 49392/68HERH20D0015/E4543**	**Lab Name: Pace Analytical Services, LLC**
Submission Group Id: 32349506	**Organization: EPA Region 5**	**SOW: SFAM01.1**

DMC_Surrogate

NONE FOUND

Data Validation Report

Data Review Results

Project Name: QUIC FREZ Project	**GroupID: 49392/68HERH20D0015/E4543**	**Lab Name: Pace Analytical Services, LLC**
Submission Group Id: 32349506	**Organization: EPA Region 5**	**SOW: SFAM01.1**

MatrixSpikes

NONE FOUND

Data Validation Report

Data Review Results

Project Name: QUIC FREZ Project	**GroupID: 49392/68HERH20D0015/E4543**	**Lab Name: Pace Analytical Services, LLC**
Submission Group Id: 32349506	**Organization: EPA Region 5**	**SOW: SFAM01.1**

InternalStandard

NONE FOUND

Data Validation Report
Data Review Results

Project Name: QUIC FREZ Project | **GroupID: 49392/68HERH20D0015/E4543** | **Lab Name: Pace Analytical Services, LLC**

Submission Group Id: 32349506 | **Organization: EPA Region 5** | **SOW: SFAM01.1**

TargetAnalyteQuantitation

Method - Volatile Organics

Test Name: EXES-790
Defect Message: The following samples have analyte results greater than or equal to detection limit (MDL) and below quantitation limit (CRQL). Detects are qualified as estimated J.

Associated Samples: E4543, E4545, E4548, E4549, E4552, E4556, VHBLK01

Defective Analyte	Defective Samples/Analyses
Vinyl chloride	E4548
1,1-Dichloroethene	E4549
Acetone	E4556
trans-1,2-Dichloroethene	E4543
cis-1,2-Dichloroethene	E4545, E4548, VHBLK01
Chloroform	E4545
Carbon tetrachloride	E4545
Benzene	E4548, E4552
Trichloroethene	E4548
Toluene	E4556
1,2,4-Trichlorobenzene	E4545

Data Validation Report

Data Review Results

Project Name: QUIC FREZ Project | **GroupID: 49392/68HERH20D0015/E4543** | **Lab Name: Pace Analytical Services, LLC**

Submission Group Id: 32349506 | **Organization: EPA Region 5** | **SOW: SFAM01.1**

PercentSolids

NONE FOUND

Data Validation Report

Data Review Results

Project Name: QUIC FREZ Project	**GroupID: 49392/68HERH20D0015/E4543**	**Lab Name: Pace Analytical Services, LLC**
Submission Group Id: 32349506	**Organization: EPA Region 5**	**SOW: SFAM01.1**

SampleAnalysis

NONE FOUND

Mueller, Stephen D - DNR

From: R5 SFRecords <R5_SFRecords@epa.gov>
Sent: Tuesday, May 25, 2021 6:54 AM
To: Harvey, Allison; Mueller, Stephen D - DNR; Muniz, Nuria
Cc: Kerr, Michelle; Gallant, Bruce
Subject: RE: Quic Frez - Case 49392

Follow Up Flag: Follow up
Flag Status: Flagged

Added to SEMS as 965743.

Scott G. Ondercin
Contractor, Region 5 Superfund Records Center
p:(312)886-5856 | f: (312)408-2217 | Ondercin.scott@epa.gov
77 W. Jackson Blvd. Chicago, IL 60604
ASRC Federal | *Customer-Focused. Operationally Excellent.*

From: Harvey, Allison <harvey.allison@epa.gov>
Sent: Thursday, May 20, 2021 9:20 AM
To: Mueller, Stephen D - DNR <StephenD.Mueller@wisconsin.gov>; Muniz, Nuria <Muniz.Nuria@epa.gov>; R5 SFRecords <R5_SFRecords@epa.gov>
Cc: Kerr, Michelle <kerr.michelle@epa.gov>; Gallant, Bruce <Bruce.Gallant@icf.com>
Subject: Quic Frez - Case 49392

Wisconsin Department of Natural Resources
141 NW Barstow Street, Room 180
Waukesha, WI 53188

Attached please find the CLP Data Validation deliverables for Quic Frez - Case 49392 sdg E4543. These deliverables constitute the electronic validation package identified as EPA Region 5 Controlled Document #: 00015.

These deliverables consists of, but are not limited to the Narrative (Word), Sample Summary Report and Edit History Report (.pdf) and Universal Deliverables (Excel).

Allison C. Harvey
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Contractor to USEPA
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Hrs: Mon – Fri, 7:00 am – 3:30 pm, CST