

***PERFLUOROCARBON (PFC)-CONTAINING FIREFIGHTING FOAMS
AND THEIR USE IN MINNESOTA:
WELL RECEPTOR SURVEYS FOR SELECT SITES AND
FOLLOW-UP SAMPLING AT CRYSTAL AIRPORT AND KANDIYOHI
COUNTY LANDFILL***

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**PERFLUOROCARBONS IN FIREFIGHTING FOAM
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1.0 INTRODUCTION

1.1 Purpose

Delta Consultants (Delta) has worked under contract with the Minnesota Pollution Control Agency (MPCA) investigating perfluorochemicals in Class B firefighting foams and the use of Class B firefighting foams in Minnesota. Previous information regarding this investigation was presented in the following reports:

- Perfluorocarbon (PFC)-Containing Firefighting Foams and Their Use In Firefighting Training in Minnesota, dated June 30, 2008 (the June 2008 Report);
- Addendum to PFC-Containing Firefighting Foams and Their Use In Firefighting Training in Minnesota, dated October 22, 2008 (the October 2008 Addendum Report);
- Firefighting Training Area Site Reconnaissance, Pine Bend Flint Hills Refinery, Marathon Refinery, Burnsville Fire Training Center, and Site Access for 21 Fire Departments, dated April 3, 2009 (the April 2009 Report);
- Report of Site Reconnaissance and Sampling at Select Firefighting Foam Training Areas in Minnesota, dated June 30, 2009 (the June 2009 Report);
- Report of Investigation Activities at Select Firefighting Foam Training Areas and Foam Discharge Sites in Minnesota, dated February 10, 2010 (the February 2010 Report); and,
- Perfluorocarbon (PFC)-Containing Firefighting Foams and Their Use In Firefighting Training in Minnesota, dated June 30, 2010 (the June 2010 Report).

This report presents additional data and information that addresses the recommendations for further assessment presented in the June 2010 Report. The recommendations included in the June 2010 Report are as follows:

1. Conduct groundwater receptor surveys to evaluate risk at the following sites where perfluorooctanoic acid (PFOA) and/or perfluorooctane sulfonate (PFOS) concentrations in groundwater exceeded the State health risk limits (HRLs) for drinking water:
 - Marathon Refinery in St. Paul Park
 - Bemidji Regional Airport
 - ABLE fire training center in Burnsville
 - Minneapolis-St. Paul International (MSP) Airport

2. Conduct a groundwater receptor survey to evaluate risk in the area of the Lake Superior College Emergency Response Training Center (ERTC) due to elevated PFOS and PFOA concentrations in the wetland surface water located adjacent to the training area.
3. Continue to monitor groundwater for PFCs at the existing monitoring well located downgradient of the fire site at the Kandiyohi County Landfill. Since the foam discharge occurred less than one year ago, it may take time for potential PFC impacts to migrate through the soil to the water table, and to migrate with groundwater to the location of well DMW-3. Consider installing a monitoring well closer to the site of the fire if site activities and land use nearer the fire site are conducive to the presence of a monitoring well.
4. At the time of sampling at Crystal Airport (in January 2010), there was no water in Shingle Creek. Since PFCs were detected in a sediment sample collected on the down stream side of Crystal Airport, but none were detected upstream, water samples should be collected at or near the locations of the previous sediment samples to test for PFCs in Shingle Creek adjacent to Crystal Airport.
5. Follow up with inquiries, and sampling if warranted, at any large fires that occur or have occurred where Class B foams are used extensively.

1.2 Background

As a part of an overall investigation of PFCs in Minnesota, the MPCA and Minnesota Department of Health (MDH) are looking at firefighting foams as a possible source of PFCs in the environment. Aqueous film-forming foam (AFFF) was developed in the 1960s for use on Class B fires. AFFF has a fluorochemical-based surfactant that rapidly forms a film across the fire surface, which prevents the release of flammable fuel vapors and excludes oxygen from the fuel surface. PFCs have been identified in soil, sediment, surface water and groundwater samples collected from locations where various brands of Class B firefighting foams have been used repeatedly in training exercises or in large quantity to extinguish fires in Minnesota.

Municipal fire departments, fire departments at major oil refineries and airports in Minnesota, fire training schools in the State, and other knowledgeable persons were surveyed regarding their use and knowledge of Class B firefighting foams. Firefighting training sites and fire sites where AFFF is or was used were ranked for their potential to release PFCs to sensitive environments based on a number of criteria: the types and amounts of foam used, the frequency of the training events, the environmental setting of the site, and the presence of nearby receptors such as water supply wells and surface waters. The results of the research, survey and site ranking were presented in the June 2008 and October 2008 Addendum Reports. Both reports are available on the MPCA website at www.pca.state.mn.us/cleanup/pfc/index.html.

Based on the site ranking, a number of firefighting training sites and fire sites where Class B AFFF was discharged were chosen for further investigation. Additional investigation activities included site

reconnaissance, in-depth interviews with knowledgeable persons, and/or sampling of potentially affected media including groundwater, soil, surface water and/or sediments. Information and data collected at these select sites were documented in the April 2009, June 2009, February 2010 and June 2010 Reports. These reports are also available on the MPCA website. The investigation of PFCs in firefighting foam and their use in Minnesota found that PFCs are present in the environment (soil, groundwater, surface water and sediment) at sites where Class B firefighting foam was discharged repeatedly in training exercises or where large amounts of Class B foam were utilized on Class B fires.

1.3 Scope of Work

To address the recommendations included in the June 2010 Report, Delta performed the following scope of work under MPCA Work Order SFDE1107-2:

1. Conduct groundwater receptor surveys at the sites identified in **Section 1.1**.
2. Conduct additional groundwater sampling from two existing wells at the Kandiyohi Landfill.
3. Conduct additional sediment and surface water sampling at Shingle Creek adjacent to the Crystal Airport.
4. Prepare a report summarizing work performed as part of the scope of work.

Details of the work performed as part of the contracted scope of work is described in **Sections 2.0 through 5.0**.

2.0 GROUNDWATER RECEPTOR SURVEYS

Previous groundwater sampling identified PFOA and/or PFOS in groundwater at concentrations exceeding the State HRLs at the following firefighting foam training sites: Marathon Refinery in St. Paul Park; Bemidji Regional Airport in Bemidji, where the Bemidji Fire Department trains with Class B foam; ABLE Fire Training Center in Burnsville; and, former firefighting foam training areas at the MSP Airport. Additionally, PFOS and PFOA concentrations exceeding the State HRLs were also detected in a surface water sample collected from a wetland at the Lake Superior College ERTC in Duluth. In order to evaluate potential risks associated with the identified groundwater and surface water impacts, groundwater receptor surveys were conducted at the sites.

Groundwater receptor surveys included the following activities:

1. Walking surveys were conducted in order to identify all houses and businesses, surface water bodies, water wells, and any other features that may be a groundwater receptor. The walking surveys included the area within 500 feet upgradient and side-gradient of the sites and 1/2-mile downgradient of the sites
2. Information regarding the potable water source and water wells at the properties identified during the walking surveys were obtained from property owners or property tenants. Information was

obtained through personal interviews or via well survey questionnaires that were either left at a property or sent in the mail.

3. Inquiries were made as necessary with the water supply utility regarding municipal water sources, municipal well locations, and the availability of municipal water in the area of the sites.
4. The MDH County Well Index was searched in order to identify registered water wells located within the survey areas.

Groundwater receptor survey activities and findings for the five referenced sites are presented in **Sections 2.1 through 2.5**. Details of the well receptor surveys, including the presence or absence of water wells, the uses of identified wells, and verification of municipal water connections are summarized on **Table 1, Well Receptor Survey Summary for Select Firefighting Foam Training Sites in Minnesota**.

2.1 Marathon Refinery Groundwater Receptor Survey

Class B firefighting foam is used in semi-annual training events at a firefighting training area located near the southwest corner of the refinery. The firefighting training area is built on a concrete pad with concrete curbing around the perimeter. Pooled or collected liquids on the training pad drain to an on-site storm sewer system, which is routed to an on-site wastewater treatment plant. Marathon Refinery has also utilized significant quantities of Class B firefighting foam to extinguish two large petroleum fires on the refinery grounds. A groundwater sample collected in an upgradient groundwater flow direction from the fire training area and upgradient of the site of the fires was also found to contain PFOS at a concentration above the State HRL.

The latest groundwater monitoring report for the Marathon Petroleum Company leaksite #917 was reviewed at the office of the MPCA on September 1, 2010. According to the latest *2008 Groundwater Monitoring Report* prepared by URS Corporation, the groundwater flow direction in the area of the firefighting practice area at the refinery is to the southwest, toward the Mississippi River. The Mississippi River is located approximately 600 feet west of the firefighting practice area at the refinery. According to the current MPCA Project Manager for leaksite #917, there has been no (recent) groundwater receptor survey associated with the refinery leaksite due to the proximity of the river adjacent to and downgradient of the site.

Based on this information, a groundwater receptor survey was conducted in the area situated within one-half mile southwest of the Marathon Refinery fire training area. The following Marathon Refinery receptor survey documents are included in **Appendix A**:

1. The figure **Well Receptor Survey – Marathon Refinery** depicts all properties identified during the walking survey.

2. Completed survey questionnaires received from property owners/occupants within the receptor survey area. Survey questionnaire responses are summarized in **Table 1**.
3. A well receptor map which utilizes the MDH County Well Index topographic base map showing the locations and unique well numbers of wells in the survey area registered with the State.
4. Well records for all of the wells identified within the survey area, including non-supply (monitoring) wells.

The receptor survey identified five water supply wells. The wells are located at the Hidden Harbor Marina and are used for a variety of purposes, including wash water and drinking water. Three domestic wells registered to Willie's Hidden Harbor were identified on the MDH County Well Index: unique well nos. 441942, 576171 and 429870. The Hidden Harbor Marina is located approximately 0.3 miles south of the fire training area at Marathon Refinery. No other water supply wells were identified by the receptor survey.

The City of St. Paul Park Public Works Department confirmed that the properties located within the receptor survey area are connected to the municipal water service, except for the Hidden Harbor Marina property; the City had no record of a property at 810 Front Street. The property parcel at 812 Front Street contains two houses, and the owner of the Hidden Harbor Marina indicated that this parcel and houses are also owned by him.

As previously mentioned, the Mississippi River is located approximately 600 feet west of the firefighting training area. Other PFC sampling of water, sediments and fish tissue from the Mississippi River has been conducted by the MPCA and as part of the PFC/Firefighting Foam project and as part of other non-related projects. Concentrations of PFCs have been identified in the waters, sediments and fish tissue collected from various locations along the Mississippi River.

2.2 Bemidji Regional Airport Groundwater Receptor Survey

The Bemidji Fire Department trains with Class B firefighting foam in annual training exercises conducted in front of the fire station at the Bemidji Regional Airport.

Based on Delta's review of *Water Resources of the Mississippi Headwaters Watershed, North-Central Minnesota*, Hydrologic Investigations Atlas HA-278, U.S. Geological Survey, 1968, the current topographic map, and depth to water data collected during previous sampling at the Bemidji Airport, the depth to groundwater at the fire training area at the Bemidji Airport is approximately 14.5 feet bgs, and the inferred groundwater flow direction is generally to the southeast.

Delta conducted a groundwater receptor survey of the area located within one-half mile south and southeast of the training area at the Bemidji Airport. The following receptor survey documents are included in **Appendix B**:

1. The figure **Well Receptor Survey –Bemidji Regional Airport** depicts all properties identified during the walking survey.
2. Completed survey questionnaires received from property owners/occupants within the receptor survey area. Survey questionnaire responses are summarized in **Table 1**.
3. A well receptor map which utilizes the MDH County Well Index topographic base map showing the locations and unique well numbers of wells in the survey area registered with the State.
4. Well records for all of the wells identified within the survey area, including non-supply (monitoring) wells.

The receptor survey identified one active water supply well within or near the survey area. The well is present at the Kraus Anderson shop, which is located approximately one-half mile south-southeast of the fire training area at the Bemidji Airport. According to Kraus Anderson personnel, the well is approximately 20 feet deep and well water is used for washing and sanitary purposes, and not for drinking. A well record for this well was not found on the MDH County Well Index.

The MDH County Well Index lists Unique Well No. 169190 as an active commercial well located approximately one-quarter mile south of the fire foam training area at the airport.. Interviews with the current and past property owners of the property on which the well was located indicate that the well has been capped and a building addition built over the location of the sealed well.

Unique Well No. 450493 is reportedly located just outside the well receptor area. Delta located this well on the well receptor map included in **Appendix B** based on the section-township-range-subsection description, however, the actual location of the well was not field verified.

Multiple private domestic wells are registered with the MDH County Well index located between three-quarters mile and one mile southeast and east of the training area at the Bemidji Airport, as shown on the well receptor map included in **Appendix B**. Although located outside the receptor survey area, well records for these wells indicate that the wells are completed in the surficial deposits aquifer, with well depths ranging from 50 to 72 feet. The City of Bemidji Department of Public Works' Water & Sewer Superintendent was interviewed regarding the availability of municipal water in the receptor survey area. The Superintendent indicated that municipal water was available in the area.

Grass Lake is located approximately one-half mile south-southwest of the firefighting foam training area at the Bemidji Airport. According to the Bemidji Street Department, storm water at the airport is routed to

the southeast toward a low area (or intermittent wetland area) located along the east side of the airport, which in turn flows toward a wetland area to the north. The Bemidji Department of Streets does not believe storm water from the airport would flow toward Grass Lake.

2.3 ABLE Fire Training Center Groundwater Receptor Survey

The ABLE Fire Training Center is jointly owned by the cities of Apple Valley, Burnsville, Lakeville and Eagan. The Burnsville Fire Department trained occasionally at the fire training center with Class B firefighting foam between 1989 and 2004. The ABLE Fire Training Center is located at the southeast corner of the intersection of Cliff Road and River Ridge Boulevard in Burnsville.

Based on Delta's review of *Geologic Atlas, Dakota County, Minnesota*, County Atlas Series Atlas C-6, Minnesota Geological Survey, 1990, the current topographic map, and depth to water data collected during previous sampling, the depth to groundwater at the ABLE Fire Training Center is approximately 45 to 50 feet bgs and the groundwater flow direction is generally to the north-northwest, toward the Minnesota River.

Delta conducted a groundwater receptor survey of the area located within 500 feet of the fire training center and the area situated one-half mile to the northwest and northeast. The following receptor survey documents are included in **Appendix C**:

1. The figure ***Well Receptor Survey – ABLE Fire Training Center, Burnsville*** depicts all properties identified during the walking survey.
2. Completed survey questionnaires received from property owners/occupants within the receptor survey area. Survey questionnaire responses are summarized in **Table 1**.
3. A well receptor map which utilizes the MDH County Well Index topographic base map showing the locations and unique well numbers of wells in the survey area registered with the State.
4. Well records for all of the wells identified within the survey area, including non-supply (monitoring) wells.

There are three municipal wells located within the survey area, Burnsville Well Nos. 1, 2 and 8. An interview during the receptor survey site reconnaissance with several City of Burnsville Public Works personnel indicated that they are not aware of any other water supply wells in the survey area besides municipal wells. These three wells, along with other Burnsville municipal wells, were tested twice for PFCs in 2009 by the Minnesota Department of Health. Laboratory analysis only detected 0.02 micrograms per liter (ug/l) perflourobutanoic acid, or PFBA, in one of the water samples collected from Well No. 1. The State HRL for PFBA is 7 ug/l. No other PFC compounds were detected in samples collected from Well No. 1, and no PFCs were detected in water samples collected from the other wells.

A search of the MDH County Well Index identified Unique Well No. 229108, an industrial well registered to the Northwestern States Cement Company installed in 1963. The MDH and the Dakota County Water Resources Department were contacted regarding the status of the well. The well is registered as active, however, the property formerly occupied by the Northwestern States Cement Company was recently razed to the ground and the ground surface bulldozed, with no visual evidence of the well evident. The Dakota County Water Resources Department indicated that they would follow-up with the well owner to have the well brought into compliance, which may mean filing the necessary paperwork if the well was sealed or abandoned during demolition of the site.

No other water supply wells were identified by the water well survey associated with the ABLE Fire Training Center.

Wetlands are located across Cliff Road from the ABLE Fire Training Center. The wetland is situated at the bottom of a hill where surface water runoff from the ABLE Fire Training Center or an adjacent industrial area up the hill may collect.

2.4 MSP Airport Groundwater Receptor Survey

Historically, the MSP fire department trained with Class B firefighting foam at two locations on airport property. The former training locations have since been at least partially excavated as part of the redevelopment of that portion of the airport.

Based on Delta's review of *Geologic Atlas, Hennepin County, Minnesota*, County Atlas Series Atlas C-4, Minnesota Geological Survey, 1989, site-specific groundwater flow data provided by the Metropolitan Airports Commission, and depth to water data collected during previous sampling, the depth to groundwater in the area of the former firefighting foam training areas at MSP Airport is approximately 25 to 28 feet bgs and the groundwater flow direction is generally to the southeast.

Delta conducted a groundwater receptor survey of the area located within 500 feet of the former fire training areas and the area situated one-half mile to the southeast. The following receptor survey documents are included in **Appendix D**:

1. The figure ***Well Receptor Survey – MSP Airport*** depicts all properties identified during the walking survey.
2. A well receptor map which utilizes the MDH County Well Index topographic base map showing the locations and unique well numbers of wells in the survey area registered with the State.

No water supply wells and no surface waters were identified within the survey area.

2.5 Lake Superior College ERTC Groundwater Receptor Survey

The Lake Superior College ERTC was built in 1994 and a firefighter training area where firefighters can practice extinguishing simulated aircraft fires. Class B firefighting foam may have been used in training exercises from 1994 through 1996. Firefighting training foam, which is reportedly not made with PFCs, have been used for training exercises since approximately 1996.

Review of *Water Resources of the St. Louis River Watershed, Northeastern Minnesota*, Hydrologic Investigations Atlas HA-586, U.S. Geological Survey, 1979, and the current topographic map, the groundwater flow direction is generally to the south, toward the St. Louis River. The depth to groundwater at a nearby well as reported by the well owner is approximately 75 feet.

Delta conducted a groundwater receptor survey of the area located within one-half mile southwest and southeast of the ERTC. The following receptor survey documents are included in **Appendix E**:

1. The figure ***Well Receptor Survey – Lake Superior College ERTC*** depicts all properties identified during the walking survey.
2. Completed survey questionnaires received from property owners/occupants within the receptor survey area. Survey questionnaire responses are summarized in **Table 1**.
3. A well receptor map which utilizes the MDH County Well Index topographic base map showing the locations and unique well numbers of wells in the survey area registered with the State.

There are six houses located within the survey area and all of them are served by well water. Two of the houses share a well, so there are five private water supply wells in the survey area. Well records for these wells are not available on the MDH County Well Index. The City of Duluth Public Works Department confirmed that the houses within the receptor survey area are not connected to the municipal water supply, but that a water main is available to the property at 11825 Highway 23.

There are at least two creeks flowing near the firefighting practice area at the ERTC, which apparently join before flowing southward beneath Highway 23 and on to the back waters of the St. Louis River located approximately 0.2 miles south of the ERTC fire training area. PFCs were identified in a sediment sample collected previously as part of this project from one of the creeks.

3.0 FOLLOW-UP GROUNDWATER SAMPLING AT THE KANDIYOHI LANDFILL

A fire occurred at the construction and demolition (C&D) portion of the Kandiyohei Landfill in late October 2009. Fire departments from several nearby towns responded to the fire, and approximately 545 gallons of Class B firefighting foam concentrate were used to extinguish the landfill fire. The landfill is located approximately 3.5 miles southwest of New London, Minnesota.

Groundwater samples have been collected for PFC analysis from two existing wells at the Kandiyohi County Landfill on two occasions, in January and in May 2010. The approximate area of the foam discharge and the location of the sampled monitoring wells are shown on the figure ***Kandiyohi Landfill Firefighting Foam Discharge Site***, which is included in **Appendix F**. Monitoring well DMW-1A is located upgradient of the C&D portion of the landfill where the fire occurred, and monitoring well DMW-3 is located approximately 300 to 350 feet away in a roughly downgradient direction. Laboratory analysis detected PFBA in samples collected from DMW-3, at concentrations of 0.0061 ug/l and 0.011 ug/l in January and May 2010, respectively. No other PFC compounds were detected in the DMW-3 samples, and no PFCs were detected in the groundwater samples collected from DMW-1A.

Delta collected groundwater samples from the same wells, DMW-1A and DMW-3, on August 12, 2010. The groundwater samples were submitted to Axys Analytical Services Ltd. for analysis of PFCs. Laboratory analysis detected 0.00761 ug/l PFBA in the groundwater sample collected from DMW-3. No other PFC compounds were detected in the DMW-3 sample, and no PFCs were detected in the groundwater sample collected from DMW-1A. A copy of the data provided by the laboratory report is included in **Appendix F**. A table summarizing laboratory results for all three rounds of sampling at the Kandiyohi Landfill are included in **Appendix F**.

The lack of significant concentrations of PFCs detected in groundwater at DMW-3 may be because either PFCs in the firefighting foam released on the fire may not have migrated as far as DMW-3, or DMW-3 is not situated directly hydraulically downgradient from the area where the firefighting foam was discharged. However, based on *Water Table Contour Maps* for the landfill dated July 2008 and October 2008 provided by the MPCA, DMW-3 appears to be situated roughly downgradient of the area where firefighting foam was reportedly discharged. Based on ground surface and water table elevation data provided by the MPCA and depth to water data collected during sample collection, the depth from the surface where firefighting foam was discharged to the water table is approximately 25 feet to 35 feet. The distance between the C&D area where foam was discharged and the downgradient location of DMW-3 is approximately 300 to 350 feet. It appears likely that PFCs released to the environment have had insufficient time to migrate as far as the location of DMW-3 and that additional sampling at DMW-3 will be necessary to monitor for PFC impacts at DMW-3.

4.0 FOLLOW-UP CREEK SAMPLING AT CRYSTAL AIRPORT

Interviews with responding municipal fire departments around the Crystal Airport indicated that Class B firefighting foams may have been used in the past to respond to plane crash fires at the Crystal Airport. Generally, storm water runoff flows through various pathways and drainage ditches across the airport grounds to Shingle Creek. Shingle Creek flows along the east side of Crystal Airport to the southeast, to Twin Lake. Sampling for PFCs was conducted at Crystal Airport in January 2010 from several locations,

including upstream and downstream locations in Shingle Creek adjacent to Crystal Airport. Due to the winter season, only sediment samples, and not water samples, were collected from the Shingle Creek sampling locations. Sampling results identified several PFC compounds present the downstream sediment sample; PFCs were not detected in the sediment sample collected from the upstream location in Shingle Creek.

On October 1, 2010, Delta collected sediment and surface water samples from the same locations in Shingle Creek as the January 2010 sediment samples. The sample locations are shown on the figure ***PFC Sampling Locations, October 2010 – Crystal Airport***, which is included in **Appendix G**. The samples collected from the upstream location were labeled Sed-3 (sediment) and SW-1 (surface water), and the samples collected from the downstream location were labeled Sed-4 and SW-2. The surface water and sediment samples were submitted to Axys Analytical Services Ltd. for analysis of PFCs.

Laboratory results for the surface water samples SW-1 and SW-2 detected concentrations of several PFC compounds; none of the concentrations were above the State HRLs. The PFC concentrations detected in the upstream sample (SW-1) were slightly higher than those detected in the downstream sample. A copy of the data provided by the laboratory is included in **Appendix G**.

Laboratory results for the sediment samples were not available at the time of this report but will be included in a future report to the MPCA.

5.0 INQUIRIES/SAMPLING AT RECENT FIRES

At the time of this report, no large fires where large quantities of Class B foam were used were identified.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Groundwater Receptor Surveys

The groundwater receptor surveys conducted for the firefighting foam training sites at the Marathon Refinery in St. Paul Park, the Bemidji Airport, the ABLE Fire Training Center in Burnsville, MSP Airport, and the Lake Superior College ERTC in Duluth, identified potential groundwater receptors as described below:

- **Marathon Refinery**: Five water supply wells were identified by the receptor survey. The wells are present at the Hidden Harbor Marina located approximately 0.3 miles south of the firefighting training area at Marathon Refinery. Delta recommends pursuing access to the Hidden Harbor Marina for the purpose of collecting water samples from the five identified wells for PFC analysis.

Other PFC sampling by the MPCA of water, sediments and fish tissue from the Mississippi River has identified concentrations of PFCs in all of these media. Further, PFCs have been identified upgradient of the fire training area and fire sites at the Marathon Refinery. Therefore, sampling of the Mississippi River adjacent to the Marathon Refinery for PFCs is not likely to yield data useful to determining if firefighting foam training practices at the Marathon Refinery are releasing PFCs to the Mississippi River since the PFCs may be attributed to other sources.

- Bemidji Airport: One water supply was identified in the receptor survey area. The well is used at the Kraus Anderson construction shop for non-potable uses. While water from this well does not currently present exposure to PFCs from drinking the water, the non-potable uses may represent an exposure when well water is used for pressure cleaning construction equipment. Delta recommends pursuing access to the Kraus Anderson shop property for the purpose of collecting a water well sample for PFC analysis.

According to the well record for Unique Well No. 450493, it appears to be located just outside the well receptor area. The actual location of the well should be field verified. If the well is located within or near the receptor survey area, a water well sample for PFC analysis is recommended.

Other domestic water wells are located less than one mile southeast/downgradient of the training area at the Bemidji Airport. Since these wells are completed to relatively shallow depths into the surficial deposits aquifer, Delta recommends completing an expanded water well survey for the area southeast and east of the airport, situated between the airport and Highway 71. Upon completion of the survey, any water supply wells identified in the survey area should be sampled for PFCs.

- ABLE Fire Training Center, Burnsville: The groundwater receptor survey did not identify any non-municipal water supply wells in the survey area, except for the industrial well registered to the Northwestern States Cement Company. The property formerly occupied by Northwestern States Cement Company has been demolished and razed, and the well was not observed during a site reconnaissance. Therefore, this well likely no longer exists. Municipal wells present within the survey area have been sampled previously and detected PFC concentrations were below the HRLs. Delta recommends no further actions at this time with regards to sampling water supply wells in the receptor survey area for PFCs.

A wetland is located across Cliff Road from the ABLE Fire Training Center and downhill from an adjacent industrial area. The wetland may collect storm water runoff from the ABLE Fire

Training Center and the industrial area uphill. Delta recommends sampling wetland sediment and surface water for PFCs in order to determine the levels of PFCs present.

- MSP Airport: No potential groundwater receptors were identified in the receptor survey area at MSP Airport. Further, a stormwater retention pond and existing groundwater monitoring wells located more than one-half mile downgradient of the former fire training areas were sampled as part of a previous scope of work. Delta recommends no further actions at this time with regards to PFCs associated with the former fire training areas at MSP Airport.
- Lake Superior College ERTC, Duluth: The groundwater receptor survey identified five residential water supply wells located within one-half mile of the ERTC. The residences are not connected to the municipal water supply. The MPCA is currently pursuing access to these residences for the purpose of collecting water well samples for PFC analysis.

The MPCA is also pursuing access to the ERTC in order to collect sediment and surface water samples from the adjacent wetland and creek for PFC analysis.

6.2 Additional Sampling at Kandiyohi County Landfill

Three rounds of groundwater sampling have been collected from existing monitoring wells since the October 2009 fire at the Kandiyohi County Landfill. Laboratory analyses of the groundwater samples have detected similar concentrations of PFBA in DMW-3, which is presumably located downgradient of the site of the C&D fire. No other PFC compounds were detected in groundwater samples from DMW-3, and no PFCs were detected in upgradient groundwater samples collected from DMW-1A.

At all of the firefighting foam training sites where groundwater was sampled as part of the PFC/Firefighting Foam investigation, foam training occurred either historically or over the course of several years through the time of sampling. There are no other sites besides the Kandiyohi County Landfill where groundwater was sampled so soon after a sole release of Class B foam, thus, there are no comparable sites to evaluate “breakthrough” data for PFC migration through soil and groundwater to a monitoring point. As discussed in **Section 3.0**, the lack of significant concentrations of PFCs detected in groundwater at DMW-3 appears to be due to travel time associated with both the migration of PFC-containing Class B firefighting foam from the surface of the landfill where foam was discharged to the water table, and the transport of PFCs in groundwater to the location of DMW-3.

Delta recommends additional sampling of groundwater at DMW-1A and DMW-3 to continue monitoring for PFCs in groundwater associated with the October 2009 discharge of firefighting foam.

6.3 Sampling at Crystal Airport

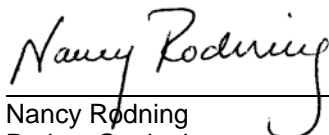
Laboratory results from the October 1, 2010, sediment sampling at Shingle Creek are pending at the time of this report. Conclusions and recommendations with regards to PFC sampling at Crystal Airport will be provided to the MPCA in a separate report.

6.4 Inquiries and/or Sampling at Large Fire Sites

Sampling conducted as part of the MPCA's PFCs in Firefighting Foam investigation has identified PFCs in soil, groundwater, surface water and sediments at sites where significant quantities of Class B foam were discharged either repeatedly over time at a training site, or during a fire response. While the use of Class B foam is necessary and should be used to protect lives and property at a Class B fire, the release or migration of PFC-containing Class B foam to non-paved surfaces or surface water bodies will likely result in the release of PFCs to the environment. The release of PFC-containing Class B foam in or near environmentally sensitive areas such as Wellhead Protection Areas, areas with shallowly underlying karst bedrock, or lakes or streams may inadvertently provide an exposure pathway that may potentially impact human health via drinking water, direct exposure, or fish consumption. At large fire sites where significant quantities of Class B firefighting foam are discharged, the MPCA may want to assess the environmental setting, the presence of nearby surface waters, the presence of water supply wells in the area, and the potential risk posed to identified receptors. Water sample collection from private wells or surface water bodies for PFCs may be warranted dependent upon results of the assessment.

7.0 REMARKS

The recommendations contained in this report represent Delta's professional opinions based upon the currently available information and are arrived at in accordance with currently accepted professional standards. This report is based upon a specific scope of work requested by the client. The contract between Delta and its client outlines the scope of work, and only those tasks specifically authorized by that contract or outlined in this report were performed. This report is intended only for the use of Delta's client and anyone else specifically identified in writing by Delta as a user of this report. Delta will not and cannot be liable for unauthorized reliance by any other third party. Other than as contained in this paragraph, Delta makes no express or implied warranty as to the contents of this report.



Nancy Rodning
Project Geologist

Date: November 15, 2010

Reviewed by:



John Estes
Project Manager

Date: November 15, 2010

TABLES

| | |
|---------|------------------------------------------------------------------------------------------|
| Table 1 | Well Receptor Survey Summary for Select Firefighting Foam Training Sites in Minnesota |
|---------|------------------------------------------------------------------------------------------|

TABLE 1
WELL RECEPTOR SURVEY SUMMARY FOR SELECT FIRFIGHTING FOAM TRAINING SITES IN MINNESOTA

| Site # From Receptor Survey Map | Property Address | Property Occupant | Water Supply Well (Yes or No) | Well Use | Use of Public Water Supply? | How Determined | Public Water Supply Connection Confirmed? | Comments |
|----------------------------------------------|-------------------------|------------------------------------------------------------|-------------------------------|-------------|-----------------------------|------------------------------------------------|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BEMIDJI AIRPORT | | | | | | | | |
| | | | | | | | | According to Bemidji Public Works, city water supply is available to all properties in the survey area; not aware of water supply wells besides municipal wells along east side of airport property. |
| 1 | 3824 Moberg Dr. NW | Bemidji Regional Airport | No | NA | Yes | Interview, Airport Manager | No | |
| 2 | 3507 Gillet Dr. NW | Rausch Cold Weather Testing Facility | No | NA | Yes | Interview, site personnel | No | |
| 3 | 3700 Norris Ct. NW | Bureau of Criminal Apprehension, MN Dept. of Public Safety | No | NA | Yes | Interview, site personnel | No | |
| 4 | 3622 Moberg Dr. NW | Great River Dentistry | No | NA | Yes | Questionnaire returned | No | |
| 5 | 3600 Moberg Dr. NW | Indoor Auto Mall | No | NA | Yes | Interviews, current and previous site owners | No | Well no. 169190 was a water supply well at this site; well has been sealed. |
| 6 | 3500 Moberg Dr. NW | Quality Inn | No | NA | Yes | Interview, site manager | No | |
| 7 | 3300 Gillett Dr. NW | Paul Bunyan Elementary & ISD #31 Offices | No | NA | Yes | Interview, school district business manager | No | |
| 8 | Gillett Dr. NW | City of Bemidji Water Treatment Facility | No | NA | Yes | Interview, City of Bemidji Public Works | No | |
| 9 | 3168 Adams Av. NW | Kraus Anderson Construction Co. | Yes | Non-potable | | Interview, site personnel | No | |
| 10 | 3920 Hwy. 2 W. | MNDOT Northwest District | No | NA | Yes | Interview, site personnel | No | |
| ABLE FIRE TRAINING CENTER, BURNSVILLE | | | | | | | | |
| Site | River Ridge Blvd. | ABLE Fire Training Center | No | NA | Yes | Interview, Burnsville Fire Chief | No | |
| 1 | 12205 River Ridge Blvd. | Northern Tool & Equipment | No | NA | Yes | Interview, site personnel | No | |
| 2 | 12101 Interstate 35W S. | Dodge of Burnsville | No | NA | Yes | Questionnaire returned | No | |
| 3 | 600 121st St. W. | Walser Suburu | No | NA | Yes | Interview, site personnel | No | |
| 4 | 12001 Interstate 35W S. | All State Self Storage | No | NA | Yes | Interview, site personnel | No | |
| 5 | 11937 Interstate 35W S. | Chalet Driving Range | No | NA | Yes | Interview, property owner | No | Several groundwater monitoring wells related to a historical dump are located on the property. |
| 6 | Pleasant Av. | Archery range, tree/brush dump | No | NA | No | Interview, Burnsville Public Works | No | |
| 7 | 201 121st St. W. | Bury & Carlson, concrete/asphalt recycling | No | NA | Yes | Interview, site personnel | No | |
| 8 | 25 Cliff Rd. W. | Rivers Edge Business Center | No | NA | Yes | Questionnaire returned | No | |
| 9 | 15 Cliff Rd. W. | American Electric Motion | No ¹ | NA | Yes | Questionnaire not returned | No | |
| 10 | 12259 Nicollet Av. | Nicollet Business Campus II | Unknown | NA | Yes | Questionnaire returned | No | Managed by Wellington Management |
| 11 | 12270 Nicollet Av. | Nicollet Business Campus | No | NA | Yes | Questionnaire returned | No | Managed by Wellington Management |
| 12 | 50 River Ridge Ct. | Burnsville Public Works | Yes | Municipal | Yes | Interviews with Public Works personnel | | City well nos. 1, 2, 4, 5, 7, 8 nearby, locations indicated by Public Works personnel. No other water supply in survey area known to Public Works personnel. |
| 13 | 12200 River Ridge Blvd. | Vacant/undeveloped | Yes | Industrial | NA | Site visit; correspondence with State, County. | No | Unique well no. 229108, industrial well, registered active. Buildings recently demolished and site razed. Site currently vacant. State and County cannot confirm current well status. |

TABLE 1
WELL RECEPTOR SURVEY SUMMARY FOR SELECT FIRFIGHTING FOAM TRAINING SITES IN MINNESOTA

| Site # From Receptor Survey Map | Property Address | Property Occupant | Water Supply Well (Yes or No) | Well Use | Use of Public Water Supply? | How Determined | Public Water Supply Connection Confirmed? | Comments |
|-------------------------------------------|---------------------|-------------------------------------------|-------------------------------|--------------|-----------------------------|-------------------------------|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LAKE SUPERIOR COLLEGE ERTC, DULUTH | | | | | | | | |
| Site | 11501 Hwy. 23 | Lake Superior College ERTC | No | NA | Yes | Interview, Program Supervisor | No | |
| 1 | 10401 Hwy. 23 | Residence | No | NA | No | Interview, homeowner | City Public Works confirmed no connection | Residence connected to private well at 10423 Hwy. 23. |
| 2 | 10423 Hwy. 23 | Residence | Yes | Drinking | No | Based on other interviews | City Public Works confirmed no connection | Questionnaire not returned. |
| 3 | 11801 Hwy. 23 | Residence | Yes | Drinking | No | Interview, homeowner | City Public Works confirmed no connection | |
| 4 | 11601 Hwy. 23 | Residence | Yes | Drinking | No | Interview, homeowner | City Public Works confirmed no connection | Well depth 411 feet. |
| 5 | 11605 Hwy. 23 | Residence | Yes | Drinking | No | Interview, homeowner | City Public Works confirmed no connection | New well pump recently installed, depth to water ~75 feet. |
| 6 | 11825 Hwy. 23 | Residence | Yes | Drinking | No | Interview, homeowner | City Public Works confirmed no connection | |
| MSP AIRPORT | | | | | | | | |
| 1 | 7150 Humphrey Drive | Humphrey Terminal | No | NA | Yes | Interview, Mark Wacek, MAC | No | |
| 2 | Humphrey Drive | Humphrey Terminal Parking Ramp | No | NA | Yes | Interview, Mark Wacek, MAC | No | |
| 3 | 34th Ave. S. | MSP Fire Station No. 1 | No | NA | Yes | Interview, Mark Wacek, MAC | No | |
| 4 | 34th Ave. S. | Hangars 4-8 | No | NA | Yes | Interview, Mark Wacek, MAC | No | |
| 5 | 2825 Cargo Rd. | FedEx | No | NA | Yes | Interview, Mark Wacek, MAC | No | |
| 6 | Cargo Rd. | UPS | No | NA | Yes | Interview, Mark Wacek, MAC | No | |
| 7 | MSP Airport | South airfield lighting electrical center | No | NA | Yes | Interview, Mark Wacek, MAC | No | |
| 8 | MSP Airport | Glycol Management Facility | No | NA | Yes | Interview, Mark Wacek, MAC | No | |
| MARATHON REFINERY, ST. PAUL PARK | | | | | | | | |
| 1 | 729 Factory St. | Residence, vacant | No | NA | Yes | Questionnaire not delivered | Yes | Questionnaire returned by Post Office, marked "vacant". Municipal water connection confirmed by City Public Works Dept; assume no water supply well on property. |
| 2 | 812 Front St. | Residence | No | No | Yes | Questionnaire not returned | Yes | Two houses located on property, owned by Hidden Harbor Marina. Marina owner not aware of water wells on property. |
| 3 | 388 9th Ave. | Hidden Harbor Marina | Yes | Potable uses | No | Interview, property owner | Confirmed no connection | Five water supply wells located on property. |
| 4 | Lions Levee Park | 7th Ave. W. | NA | NA | NA | Site reconnaissance | NA | No buildings with water service. |

Notes:

Sites included on this Table are depicted on applicable Well Receptor Survey figures included in report.

¹ Receptor Survey Questionnaire indicated that if questionnaire was not returned it would be assumed that the property has no water wells, basements or sumps.

NA - Not Applicable

Delta Consultants

APPENDIX A

Marathon Refinery Groundwater Receptor Survey Documents



LEGEND:

Property Occupant

- ① Residence — 729 Factory St.
- ② Residence — 812 Front St.
- ③ Hidden Harbor Marina — 388 9th Ave.
- ④ Lions Levee Park — 7th Ave. S.



FIGURE
RECEPTOR SURVEY
MARATHON OIL FIRE TRAINING AREA
ST. PAUL PARK, MINNESOTA

| | | |
|---------------------------|-------------------|-------------------------|
| PROJECT NO. 45618DEL01 | PREPARED BY NR | DRAWN BY DD |
| DATE 11/9/10 | REVIEWED BY | FILE NAME Marathon-1 |



Receptor Survey Questionnaire

— via telephone 10-26-10

PROPERTY ADDRESS: 388 9th Av. W - Hidden Harbor Marina

1. Is there, or has there ever been, a water well on the property?

☒ Yes ☐ No ☐ Unknown

If you answered **No** or **Unknown**, proceed to Question 2.

5 wells on property

1a. If you answered **Yes**, is the well *active* (in use), *abandoned* (not in use), or *sealed* (decommissioned following Minnesota Department of Health [MDH] Well Code guidelines).

☒ ACTIVE ☐ ABANDONED ☐ SEALED

1b. How deep is (was) the well? _____ FEET (if depth is unknown check here _____)

1c. In what year was the well installed (if known)? _____ Bought property

1d. If the well was abandoned, what year was the well sealed? _____ ~1 year ago

3e. If the well is active, for what purpose is it used? Example: (drinking water, lawn sprinkler, cooling, etc.) _____

1f. Where on the property is (was) the well located? 1 - Maintenance
1 - Restaurant 1 - Boats 1 - Hosing 1 - Drink water

1g. If there is currently a water supply well on the property, would you grant access to the property in order to obtain a water sample from either an indoor or outside faucet (at no cost to property owner)?

Yes No

810 + 812 front st - owned by Marina

Name _____

Telephone Number _____ DAY or EVENING (please circle one and state best time to reach you)

2. Is a public water supply currently utilized by the property?

Yes ☒ No

3. May we contact you for further information if necessary? If so, please provide your name and telephone number.

Name Tim Kennedy

Telephone Number 651-400-0846 DAY or EVENING (please circle one and state best time to reach you)

Please complete this form and mail it back to Delta in the enclosed self-addressed stamped envelope. Delta thanks you in advance for taking the time to complete this form.

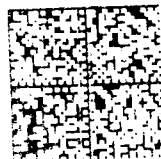
If you have any questions, or need help completing this form, please feel free to contact Nancy Rodning, Delta Consultants, at (651)697-5152 or 1-800-477-7411, or Nile Fellows, MPCA, at 651-757-2352.

Nancy Rodning
5910 RICE CREEK PARKWAY • SUITE 100
ST. PAUL, MINNESOTA 55126 USA



Handwritten signature

PROPERTY OWNER OR TENANT
729 FACTORY STREET
ST. PAUL PARK, MN 55071

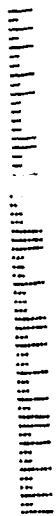


UNITED STATES POSTAGE
\$ 000.44⁰⁰

NOT A SOLICITATION

350713125023

BC: 551255023



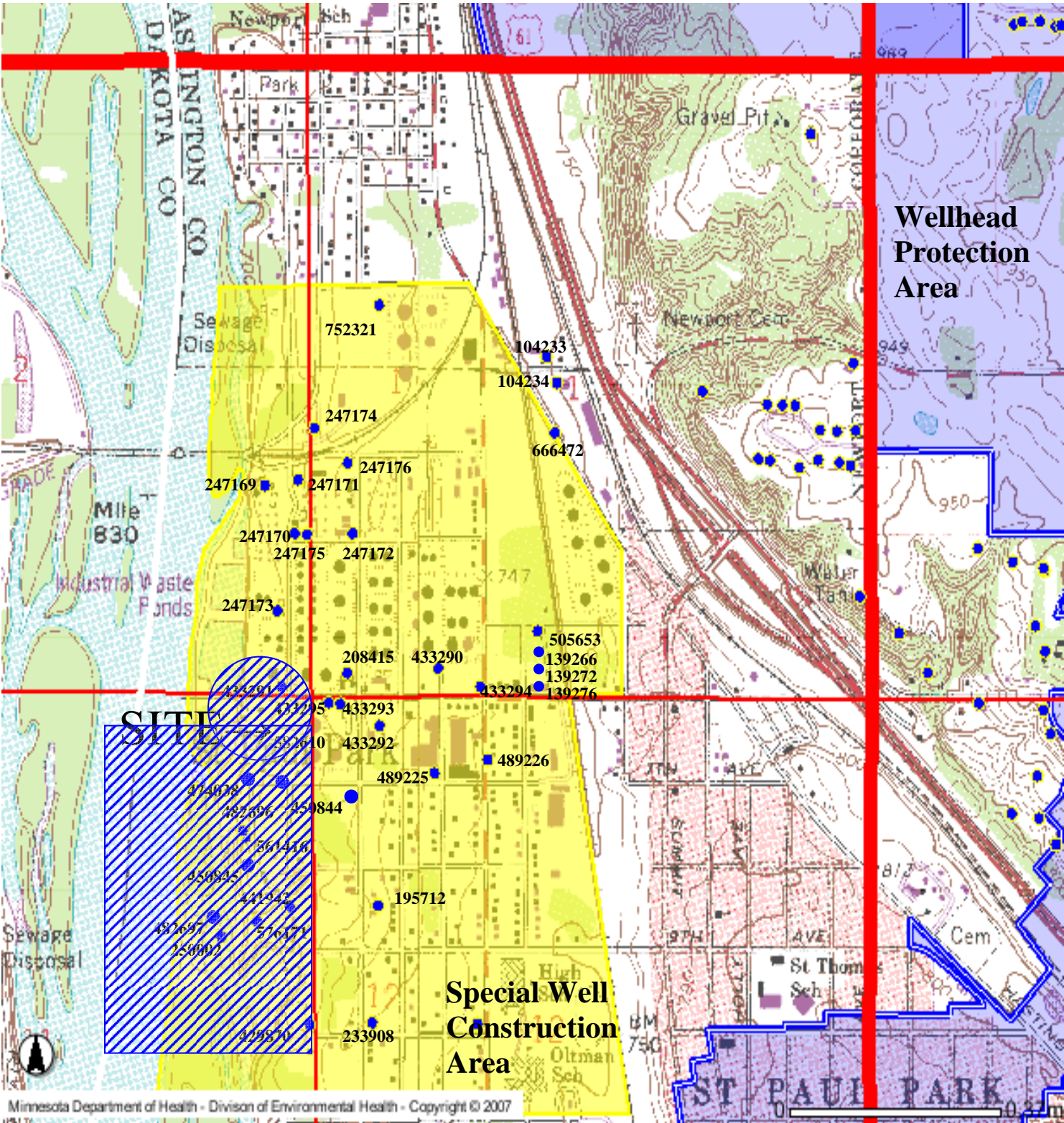
NIXIE

550 4E 1

RETURN TO SENDER
VACANT
UNABLE

VAC

MARATHON PETROLEUM REFINERY CWI Well Map



Approximate Area of Receptor Survey

| | | | | | | | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------|--|--------------------|--|
| Minnesota Unique Well No. | | County Washington Quad Inver Grove Heights Quad ID 103D | | MINNESOTA DEPARTMENT OF HEALTH WELL AND BORING RECORD Minnesota Statutes Chapter 103I | | Entry Date 07/25/1995 Update Date 05/11/2005 Received Date | | | |
| <div>250002</div> | | | | | | | | | |
| Well Name WILLIE'S HIDDEN HARBOR Township Range Dir Section Subsections Elevation 690 ft. 27 22 W 11 ADBDCD Elevation Method 7.5 minute topographic map (+/- 5 feet) | | | | Well Depth 235 ft. | | Depth Completed 235 ft. | | | |
| | | | | Date Well Completed | | | | | |
| | | | | Drilling Method -- | | | | | |
| Geological Material PRAIRIE DU CHIEN GROUP JORDAN SANDSTONE ST. LAWRENCE FORMATION Color Hardness From To 0 146 146 230 230 235 | | | | Drilling Fluid -- | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No From Ft. to Ft. | | | |
| | | | | Use Abandoned Status Sealed | | | | | |
| | | | | Casing Type Steel (black or low carbon) Joint No Information Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> No Above/Below 0 ft. | | | | | |
| | | | | Casing Diameter 4 in. to 220 ft. | | Weight lbs./ft. | | Hole Diameter | |
| | | | | Open Hole from 220 ft. to 235 ft. | | | | | |
| | | | | Screen NO Make Type | | | | | |
| | | | | Diameter | | Slot/Gauze | | Length Set Between | |
| | | | | Static Water Level 14 ft. from Land surface Date Measured 06/06/1995 | | | | | |
| | | | | PUMPING LEVEL (below land surface) ft. after hrs. pumping g.p.m. | | | | | |
| | | | | Well Head Completion Pitless adapter manufacturer Model <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | | | |
| REMARKS GAMMA LOGGED 6-6-1995. WELL SEALED 07-15-1996 BY 62119 Located by: Minnesota Geological Survey Method: Digitized - scale 1:24,000 or larger (Digitizing Table) Unique Number Verification: Information from owner Input Date: 07/18/1996 System: UTM - Nad83, Zone15, Meters X: 499426 Y: 4965451 | | | | Grouting Information Well Grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | Nearest Known Source of Contamination __feet __direction __type Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | Pump <input type="checkbox"/> Not Installed Date Installed Manufacturer's name Model number __ HP 0 Volts Length of drop Pipe __ft. Capacity __g.p.m Type Material | | | | | |
| Borehole Geophysics Yes First Bedrock Prairie Du Chien Group Last Strat St.Lawrence Aquifer Multiple Depth to Bedrock 0 ft. | | | | Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | Well Contractor Certification Minnesota Geological Survey MGS License Business Name Lic. Or Reg. No. Name of Driller | | | | | |
| County Well Index Online Report | | | | 250002 | | Printed 11/3/2010 HE-01205-07 | | | |

| | | | | | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------|--|
| Minnesota Unique Well No. | | County Washington Quad Inver Grove Heights Quad ID 103D | | MINNESOTA DEPARTMENT OF HEALTH WELL AND BORING RECORD Minnesota Statutes Chapter 103I | | Entry Date 08/15/1991 Update Date 09/29/2005 Received Date | |
| 429870 | | | | | | | |
| Well Name BROWN, WILLIE Township Range Dir Section Subsections Elevation 733 ft. 27 22 W 11 DAAAAA Elevation Method CALC FROM 2-FOOT COUNTY DEM | | | | Well Depth 220 ft. Depth Completed 220 ft. Date Well Completed 02/23/1987 | | | |
| | | | | Drilling Method Non-specified Rotary | | | |
| Well Address 215 10TH AV W ST PAUL PARK MN 55071 | | | | Drilling Fluid Bentonite | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No From Ft. to Ft. | |
| | | | | Use Domestic | | | |
| Geological Material GRAVEL LIME SANDROCK | | | | Color BROWN YELLOW YELLOW | | Hardness SOFT HARD SOFT | |
| | | | | From 0 8 165 | | To 8 165 220 | |
| | | | | Casing Diameter 8 in. to 8 ft. 4 in. to 189 ft. | | Weight 18 lbs./ft. 11 lbs./ft. | |
| | | | | Hole Diameter 12 in. to 8 ft. 8 in. to 18 ft. | | | |
| | | | | Open Hole from 189 ft. to 220 ft. | | | |
| | | | | Screen NO Make Type | | | |
| | | | | Diameter Slot/Gauze Length Set Between | | | |
| | | | | Static Water Level 40 ft. from Land surface Date Measured 02/23/1987 | | | |
| | | | | PUMPING LEVEL (below land surface) 80 ft. after 2 hrs. pumping 20 g.p.m. | | | |
| | | | | Well Head Completion Pitless adapter manufacturer Model <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | |
| NO REMARKS | | | | Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| | | | | Grout Material: Neat Cement from 0 to 189 ft. 5 yds. | | | |
| Located by: Minnesota Geological Survey Method: Digitization (Screen) - Map (1:24,000) Unique Number Verification: Information from owner Input Date: 09/07/2005 System: UTM - Nad83, Zone15, Meters X: 499675 Y: 4965234 | | | | Nearest Known Source of Contamination 75 feet N direction Sewer type Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| | | | | Pump <input type="checkbox"/> Not Installed Date Installed 04/03/1987 Manufacturer's name GRUNDFOS Model number SP-2-12 HP 0.5 Volts 230 Length of drop Pipe 84 ft. Capacity 12 g.p.m Type Submersible Material Galvanized | | | |
| | | | | Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | |
| | | | | Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| First Bedrock Prairie Du Chien Group Last Strat Jordan | | | | Aquifer Jordan Depth to Bedrock 8 ft. | | Well Contractor Certification Kimmes-Bauer 19521 ANDERSON, L. License Business Name Lic. Or Reg. No. Name of Driller | |
| County Well Index Online Report | | | | 429870 | | Printed 11/3/2010 HE-01205-07 | |

| | | | | | | | | | | | |
|--------------------------------------------------|--|---------|--|---------------------|--|--------------------------------------------------------------------------|--|-----------------------------------------------------------|--|----------------------------------------------------------------------------------------------|--|
| Minnesota Unique Well No. | | County | | Washington | | MINNESOTA DEPARTMENT OF HEALTH | | Entry Date | | 06/07/1993 | |
| 433291 | | Quad | | Inver Grove Heights | | WELL AND BORING | | Update Date | | 03/06/2002 | |
| | | Quad ID | | 103D | | RECORD | | Received Date | | | |
| | | | | | | Minnesota Statutes Chapter 103I | | | | | |
| Well Name ASHLAND PETROLEUM MW-102 | | | | | | Well Depth | | Depth Completed | | Date Well Completed | |
| Township Range Dir Section Subsections Elevation | | | | | | 47 ft. | | 47 ft. | | 04/26/1989 | |
| 27 22 W 2 DDDDCCElevation Method | | | | | | 7.5 minute topographic map (+/- 5 feet) | | | | | |
| | | | | | | Drilling Method | | Non-specified Rotary | | | |
| | | | | | | Drilling Fluid | | Well Hydrofractured? | | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| | | | | | | -- | | From Ft. to Ft. | | | |
| | | | | | | Use | | Monitor well | | | |
| | | | | | | Casing Type | | Steel (black or low carbon) | | Joint Welded Drive Shoe? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| | | | | | | No | | Above/Below 3 ft. | | | |
| | | | | | | Casing Diameter | | Weight | | Hole Diameter | |
| | | | | | | 8 in. to 13 ft. | | lbs./ft. | | | |
| | | | | | | 4 in. to 22 ft. | | lbs./ft. | | | |
| Well Address | | | | | | Open Hole | | from 22 ft. to 47 ft. | | | |
| ST PAUL PARK MN 55071 | | | | | | Screen NO | | Make | | Type | |
| | | | | | | Diameter | | Slot/Gauze | | Length Set Between | |
| Geological Material | | | | | | Color | | Hardness | | From To | |
| DRIFT, SAND & CLAY | | | | | | BLACK | | | | 0 6 | |
| LIMEROCK | | | | | | YEL/TAN | | | | 6 47 | |
| | | | | | | Static Water Level | | ft. from | | Date Measured | |
| | | | | | | PUMPING LEVEL (below land surface) | | ft. after | | hrs. pumping g.p.m. | |
| | | | | | | Well Head Completion | | Pitless adapter manufacturer | | Model | |
| | | | | | | <input type="checkbox"/> Casing Protection | | <input type="checkbox"/> 12 in. above grade | | | |
| | | | | | | <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | | | |
| REMARKS | | | | | | Grouting Information | | Well Grouted? | | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| M.G.S. NO. 2788. | | | | | | | | | | | |
| 27-22-2 DDDDCCELEV 725-+5 | | | | | | Grout Material: Neat Cement | | from 0 to 22 ft. | | 8.5 bags | |
| 103-D | | | | | | | | | | | |
| Located Minnesota Geological Survey | | | | | | Method | | Digitization (Screen) - Map (1:24,000) | | | |
| Unique Number Verification | | | | | | Information from owner | | Date | | 02/13/2004 | |
| System UTM - Nad83, Zone15, Meters | | | | | | X: 499596 Y: 4966070 | | | | | |
| | | | | | | Nearest Known Source of Contamination | | __feet __direction __type | | | |
| | | | | | | Well disinfected upon completion? | | <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| | | | | | | Pump | | <input type="checkbox"/> Not Installed | | Date Installed | |
| | | | | | | Manufacturer's name | | Model number | | __ HP 0 Volts | |
| | | | | | | Length of drop Pipe __ft. | | Capacity __g.p.m | | Type Material | |
| | | | | | | Abandoned Wells | | Does property have any not in use and not sealed well(s)? | | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| | | | | | | Variance | | Was a variance granted from the MDH for this well? | | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| Cuttings Yes | | | | | | Well Contractor Certification | | | | | |
| First Bedrock Prairie Du Chien Group | | | | | | Keys Well Co. | | 62012 | | SAMPSON, C. | |
| Last Strat Prairie Du Chien Group | | | | | | Aquifer Prairie Du Chien Group | | License Business Name | | Lic. Or Reg. No. Name of Driller | |
| Depth to Bedrock 6 ft. | | | | | | | | | | | |
| County Well Index Online Report | | | | | | 433291 | | Printed 6/29/2008 | | HE-01205-07 | |

| | | | | | | | | | | | |
|---------------------------------------------------|--|---------|--|---------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------|--|---------------------|--|
| Minnesota Unique Well No. | | County | | Washington | | MINNESOTA DEPARTMENT OF HEALTH | | Entry Date | | 06/10/1993 | |
| 433295 | | Quad | | Inver Grove Heights | | WELL AND BORING | | Update Date | | 05/06/2005 | |
| | | Quad ID | | 103D | | RECORD | | Received Date | | | |
| Minnesota Statutes Chapter 103I | | | | | | | | | | | |
| Well Name ASHLAND PETROLEUM MW-204 | | | | | | Well Depth | | Depth Completed | | Date Well Completed | |
| Township Range Dir Section Subsections Elevation | | | | | | 56 ft. | | 56 ft. | | 05/15/1989 | |
| 27 22 W 12 BBBBBA Elevation Method | | | | | | 7.5 minute topographic map (+/- 5 feet) | | | | | |
| | | | | | | Drilling Method Non-specified Rotary | | | | | |
| | | | | | | Drilling Fluid | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| | | | | | | -- | | From Ft. to Ft. | | | |
| | | | | | | Use Abandoned Status Sealed | | | | | |
| | | | | | | Casing Type Steel (black or low carbon) Joint Welded Drive Shoe? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Above/Below 3 ft. | | | | | |
| | | | | | | Casing Diameter | | Weight | | Hole Diameter | |
| | | | | | | 8 in. to 56 ft. | | lbs./ft. | | | |
| Well Address | | | | | | Open Hole from 56 ft. to 56 ft. | | | | | |
| ST PAUL PARK MN 55071 | | | | | | Screen NO Make Type | | | | | |
| | | | | | | Diameter | | Slot/Gauze | | Length Set Between | |
| Geological Material | | | | | | Color | | Hardness | | From To | |
| DRIFT, SAND AND CLAY | | | | | | BLACK | | | | 0 2 | |
| LIMEROCK | | | | | | YEL/TAN | | | | 2 53 | |
| LIMEROCK WITH SHALE LAYER | | | | | | | | | | 53 56 | |
| | | | | | | Static Water Level | | | | | |
| | | | | | | ft. from Date Measured | | | | | |
| | | | | | | PUMPING LEVEL (below land surface) | | | | | |
| | | | | | | ft. after hrs. pumping g.p.m. | | | | | |
| | | | | | | Well Head Completion | | | | | |
| | | | | | | Pitless adapter manufacturer Model | | | | | |
| | | | | | | <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade | | | | | |
| | | | | | | <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | | | |
| REMARKS | | | | | | Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| M.G.S. NO.3090. | | | | | | | | | | | |
| WELL SEALED 11-09-2000 BY 62012 | | | | | | | | | | | |
| ORIGINAL USE DO - DOMESTIC | | | | | | Grout Material: Neat Cement from 0 to 56 ft. 35 bags | | | | | |
| Located Minnesota Geological Survey | | | | | | Method Digitization (Screen) - Map (1:24,000) | | | | | |
| Unique Number Verification Information from owner | | | | | | Date 02/13/2004 | | | | | |
| System UTM - Nad83, Zone15, Meters | | | | | | X: 499729 Y: 4966030 | | | | | |
| | | | | | | Nearest Known Source of Contamination | | | | | |
| | | | | | | __feet __direction __type | | | | | |
| | | | | | | Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | | | Pump <input type="checkbox"/> Not Installed Date Installed | | | | | |
| | | | | | | Manufacturer's name Model number __ HP 0 Volts | | | | | |
| | | | | | | Length of drop Pipe __ft. Capacity __g.p.m Type Material | | | | | |
| | | | | | | Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | | | Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| Cuttings Yes | | | | | | Well Contractor Certification | | | | | |
| First Bedrock Prairie Du Chien Group | | | | | | Keys Well Co. | | 62012 | | SAMPSON, C. | |
| Last Strat Prairie Du Chien Group | | | | | | License Business Name | | Lic. Or Reg. No. | | Name of Driller | |
| Aquifer Prairie Du Chien Group | | | | | | | | | | | |
| Depth to Bedrock 2 ft. | | | | | | | | | | | |
| County Well Index Online Report | | | | | | 433295 | | Printed 6/29/2008 | | | |
| | | | | | | | | HE-01205-07 | | | |

| | | | | | | | | | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------|--|--------------------------------|--|-------------|--|
| Minnesota Unique Well No. | | County Washington Quad Inver Grove Heights Quad ID 103D | | MINNESOTA DEPARTMENT OF HEALTH WELL AND BORING RECORD Minnesota Statutes Chapter 103I | | Entry Date 08/14/1991 Update Date 09/29/2005 Received Date | | | | | |
| <div>441942</div> | | | | | | | | | | | |
| Well Name WILLIE'S HIDDEN HARBOR Township Range Dir Section Subsections Elevation 727 ft. 27 22 W 11 ADADBA Elevation Method CALC FROM 2-FOOT COUNTY DEM | | | | Well Depth 240 ft. | | Depth Completed 240 ft. | | Date Well Completed 10/29/1984 | | | |
| | | | | Drilling Method Non-specified Rotary | | | | | | | |
| Well Address 388 9TH AV W ST PAUL PARK MN 55071 Geological Material SAND LIME SAND ROCK SAND ROCK Color BROWN YELLOW BROWN BLUE Hardness SOFT HARD SOFT HARD From To 0 25 25 170 170 200 200 240 | | | | Drilling Fluid Bentonite | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No From Ft. to Ft. | | | | | |
| | | | | Use Domestic | | | | | | | |
| | | | | Casing Type Steel (black or low carbon) Joint Welded Drive Shoe? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No No Above/Below 1 ft. | | | | | | | |
| | | | | Casing Diameter | | Weight | | Hole Diameter | | | |
| | | | | 8 in. to 25 ft. | | 18 lbs./ft. | | 12 in. to 25 ft. | | | |
| | | | | 4 in. to 203 ft. | | 11 lbs./ft. | | 8 in. to 200 ft. | | | |
| | | | | Open Hole from 203 ft. to 240 ft. | | | | | | | |
| | | | | Screen NO Make Type | | | | | | | |
| | | | | Diameter | | Slot/Gauze | | Length | | Set Between | |
| | | | | Static Water Level 25 ft. from Land surface Date Measured 10/29/1987 | | | | | | | |
| PUMPING LEVEL (below land surface) 30 ft. after 2 hrs. pumping 50 g.p.m. | | | | | | | | | | | |
| Well Head Completion Pitless adapter manufacturer WHITEWATER Model SU4X5 <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | | | | | | | | | |
| NO REMARKS Located by: Minnesota Geological Survey Method: Digitization (Screen) - Map (1:24,000) Unique Number Verification: Information from owner Input Date: 09/07/2005 System: UTM - Nad83, Zone15, Meters X: 499620 Y: 4965527 | | | | Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | | |
| | | | | Grout Material: Neat Cement from 0 to 203 ft. 4 yds. | | | | | | | |
| | | | | Nearest Known Source of Contamination 75 feet E direction Septic tank/drain field type Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | | |
| | | | | Pump <input type="checkbox"/> Not Installed Date Installed 12/03/1987 Manufacturer's name GRUNDFOS Model number SP-2-12 HP 1.5 Volts 230 Length of drop Pipe 42 ft. Capacity 10 g.p.m Type Submersible Material Galvanized | | | | | | | |
| First Bedrock Prairie Du Chien Group Last Strat Jordan Aquifer Jordan Depth to Bedrock 25 ft. | | | | Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | | | | | |
| | | | | Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | | |
| | | | | Well Contractor Certification Kimmes-Bauer 19521 ANDERSON, L. License Business Name Lic. Or Reg. No. Name of Driller | | | | | | | |
| County Well Index Online Report | | | | 441942 | | Printed 11/3/2010 HE-01205-07 | | | | | |

| | | | | | | | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------|--|--------------------------------|--|
| Minnesota Unique Well No. | | County Washington Quad Inver Grove Heights Quad ID 103D | | MINNESOTA DEPARTMENT OF HEALTH WELL AND BORING RECORD Minnesota Statutes Chapter 103I | | Entry Date 04/22/2003 Update Date 04/25/2007 Received Date | | | |
| <div>482696</div> | | | | | | | | | |
| Well Name W-200 Township Range Dir Section Subsections Elevation 702 ft. 27 22 W 11 AADCBC Elevation Method 7.5 minute topographic map (+/- 5 feet) | | | | Well Depth 195 ft. | | Depth Completed 195 ft. | | Date Well Completed 09/18/1992 | |
| | | | | Drilling Method Non-specified Rotary | | | | | |
| Well Address 100 3RD W ST PAUL PARK MN 55071 Geological Material Color Hardness From To DRIFT 0 3 LIMESTONE 3 155 SANDSTONE 155 195 | | | | Drilling Fluid -- | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No From Ft. to Ft. | | | |
| | | | | Use Abandoned Status Sealed | | | | | |
| | | | | Casing Type Steel (black or low carbon) Joint Welded Drive Shoe? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No No Above/Below ft. | | | | | |
| | | | | Casing Diameter | | Weight | | Hole Diameter | |
| | | | | 14 in. to 3 ft. | | 55.57 lbs./ft. | | 17.5 in. to 3 ft. | |
| | | | | 8 in. to 155 ft. | | 28.55 lbs./ft. | | 13 in. to 155 ft. | |
| | | | | Open Hole from 170 ft. to 195 ft. | | | | | |
| | | | | Screen NO Make Type | | | | | |
| | | | | Diameter Slot/Gauze Length Set Between | | | | | |
| | | | | Static Water Level 46 ft. from Land surface Date Measured 09/18/1992 | | | | | |
| PUMPING LEVEL (below land surface) ft. after hrs. pumping g.p.m. | | | | | | | | | |
| REMARKS WELL SEALED 08-16-2000 BY 62012 ORIGINAL USE : MONITOR WELL Located by: Minnesota Department of Health Method: GPS SA Off (averaged) Unique Number Verification: N/A Input Date: 08/15/2000 System: UTM - Nad83, Zone15, Meters X: 499487 Y: 4965714 | | | | Well Head Completion Pitless adapter manufacturer Model <input checked="" type="checkbox"/> Casing Protection Y <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | | | |
| | | | | Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | Grout Material: Neat Cement | | from to 3 ft. | | 2 bags | |
| | | | | Grout Material: Neat Cement | | from to 170 ft. | | 4 yds. | |
| | | | | Grout Material: Neat Cement | | from to 155 ft. | | 5 yds. | |
| Nearest Known Source of Contamination __feet __direction __type Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | | | | |
| Pump <input type="checkbox"/> Not Installed Date Installed Manufacturer's name Model number __ HP _ Volts Length of drop Pipe _ft. Capacity _g.p.m Type Material | | | | | | | | | |
| First Bedrock Prairie Du Chien Group Last Strat Jordan Aquifer Jordan Depth to Bedrock 3 ft. | | | | Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | | | |
| | | | | Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | Well Contractor Certification Keys Well Co. 62012 CONTONIKOLAS. License Business Name Lic. Or Reg. No. Name of Driller | | | | | |
| County Well Index Online Report | | | | 482696 | | Printed 11/3/2010 HE-01205-07 | | | |

| | | | | | | | |
|-------------------------------------------------------------------------------------------|--|--------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------|--|
| Minnesota Unique Well No. | | County Washington | | MINNESOTA DEPARTMENT OF HEALTH | | Entry Date 09/25/1996 | |
| 576171 | | Quad Inver Grove Heights | | WELL AND BORING | | Update Date 12/30/2004 | |
| Quad ID 103D | | | | RECORD | | Received Date | |
| Minnesota Statutes Chapter 103I | | | | | | | |
| Well Name WILLIES HIDDEN HARBOR | | | | Well Depth | | Depth Completed | |
| Township Range Dir Section Subsections Elevation 702 ft. | | | | 200 ft. | | Date Well Completed 07/17/1996 | |
| 27 22 W 11 ADACCA Elevation Method Calc from DEM (USGS 7.5 min or equiv.) | | | | Drilling Method Non-specified Rotary | | | |
| Well Address 388 9TH AV ST PAUL PARK MN | | | | Drilling Fluid -- | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| | | | | | | From Ft. to Ft. | |
| | | | | Use Domestic | | | |
| Geological Material SAND ROCK SANDROCK SANDROCK | | | | Color BROWN TAN YELLOW YELLOW | | Hardness SOFT HARD SOFT HARD | |
| | | | | From 0 30 132 189 | | To 30 132 189 200 | |
| | | | | Casing Type Steel (black or low carbon) | | Joint Welded Drive Shoe? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| | | | | No Above/Below 0 ft. | | | |
| | | | | Casing Diameter 4 in. to 189 ft. | | Weight lbs./ft. 12 in. to 30 ft. | |
| | | | | | | 8 in. to 189 ft. | |
| | | | | Open Hole from 189 ft. to 200 ft. | | | |
| | | | | Screen NO Make Type | | | |
| | | | | Diameter Slot/Gauze Length Set Between | | | |
| | | | | Static Water Level 12 ft. from Land surface Date Measured 07/17/1996 | | | |
| | | | | PUMPING LEVEL (below land surface) 20 ft. after 1 hrs. pumping 30 g.p.m. | | | |
| | | | | Well Head Completion Pitless adapter manufacturer Model <input type="checkbox"/> Casing Protection <input checked="" type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | |
| REMARKS 27-22-11 ELEV 103-D | | | | Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| | | | | Grout Material: Neat Cement from 2 to 160 ft. 54 bags | | | |
| Located by: Minnesota Department of Health Method: Digitization (Screen) - Map (1:24,000) | | | | | | | |
| Unique Number Verification: N/A Input Date: 10/24/2003 | | | | | | | |
| System: UTM - Nad83, Zone15, Meters X: 499527 Y: 4965490 | | | | Nearest Known Source of Contamination 100 feet W direction Body of water type Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| | | | | Pump <input checked="" type="checkbox"/> Not Installed Date Installed 07/18/1996 Manufacturer's name OWNER'S Model number HP 0 Volts Length of drop Pipe ft. Capacity g.p.m Type Submersible Material | | | |
| | | | | Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | |
| | | | | Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | |
| First Bedrock Prairie Du Chien Group | | | | Well Contractor Certification Schroepfer Well Co. 62119 SCHROEPFER, I | | | |
| Last Strat Jordan | | | | License Business Name Lic. Or Reg. No. Name of Driller | | | |
| County Well Index Online Report | | | | 576171 | | Printed 11/3/2010 | |
| | | | | | | HE-01205-07 | |

APPENDIX B

Bemidji Regional Airport Groundwater Receptor Survey Documents



LEGEND:

Property Occupant

- ① Bemidji Regional Airport
- ② Rausch Cold Weather Testing Facility
- ③ Bureau of Criminal Apprehension, MN Dept. of Public Safety
- ④ Great River Dentistry
- ⑤ Indoor Auto Mall
- ⑥ Quality Inn
- ⑦ Paul Bunyan Elementry & ISD #31 Offices
- ⑧ City of Bemidji Water Treatment Facility
- ⑨ Kraus Anderson Construction Co.
- ⑩ MNDOT Northwest District



FIGURE RECEPTOR SURVEY BEMIDJI FIRE DEPARTMENT FIRE TRAINING AREA BEMIDJI AIRPORT BEMIDJI, MINNESOTA

PROJECT NO.
45618DELO1

PREPARED BY
NR

DRAWN BY
DD

DATE
11/9/10

REVIEWED BY

FILE NAME
Bemidji-1



Receptor Survey Questionnaire

over Telephone
10-11-10 12:50pm

PROPERTY ADDRESS:

Quail Inn 3500 Woburn Dr.

1. Is there, or has there ever been, a water well on the property?

Yes ☒ No ☐ Unknown

If you answered **No or Unknown**, proceed to Question 2.

1a. If you answered **Yes**, is the well *active* (in use), *abandoned* (not in use), or *sealed* (decommissioned following Minnesota Department of Health [MDH] Well Code guidelines).

☐ ACTIVE ☐ ABANDONED ☐ SEALED

1b. How deep is (was) the well? FEET (if depth is unknown check here ☐)

1c. In what year was the well installed (if known)?

1d. If the well was abandoned, what year was the well sealed?

3e. If the well is active, for what purpose is it used? Example: (drinking water, lawn sprinkler, cooling, etc.)

1f. Where on the property is (was) the well located?

1g. If there is currently a water supply well on the property, would you grant access to the property in order to obtain a water sample from either an indoor or outside faucet (at no cost to property owner)?

Yes ☐ No ☐

Name

Telephone Number DAY or EVENING (please circle one and state best time to reach you)

2. Is a public water supply currently utilized by the property?

☒ Yes ☐ No

3. May we contact you for further information if necessary? If so, please provide your name and telephone number.

Name Kevin Rakow - GM

Telephone Number 218-444-7708 DAY or EVENING (please circle one and state best time to reach you)

Please complete this form and mail it back to Delta in the enclosed self-addressed stamped envelope. Delta thanks you in advance for taking the time to complete this form.

If you have any questions, or need help completing this form, please feel free to contact Nancy Rodning, Delta Consultants, at (651)697-5152 or 1-800-477-7411, or Nile Fellows, MPCA, at 651-757-2352.

Not the Holiday Inn.

via telephone 10-11-10

Receptor Survey Questionnaire

PROPERTY ADDRESS: 3000 McKersy Dr NW - Indoor Auto Mall

1. Is there, or has there ever been, a water well on the property?

Yes ☒ No ☐ Unknown ☐

If you answered **No or Unknown**, proceed to Question 2.

1a. If you answered **Yes**, is the well *active* (in use), *abandoned* (not in use), or *sealed* (decommissioned following Minnesota Department of Health [MDH] Well Code guidelines).

☐ ACTIVE ☐ ABANDONED ☐ SEALED

1b. How deep is (was) the well? FEET (if depth is unknown check here ☐)

1c. In what year was the well installed (if known)?

1d. If the well was abandoned, what year was the well sealed?

3e. If the well is active, for what purpose is it used? Example: (drinking water, lawn sprinkler, cooling, etc.)

1f. Where on the property is (was) the well located?

1g. If there is currently a water supply well on the property, would you grant access to the property in order to obtain a water sample from either an indoor or outside faucet (at no cost to property owner)?

Yes ☐ No ☐

Name

Telephone Number DAY or EVENING (please circle one and state best time to reach you)

2. Is a public water supply currently utilized by the property?

☒ Yes ☐ No

3. May we contact you for further information if necessary? If so, please provide your name and telephone number.

Name Todd Lowth

Telephone Number 218-751-3140 DAY or EVENING (please circle one and state best time to reach you)

Please complete this form and mail it back to Delta in the enclosed self-addressed stamped envelope. Delta thanks you in advance for taking the time to complete this form.

If you have any questions, or need help completing this form, please feel free to contact Nancy Rodning, Delta Consultants, at (651)697-5152 or 1-800-477-7411, or Nile Fellows, MPCA, at 651-757-2352.

11/3/10

former Holiday Inn. well registered. knowing no well, on city water. Former owner is Gary Coughloff Properties.

**DELTA****PHONE COMMUNICATION RECORD**

Date 11-3-10 Time 12:00
Person Incoming ☐
Contacted Outgoing ☒ Gary Goughhoff, Bemidji
Phone 218-444-6900 Project No. _____
Project Name/Location _____
Contacted by NAME/R
Participants _____
Subject well 169190 - Holiday Inn (Indoor Auto Mall)
Notes

there was a well there in the 1970's, there
was no city water then.

(city water came to area). well was copped.
the ~~new~~ convention center addition was
built over the location of that well.

Receptor Survey Questionnaire

PROPERTY ADDRESS: Great River Dentistry, 3022 Moberg Drive NW, Bemidji

1. Is there, or has there ever been, a water well on the property? Yes ☒ No ☐ Unknown ☐

If you answered **No or Unknown**, proceed to Question 2.

1a. If you answered **Yes**, is the well *active* (in use), *abandoned* (not in use), or *sealed* (decommissioned following Minnesota Department of Health [MDH] Well Code guidelines).

☐ ACTIVE ☐ ABANDONED ☐ SEALED

1b. How deep is (was) the well? _____ FEET (if depth is unknown check here _____)

1c. In what year was the well installed (if known)? _____

1d. If the well was abandoned, what year was the well sealed? _____

3e. If the well is active, for what purpose is it used? Example: (drinking water, lawn sprinkler, cooling, etc.) _____

1f. Where on the property is (was) the well located? _____

1g. If there is currently a water supply well on the property, would you grant access to the property in order to obtain a water sample from either an indoor or outside faucet (at no cost to property owner)?

Yes No

Name _____

Telephone Number _____ DAY or EVENING (please circle one and state best time to reach you)

2. Is a public water supply currently utilized by the property?

☒ Yes ☐ No

3. May we contact you for further information if necessary? If so, please provide your name and telephone number.

Name Angus R. Williams, DDS

Telephone Number 218-751-4216 DAY or EVENING (please circle one and state best time to reach you)

Please complete this form and mail it back to Delta in the enclosed self-addressed stamped envelope. Delta thanks you in advance for taking the time to complete this form.

If you have any questions, or need help completing this form, please feel free to contact Nancy Rodning, Delta Consultants, at (651)697-5152 or 1-800-477-7411, or Nile Fellows, MPCA, at 651-757-2352.

Receptor Survey Questionnaire

via telephone
10-11-10

PROPERTY ADDRESS: 3700 Norris Ct NW

1. Is there, or has there ever been, a water well on the property? Yes No Unknown

If you answered **No** or **Unknown**, proceed to Question 2.

1a. If you answered **Yes**, is the well *active* (in use), *abandoned* (not in use), or *sealed* (decommissioned following Minnesota Department of Health [MDH] Well Code guidelines).

_____ ACTIVE _____ ABANDONED _____ SEALED

1b. How deep is (was) the well? _____ FEET (if depth is unknown check here _____)

1c. In what year was the well installed (if known)? _____

1d. If the well was abandoned, what year was the well sealed? _____

3e. If the well is active, for what purpose is it used? Example: (drinking water, lawn sprinkler, cooling, etc.) _____

1f. Where on the property is (was) the well located? _____

1g. If there is currently a water supply well on the property, would you grant access to the property in order to obtain a water sample from either an indoor or outside faucet (at no cost to property owner)?

Yes No

Name _____

Telephone Number _____ DAY or EVENING (please circle one and state best time to reach you)

2. Is a public water supply currently utilized by the property? Yes No

3. May we contact you for further information if necessary? If so, please provide your name and telephone number.

Name Jim Dougherty, MN Bureau of Criminal Apprehension

Telephone Number 218-755-6650 DAY or EVENING (please circle one and state best time to reach you)

Please complete this form and mail it back to Delta in the enclosed self-addressed stamped envelope. Delta thanks you in advance for taking the time to complete this form.

If you have any questions, or need help completing this form, please feel free to contact Nancy Rodning, Delta Consultants, at (651)697-5152 or 1-800-477-7411, or Nile Fellows, MPCA, at 651-757-2352.

Receptor Survey Questionnaire

PROPERTY ADDRESS: 3300 Gillett Dr NW - Park Benton ISD #31

1. Is there, or has there ever been, a water well on the property?

Yes

☒ No

Unknown

If you answered **No or Unknown**, proceed to Question 2.

1a. If you answered **Yes**, is the well *active* (in use), *abandoned* (not in use), or *sealed* (decommissioned following Minnesota Department of Health [MDH] Well Code guidelines).

☐ ACTIVE

☐ ABANDONED

☐ SEALED

1b. How deep is (was) the well? FEET (if depth is unknown check here)

1c. In what year was the well installed (if known)?

1d. If the well was abandoned, what year was the well sealed?

3e. If the well is active, for what purpose is it used? Example: (drinking water, lawn sprinkler, cooling, etc.)

1f. Where on the property is (was) the well located?

1g. If there is currently a water supply well on the property, would you grant access to the property in order to obtain a water sample from either an indoor or outside faucet (at no cost to property owner)?

Yes

No

Name

Telephone Number DAY or EVENING (please circle one and state best time to reach you)

2. Is a public water supply currently utilized by the property?

☒ Yes

No

3. May we contact you for further information if necessary? If so, please provide your name and telephone number.

Name Chris - Business Manager

Telephone Number 218-333-3100 DAY or EVENING (please circle one and state best time to reach you)

Please complete this form and mail it back to Delta in the enclosed self-addressed stamped envelope. Delta thanks you in advance for taking the time to complete this form.

If you have any questions, or need help completing this form, please feel free to contact Nancy Rodning, Delta Consultants, at (651)697-5152 or 1-800-477-7411, or Nile Fellows, MPCA, at 651-757-2352.

Receptor Survey Questionnaire

via Telephone 10-21-10

PROPERTY ADDRESS: 3507 Gillet Drive - Rausch Cold Weather

1. Is there, or has there ever been, a water well on the property?

Yes ☒ No ☐ Unknown ☐

If you answered **No or Unknown**, proceed to Question 2.

1a. If you answered **Yes**, is the well *active* (in use), *abandoned* (not in use), or *sealed* (decommissioned following Minnesota Department of Health [MDH] Well Code guidelines).

☐ ACTIVE ☐ ABANDONED ☐ SEALED

1b. How deep is (was) the well? _____ FEET (if depth is unknown check here _____)

1c. In what year was the well installed (if known)? _____

1d. If the well was abandoned, what year was the well sealed? _____

3e. If the well is active, for what purpose is it used? Example: (drinking water, lawn sprinkler, cooling, etc.) _____

1f. Where on the property is (was) the well located? _____

1g. If there is currently a water supply well on the property, would you grant access to the property in order to obtain a water sample from either an indoor or outside faucet (at no cost to property owner)?

Yes ☐ No ☐

Name _____

Telephone Number _____ DAY or EVENING (please circle one and state best time to reach you)

2. Is a public water supply currently utilized by the property?

☒ Yes ☐ No

3. May we contact you for further information if necessary? If so, please provide your name and telephone number.

Name Jason

Telephone Number 218-751-0016 DAY or EVENING (please circle one and state best time to reach you)

Please complete this form and mail it back to Delta in the enclosed self-addressed stamped envelope. Delta thanks you in advance for taking the time to complete this form.

If you have any questions, or need help completing this form, please feel free to contact Nancy Rodning, Delta Consultants, at (651)697-5152 or 1-800-477-7411, or Nile Fellows, MPCA, at 651-757-2352.

Receptor Survey Questionnaire

via telephone 10-14-10

PROPERTY ADDRESS: 3920 Hwy 2 west - MN DOT

1. Is there, or has there ever been, a water well on the property?

Yes (No) Unknown

If you answered **No** or **Unknown**, proceed to Question 2.

1a. If you answered **Yes**, is the well *active* (in use), *abandoned* (not in use), or *sealed* (decommissioned following Minnesota Department of Health [MDH] Well Code guidelines).

____ ACTIVE ____ ABANDONED ____ SEALED

1b. How deep is (was) the well? ____ FEET (if depth is unknown check here ____)

1c. In what year was the well installed (if known)? ____

1d. If the well was abandoned, what year was the well sealed? ____

3e. If the well is active, for what purpose is it used? Example: (drinking water, lawn sprinkler, cooling, etc.) ____

1f. Where on the property is (was) the well located? ____

1g. If there is currently a water supply well on the property, would you grant access to the property in order to obtain a water sample from either an indoor or outside faucet (at no cost to property owner)?

Yes No

Name ____

Telephone Number ____ DAY or EVENING (please circle one and state best time to reach you)

2. Is a public water supply currently utilized by the property?

(Yes) No

3. May we contact you for further information if necessary? If so, please provide your name and telephone number.

Name Dan Tricke

Telephone Number 218-755-6507 DAY or EVENING (please circle one and state best time to reach you)

Please complete this form and mail it back to Delta in the enclosed self-addressed stamped envelope. Delta thanks you in advance for taking the time to complete this form.

If you have any questions, or need help completing this form, please feel free to contact Nancy Rodning, Delta Consultants, at (651)697-5152 or 1-800-477-7411, or Nile Fellows, MPCA, at 651-757-2352.

Via telephone

Receptor Survey Questionnaire

PROPERTY ADDRESS: Kraus Anderson Const. Shop 3168

1. Is there, or has there ever been, a water well on the property? **Yes** **No** **Unknown**

If you answered **No or Unknown**, proceed to Question 2.

1a. If you answered **Yes**, is the well *active* (in use), *abandoned* (not in use), or *sealed* (decommissioned following Minnesota Department of Health [MDH] Well Code guidelines).

_____ ACTIVE _____ ABANDONED _____ SEALED

1b. How deep is (was) the well? 20 FEET (if depth is unknown check here _____)

1c. In what year was the well installed (if known)? _____

1d. If the well was abandoned, what year was the well sealed? _____

3e. If the well is active, for what purpose is it used? Example: (drinking water, lawn sprinkler, cooling, etc.) used for irrigation, power wash, backwashing

No drinking

1f. Where on the property is (was) the well located? _____

1g. If there is currently a water supply well on the property, would you grant access to the property in order to obtain a water sample from either an indoor or outside faucet (at no cost to property owner)?

Yes **No**

Name _____

Telephone Number _____ DAY or EVENING (please circle one and state best time to reach you)

2. Is a public water supply currently utilized by the property?

Yes **No**

3. May we contact you for further information if necessary? If so, please provide your name and telephone number.

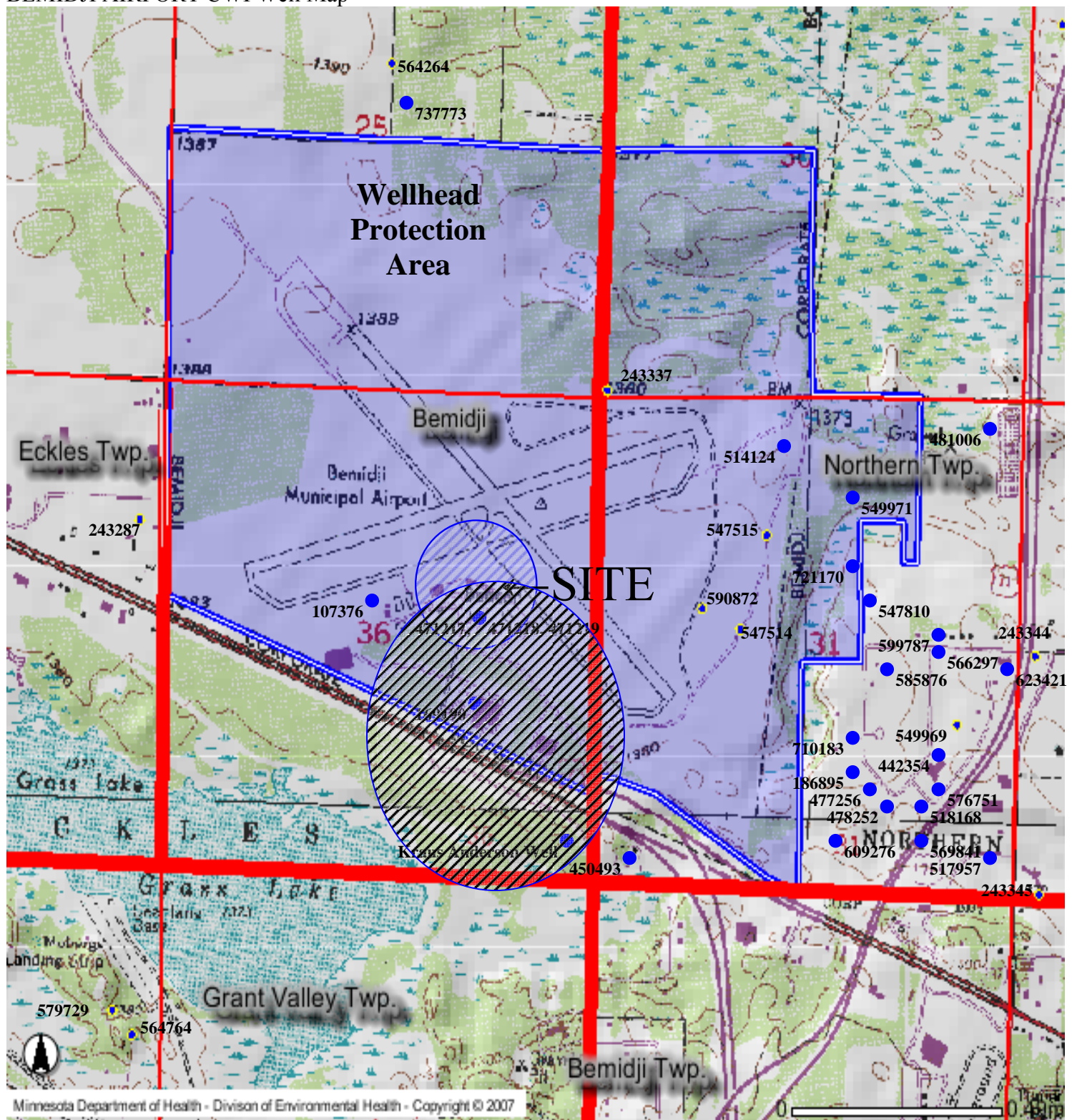
Name _____

Telephone Number 218-751-4207 DAY or EVENING (please circle one and state best time to reach you)

Please complete this form and mail it back to Delta in the enclosed self-addressed stamped envelope. Delta thanks you in advance for taking the time to complete this form.

If you have any questions, or need help completing this form, please feel free to contact Nancy Rodning, Delta Consultants, at (651)697-5152 or 1-800-477-7411, or Nile Fellows, MPCA, at 651-757-2352.

BEMIDJI AIRPORT CWI Well Map



Approximate Area of Receptor Survey

| | | | | | | | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------|--|-----------------------------------------|--|
| Minnesota Unique Well No. | | County Beltrami | | MINNESOTA DEPARTMENT OF HEALTH WELL AND BORING RECORD Minnesota Statutes Chapter 103I | | Entry Date 02/28/1989 Update Date 03/11/2005 Received Date | | | |
| 169190 | | Quad Quad ID | | | | | | | |
| Well Name HOLIDAY INN | | | | Well Depth 86 ft. | | Depth Completed 86 ft. | | Date Well Completed 03/14/1980 | |
| Township Range Dir Section Subsections Elevation ft. 147 34 W 36 Elevation Method | | | | Drilling Method Non-specified Rotary | | | | | |
| Geological Material FINE SAND CLAY BOULDERS SAND Color BROWN GRAY Hardness SOFT HARD HARD SOFT From To 0 43 43 55 55 74 74 86 | | | | Drilling Fluid -- | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No From Ft. to Ft. | | | |
| | | | | Use Commercial | | | | | |
| | | | | Casing Type Steel (black or low carbon) Joint Welded Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> No Above/Below ft. | | | | | |
| | | | | Casing Diameter | | Weight | | Hole Diameter | |
| | | | | Open Hole from ft. to ft. | | | | | |
| | | | | Screen YES Make JOHNSON Type stainless steel | | | | | |
| | | | | Diameter | | Slot/Gauze 15 | | Length Set Between 76 ft. and 86 ft. | |
| | | | | Static Water Level 10 ft. from Land surface Date Measured 03/14/1980 | | | | | |
| | | | | PUMPING LEVEL (below land surface) 70 ft. after 60 hrs. pumping 100 g.p.m. | | | | | |
| | | | | Well Head Completion Pitless adapter manufacturer Model <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | | | |
| REMARKS FRONT SECTION 36 | | | | Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | Nearest Known Source of Contamination __feet __direction __type Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | Pump <input type="checkbox"/> Not Installed Date Installed Manufacturer's name Model number __ HP _ Volts Length of drop Pipe _ft. Capacity _g.p.m Type Material | | | | | |
| | | | | Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| First Bedrock Last Strat Aquifer Depth to Bedrock ft. | | | | Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | Well Contractor Certification Diamond Water Wells 18446 WADDELL, L. License Business Name Lic. Or Reg. No. Name of Driller | | | | | |
| | | | | | | | | | |
| County Well Index Online Report | | | | 169190 | | Printed 4/3/2009 HE-01205-07 | | | |

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------|--|---------------|--|-------------------------------|--|
| Minnesota Unique Well No. | | County Beltrami | | MINNESOTA DEPARTMENT OF HEALTH | | Entry Date 02/28/1989 | | | | | |
| 186895 | | Quad Quad ID | | WELL AND BORING RECORD | | Update Date 03/11/2005 | | | | | |
| | | | | Minnesota Statutes Chapter 103I | | Received Date | | | | | |
| Well Name RUEBEN ROBERTSON | | | | Well Depth | | Depth Completed | | | | | |
| Township Range Dir Section Subsections Elevation ft. | | | | 66 ft. | | 66 ft. | | | | | |
| 147 33 W 31 DC Elevation Method | | | | | | Date Well Completed | | | | | |
| | | | | Drilling Method Cable Tool | | 08/16/1984 | | | | | |
| Geological Material SAND & CLAY SAND SAND & CLAY SAND Color YELLOW YELLOW YELLOW YELLOW Hardness HARD HARD HARD HARD From 0 18 42 61 To 18 42 61 66 | | | | Drilling Fluid | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | -- | | From Ft. to Ft. | | | | | |
| | | | | Use Domestic | | | | | | | |
| | | | | Casing Type Galvanized Joint Threaded Drive Shoe? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | Above/Below 1 ft. | | | | | |
| | | | | Casing Diameter | | Weight | | Hole Diameter | | | |
| | | | | 2 in. to 62 ft. | | 3.75 lbs./ft. | | | | | |
| | | | | Open Hole from ft. to ft. | | | | | | | |
| | | | | Screen YES Make JOHNSON Type stainless steel | | | | | | | |
| | | | | Diameter 1.3 | | Slot/Gauze 8 | | Length 4 | | Set Between 62 ft. and 66 ft. | |
| | | | | Static Water Level | | | | | | | |
| 18 ft. from Land surface | | Date Measured 08/16/1984 | | | | | | | | | |
| PUMPING LEVEL (below land surface) | | | | | | | | | | | |
| 18 ft. after 120 hrs. pumping 10 g.p.m. | | | | | | | | | | | |
| Well Head Completion | | | | | | | | | | | |
| Pitless adapter manufacturer | | Model | | | | | | | | | |
| <input type="checkbox"/> Casing Protection | | <input checked="" type="checkbox"/> 12 in. above grade | | | | | | | | | |
| <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | | | | | | | | | |
| NO REMARKS | | | | Grouting Information | | Well Grouted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | | | |
| | | | | | | | | | | | |
| | | | | Nearest Known Source of Contamination | | | | | | | |
| | | | | 75 feet E direction Other type | | | | | | | |
| | | | | Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | | |
| Pump <input type="checkbox"/> Not Installed | | Date Installed 08/16/1984 | | | | | | | | | |
| Manufacturer's name TAIT | | Model number 5CAT | | HP 0.5 | | Volts 110 | | | | | |
| Length of drop Pipe 21 ft. | | Capacity 6 g.p.m | | Type Jet | | Material Galvanized | | | | | |
| | | | | Abandoned Wells | | Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | Variance | | Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | Well Contractor Certification | | | | | | | |
| First Bedrock | | Aquifer | | Nelson Well Drilling | | 04121 | | | | | |
| Last Strat | | Depth to Bedrock ft. | | License Business Name | | Lic. Or Reg. No. | | | | | |
| | | | | NELSON, L | | Name of Driller | | | | | |
| County Well Index Online Report | | | | 186895 | | Printed 4/3/2009 | | | | | |
| | | | | | | HE-01205-07 | | | | | |

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|------------------------------------------------------|--|---------|--|----------|--|-----------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------|---------------|---------------------------------------------------------------------|------------|--|
| Minnesota Unique Well No. | | County | | Beltrami | | MINNESOTA DEPARTMENT OF HEALTH | | | Entry Date | | 03/03/1991 | |
| 450493 | | Quad | | | | WELL AND BORING | | | Update Date | | 07/24/2000 | |
| | | Quad ID | | | | RECORD | | | Received Date | | | |
| | | | | | | Minnesota Statutes Chapter 103I | | | | | | |
| Well Name OLSON, RON | | | | | | Well Depth | | Depth Completed | | Date Well Completed | | |
| Township Range Dir Section Subsections Elevation ft. | | | | | | 47 ft. | | 47 ft. | | 09/23/1987 | | |
| 147 33 W 31 CCC Elevation Method | | | | | | Drilling Method Jetted | | | | | | |
| Well Address | | | | | | Drilling Fluid | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | |
| BEMIDJI MN 56601 | | | | | | -- | | From Ft. to Ft. | | | | |
| | | | | | | Use Domestic | | | | | | |
| Geological Material | | | | | | Casing Type | | Galvanized | | Joint Threaded | | |
| SAND | | | | | | | | Drive Shoe? | | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | |
| CLAY | | | | | | | | Above/Below | | 1 ft. | | |
| SAND | | | | | | Casing Diameter | | Weight | | Hole Diameter | | |
| Color Hardness From To | | | | | | 2 in. to 42 ft. | | 3 lbs./ft. | | | | |
| BLUE 0 39 | | | | | | | | | | | | |
| BLUE 43 47 | | | | | | | | | | | | |
| | | | | | | Open Hole from ft. to ft. | | | | | | |
| | | | | | | Screen YES Make JOHNSON Type | | | | | | |
| | | | | | | Diameter | | Slot/Gauze | | Length | | |
| | | | | | | 1.3 | | 12 | | 48 | | |
| | | | | | | | | Set Between | | 43 ft. and 47 ft. | | |
| | | | | | | Static Water Level | | | | | | |
| | | | | | | 14 ft. from Land surface Date Measured 09/23/1987 | | | | | | |
| | | | | | | PUMPING LEVEL (below land surface) | | | | | | |
| | | | | | | ft. after hrs. pumping g.p.m. | | | | | | |
| | | | | | | Well Head Completion | | | | | | |
| | | | | | | Pitless adapter manufacturer Model | | | | | | |
| | | | | | | <input type="checkbox"/> Casing Protection <input checked="" type="checkbox"/> 12 in. above grade | | | | | | |
| | | | | | | <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | | | | |
| NO REMARKS | | | | | | Grouting Information Well Grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | Nearest Known Source of Contamination | | | | | | |
| | | | | | | __feet __direction __type | | | | | | |
| | | | | | | Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | |
| | | | | | | Pump <input type="checkbox"/> Not Installed Date Installed | | | | | | |
| | | | | | | Manufacturer's name Model number __ HP _ Volts | | | | | | |
| | | | | | | Length of drop Pipe __ft. Capacity __g.p.m Type Material | | | | | | |
| | | | | | | Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | | | | |
| | | | | | | Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | |
| First Bedrock | | | | | | Well Contractor Certification | | | | | | |
| Last Strat | | | | | | License Business Name | | Lic. Or Reg. No. | | SIZER G. | | |
| Aquifer | | | | | | | | | | Name of Driller | | |
| Depth to Bedrock ft. | | | | | | | | | | | | |
| County Well Index Online Report | | | | | | 450493 | | Printed 4/3/2009 | | | | |
| | | | | | | | | HE-01205-07 | | | | |

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------|--|-----------------------------------|--|----------------------------------|--|
| Minnesota Unique Well No. | | County Beltrami | | MINNESOTA DEPARTMENT OF HEALTH WELL AND BORING RECORD Minnesota Statutes Chapter 103I | | Entry Date 09/25/1992 Update Date 08/28/2007 Received Date 06/24/1991 | | | | | |
| 471217 | | Quad Quad ID | | | | | | | | | |
| Well Name BEMIDJI AVIATION MW-1 | | | | Well Depth 20 ft. | | Depth Completed 20 ft. | | Date Well Completed 06/06/1991 | | | |
| Township Range Dir Section Subsections Elevation ft. 147 34 W 36 ACD Elevation Method | | | | Drilling Method Other | | | | | | | |
| Geological Material CONCRETE SAND - MODERATE SAND - DARK, YELL/BRN SAND - PALE, YELL/BRN Color WHITE YEL/BRN Hardness From To 0 1 1 6 6 14 14 20 | | | | Drilling Fluid -- | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No From Ft. to Ft. | | | | | |
| | | | | Use Abandoned Status Sealed | | | | | | | |
| | | | | Casing Type Steel (black or low carbon) Joint Threaded Drive Shoe? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Above/Below 2 ft. | | | | | | | |
| | | | | Casing Diameter 2 in. to 10 ft. | | Weight lbs./ft. | | Hole Diameter 8 in. to 20 ft. | | | |
| | | | | Open Hole from ft. to ft. | | | | | | | |
| | | | | Screen YES Make JOHNSON Type stainless steel | | | | | | | |
| | | | | Diameter 2 | | Slot/Gauze 20 | | Length 10 | | Set Between 10 ft. and 20 ft. | |
| | | | | Static Water Level 15 ft. from Land surface Date Measured 06/06/1991 | | | | | | | |
| | | | | PUMPING LEVEL (below land surface) ft. after hrs. pumping g.p.m. | | | | | | | |
| | | | | Well Head Completion Pitless adapter manufacturer Model <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | | | | | |
| REMARKS MONITORING WELL IS USED TO CK THE SPREAD OF GAS IN THE GROUND WATER. WELL SEALED 10-05-1993 BY 75330 ORIGINAL USE MW - MONITOR WELL - #1 DRILLING METHOD - HOLLOW ROD | | | | Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | | |
| | | | | Grout Material: Bentonite | | from 9 to 10 ft. | | | | | |
| | | | | Grout Material: Neat Cement | | from to 9 ft. | | | | | |
| | | | | Nearest Known Source of Contamination __feet __direction __type Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | | |
| | | | | Pump <input type="checkbox"/> Not Installed Date Installed Manufacturer's name Model number __ HP _ Volts Length of drop Pipe __ft. Capacity __g.p.m. Type Material | | | | | | | |
| First Bedrock Last Strat Aquifer Depth to Bedrock ft. | | | | Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | | | | | |
| | | | | Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | | |
| | | | | Well Contractor Certification Valnes Well Co. 75330 VALNES, T. License Business Name Lic. Or Reg. No. Name of Driller | | | | | | | |
| County Well Index Online Report | | | | 471217 | | Printed 4/3/2009 HE-01205-07 | | | | | |

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|----------------------------------------------------------------------|--|---------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------|--|
| Minnesota Unique Well No. | | County Beltrami | | MINNESOTA DEPARTMENT OF HEALTH | | Entry Date 09/25/1992 | |
| 471218 | | Quad Quadrant ID | | WELL AND BORING RECORD | | Update Date 10/16/2008 | |
| | | | | Minnesota Statutes Chapter 103I | | Received Date 06/24/1991 | |
| Well Name BEMIDJI AVIATION MW-2 | | | | Well Depth | | Depth Completed | |
| Township Range Dir Section Subsections Elevation ft. | | | | 20 ft. | | 20 ft. | |
| 147 34 W 36 ACD Elevation Method | | | | | | Date Well Completed | |
| | | | | Drilling Method Other | | | |
| Well Address | | | | Drilling Fluid | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 2 HY W | | | | -- | | From Ft. to Ft. | |
| MN | | | | Use Abandoned Status Sealed | | | |
| Geological Material | | | | Casing Type Steel (black or low carbon) Joint Threaded Drive Shoe? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | Above/Below 2 ft. | |
| CONCRETE | | | | Casing Diameter | | Weight | |
| SAND - MODERATE YELL/BRN | | | | 2 in. to 10 ft. | | lbs./ft. | |
| SAND - DARK YELL/BRN | | | | | | Hole Diameter | |
| SAND - PALE YELL/BRN | | | | | | 8 in. to 20 ft. | |
| | | | | Open Hole from ft. to ft. | | | |
| | | | | Screen YES Make JOHNSON Type stainless steel | | | |
| | | | | Diameter | | Slot/Gauze | |
| | | | | 2 | | 10 | |
| | | | | Length | | Set Between | |
| | | | | 10 | | 10 ft. and 20 ft. | |
| | | | | Static Water Level | | | |
| | | | | 16 ft. from Land surface Date Measured 06/06/1991 | | | |
| | | | | PUMPING LEVEL (below land surface) | | | |
| | | | | ft. after hrs. pumping g.p.m. | | | |
| | | | | Well Head Completion | | | |
| | | | | Pitless adapter manufacturer Model | | | |
| | | | | <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade | | | |
| | | | | <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | |
| REMARKS | | | | Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| MW WELL IS USED TO CHECK THE SPREAD OF GASOLINE IN THE GROUND WATER. | | | | Grout Material: Bentonite | | from 9 to 10 ft. | |
| WELL SEALED 10-05-1993 BY 75330 | | | | Grout Material: Neat Cement | | from to 9 ft. | |
| ORIGINAL USE MW - MONITOR WELL - #2 | | | | Nearest Known Source of Contamination | | | |
| DRILLING METHOD - HOLLOW ROD | | | | __feet __direction __type | | | |
| | | | | Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| | | | | Pump <input type="checkbox"/> Not Installed Date Installed | | | |
| | | | | Manufacturer's name Model number __ HP _ Volts | | | |
| | | | | Length of drop Pipe __ft. Capacity __g.p.m. Type Material | | | |
| | | | | Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | |
| | | | | Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| First Bedrock | | | | Well Contractor Certification | | | |
| Last Strat | | | | Valnes Well Co. | | 75330 | |
| Aquifer | | | | License Business Name | | Lic. Or Reg. No. | |
| Depth to Bedrock ft. | | | | Name of Driller | | VALNES, T. | |
| County Well Index Online Report | | | | 471218 | | Printed 4/3/2009 | |
| | | | | | | HE-01205-07 | |

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|----------------------------------------------------------------|--|--------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------|--|
| Minnesota Unique Well No. | | County Beltrami | | MINNESOTA DEPARTMENT OF HEALTH | | Entry Date 09/25/1992 | |
| 471219 | | Quad Quad ID | | WELL AND BORING RECORD | | Update Date 10/16/2008 | |
| | | | | Minnesota Statutes Chapter 103I | | Received Date 06/24/1991 | |
| Well Name BEMIDJI AVIATION MW-3 | | | | Well Depth | | Depth Completed | |
| Township Range Dir Section Subsections Elevation ft. | | | | 20 ft. | | 20 ft. | |
| 147 34 W 36 ACD Elevation Method | | | | | | Date Well Completed | |
| | | | | Drilling Method -- | | 06/06/1991 | |
| Well Address | | | | Drilling Fluid | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 2 HY W | | | | -- | | From Ft. to Ft. | |
| MN | | | | Use Abandoned Status Sealed | | | |
| Geological Material | | | | Casing Type Steel (black or low carbon) Joint Threaded Drive Shoe? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | Above/Below 2 ft. | |
| | | | | Casing Diameter | | Weight | |
| | | | | 2 in. to 10 ft. | | lbs./ft. | |
| | | | | | | Hole Diameter | |
| | | | | | | 8 in. to 20 ft. | |
| | | | | Open Hole from ft. to ft. | | | |
| | | | | Screen YES Make JOHNSON Type stainless steel | | | |
| | | | | Diameter | | Slot/Gauze | |
| | | | | 2 | | 10 | |
| | | | | Length | | Set Between | |
| | | | | 10 | | 10 ft. and 20 ft. | |
| | | | | Static Water Level | | | |
| | | | | 15.5 ft. from Land surface Date Measured 06/06/1991 | | | |
| | | | | PUMPING LEVEL (below land surface) | | | |
| | | | | ft. after hrs. pumping g.p.m. | | | |
| | | | | Well Head Completion | | | |
| | | | | Pitless adapter manufacturer Model | | | |
| | | | | <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade | | | |
| | | | | <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | |
| REMARKS | | | | Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| MW WELL IS TO CHECK TO SPREAD OF GASOLINE IN THE GROUND WATER. | | | | Grout Material: Bentonite | | from 9 to 10 ft. | |
| WELL SEALED 10-05-1993 BY 75330 | | | | Grout Material: Neat Cement | | from to 9 ft. | |
| ORIGINAL USE MW - MONITOR WELL | | | | Nearest Known Source of Contamination | | | |
| | | | | __feet __direction __type | | | |
| | | | | Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| | | | | Pump <input type="checkbox"/> Not Installed Date Installed | | | |
| | | | | Manufacturer's name Model number __ HP _ Volts | | | |
| | | | | Length of drop Pipe __ft. Capacity __g.p.m Type Material | | | |
| | | | | Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | |
| | | | | Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| | | | | Well Contractor Certification | | | |
| First Bedrock | | | | Valnes Well Co. | | 75330 | |
| Last Strat | | | | License Business Name | | Lic. Or Reg. No. | |
| | | | | | | Name of Driller | |
| County Well Index Online Report | | | | 471219 | | Printed 4/3/2009 | |
| | | | | | | HE-01205-07 | |

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|------------------------------------------------------|--|--------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------|--|
| Minnesota Unique Well No. | | County Beltrami | | MINNESOTA DEPARTMENT OF HEALTH WELL AND BORING RECORD Minnesota Statutes Chapter 103I | | Entry Date Update Date Received Date | | 04/04/1992 07/24/2000 | |
| 477256 | | Quad Quad ID | | | | | | | |
| Well Name PETSCH, WILLIAM | | | | Well Depth | | Depth Completed | | Date Well Completed | |
| Township Range Dir Section Subsections Elevation ft. | | | | 54 ft. | | 54 ft. | | 07/03/1991 | |
| 147 33 W 31 DDB Elevation Method | | | | Drilling Method Cable Tool | | | | | |
| Well Address | | | | Drilling Fluid | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| 2323 ALGEE CT NW | | | | -- | | From Ft. to Ft. | | | |
| MN | | | | Use Domestic | | | | | |
| Geological Material | | | | Color | | Hardness | | From To | |
| SAND | | | | YELLOW | | | | 0 27 | |
| CLAY | | | | | | | | 27 48 | |
| SAND | | | | | | | | 48 54 | |
| CLAY & ROCK | | | | BLACK | | | | 54 | |
| | | | | Casing Type Steel (black or low carbon) | | Joint Threaded | | Drive Shoe? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| | | | | No Above/Below 3 ft. | | | | | |
| | | | | Casing Diameter | | Weight | | Hole Diameter | |
| | | | | 4 in. to 50 ft. | | lbs./ft. | | | |
| | | | | Open Hole from ft. to ft. | | | | | |
| | | | | Screen YES Make COOK Type stainless steel | | | | | |
| | | | | Diameter | | Slot/Gauze | | Length Set Between | |
| | | | | 2 | | 12 | | 4 50 ft. and 54 ft. | |
| | | | | Static Water Level | | | | | |
| | | | | 26 ft. from Land surface Date Measured 07/03/1991 | | | | | |
| | | | | PUMPING LEVEL (below land surface) | | | | | |
| | | | | 38 ft. after 30 hrs. pumping 15 g.p.m. | | | | | |
| | | | | Well Head Completion | | | | | |
| | | | | Pitless adapter manufacturer MAASS Model | | | | | |
| | | | | <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade | | | | | |
| | | | | <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | | | |
| NO REMARKS | | | | Grouting Information Well Grouted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | | | |
| | | | | Nearest Known Source of Contamination | | | | | |
| | | | | __feet __direction __type | | | | | |
| | | | | Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | Pump <input type="checkbox"/> Not Installed Date Installed | | | | | |
| | | | | Manufacturer's name AERMOTOR Model number __ HP 0.5 Volts 220 | | | | | |
| | | | | Length of drop Pipe 30 ft. Capacity __g.p.m Type Submersible Material Plastic | | | | | |
| | | | | Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | | | |
| | | | | Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| First Bedrock | | | | Well Contractor Certification | | | | | |
| Last Strat | | | | Aquifer | | 04051 | | LAHMAN, C. | |
| | | | | Depth to Bedrock ft. | | License Business Name | | Lic. Or Reg. No. Name of Driller | |
| County Well Index Online Report | | | | 477256 | | Printed 4/3/2009 | | | |
| | | | | | | HE-01205-07 | | | |

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| Minnesota Unique Well No. | | County | | Beltrami | | MINNESOTA DEPARTMENT OF HEALTH | | Entry Date | | 09/19/1991 | |
| 478252 | | Quad | | | | WELL AND BORING | | Update Date | | 07/24/2000 | |
| | | Quad ID | | | | RECORD | | Received Date | | | |
| | | | | | | Minnesota Statutes Chapter 103I | | | | | |
| Well Name SHIPPER, SHARON | | | | | | Well Depth | | Depth Completed | | Date Well Completed | |
| Township Range Dir Section Subsections Elevation ft. | | | | | | 50 ft. | | 50 ft. | | 07/01/1991 | |
| 147 33 W 31 ACC Elevation Method | | | | | | | | | | | |
| | | | | | | Drilling Method Non-specified Rotary | | | | | |
| Well Address | | | | | | Drilling Fluid | | Well Hydrofractured? | | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 2405 ALYCE CT | | | | | | Bentonite | | From Ft. to Ft. | | | |
| BEMIDJI MN 56601 | | | | | | Use Domestic | | | | | |
| Geological Material | | | | | | Casing Type | | Plastic Joint No Information Drive Shoe? | | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Above/Below 1 ft. | |
| SAND | | | | | | Color | | Hardness | | From To | |
| SAND | | | | | | BROWN | | | | 0 19 | |
| SAND | | | | | | GRAY | | | | 19 26 | |
| SAND | | | | | | GRAY | | | | 26 30 | |
| SAND | | | | | | GRAY | | | | 30 50 | |
| | | | | | | Casing Diameter | | Weight | | Hole Diameter | |
| | | | | | | 4 in. to 45 ft. | | lbs./ft. | | 8.8 in. to 50 ft. | |
| | | | | | | Open Hole | | from ft. to ft. | | | |
| | | | | | | Screen YES | | Make JOHNSON | | Type plastic | |
| | | | | | | Diameter | | Slot/Gauze | | Length Set Between | |
| | | | | | | 4 | | 23 | | 5 45 ft. and 50 ft. | |
| | | | | | | Static Water Level | | | | | |
| | | | | | | 12 ft. from Land surface | | Date Measured | | 07/01/1991 | |
| | | | | | | PUMPING LEVEL (below land surface) | | | | | |
| | | | | | | 38 ft. after 60 hrs. pumping | | 30 g.p.m. | | | |
| | | | | | | Well Head Completion | | | | | |
| | | | | | | Pitless adapter manufacturer | | STEEL MASS | | Model J | |
| | | | | | | <input type="checkbox"/> Casing Protection | | <input type="checkbox"/> 12 in. above grade | | | |
| | | | | | | <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | | | |
| NO REMARKS | | | | | | Grouting Information | | Well Grouted? | | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| | | | | | | Grout Material: Neat Cement | | from 40 to 10 ft. | | | |
| | | | | | | Nearest Known Source of Contamination | | | | | |
| | | | | | | 100 feet direction | | Septic tank/drain field type | | | |
| | | | | | | Well disinfected upon completion? | | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| | | | | | | Pump | | <input type="checkbox"/> Not Installed | | Date Installed 07/02/1991 | |
| | | | | | | Manufacturer's name | | AERMOTOR | | Model number SD12-50 HP 0.5 Volts 230 | |
| | | | | | | Length of drop Pipe | | 35 ft. Capacity 9 g.p.m. | | Type Submersible Material Plastic | |
| | | | | | | Abandoned Wells | | Does property have any not in use and not sealed well(s)? | | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| | | | | | | Variance | | Was a variance granted from the MDH for this well? | | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| First Bedrock | | | | | | Well Contractor Certification | | | | | |
| Last Strat | | | | | | North Star Drilling | | 49588 | | FELL, B. | |
| Aquifer | | | | | | License Business Name | | Lic. Or Reg. No. | | Name of Driller | |
| Depth to Bedrock ft. | | | | | | | | | | | |
| County Well Index Online Report | | | | | | 478252 | | Printed 4/3/2009 | | HE-01205-07 | |

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|----------------------------------------------------------------------------------------|--|--------------------|--|--------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------|--|
| Minnesota Unique Well No. | | County Beltrami | | MINNESOTA DEPARTMENT OF HEALTH WELL AND BORING RECORD Minnesota Statutes Chapter 103I | | Entry Date 03/09/1993 Update Date 03/11/2005 Received Date | |
| 514124 | | Quad Quad ID | | | | | |
| Well Name FRONTIER HOMES INC | | | | Well Depth | | Depth Completed | |
| Township Range Dir Section Subsections Elevation ft. | | | | 56 ft. | | 56 ft. | |
| 147 33 W 31 BAA Elevation Method | | | | | | Date Well Completed | |
| | | | | Drilling Method Cable Tool | | | |
| Geological Material SAND Color YELLOW Hardness From 0 To 56 | | | | Drilling Fluid | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| | | | | -- | | From Ft. to Ft. | |
| | | | | Use Domestic | | | |
| | | | | Casing Type Steel (black or low carbon) Joint Welded Drive Shoe? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| | | | | No Above/Below ft. | | | |
| | | | | Casing Diameter | | Weight | |
| | | | | 4 in. to 52 ft. | | 11 lbs./ft. | |
| | | | | Hole Diameter | | | |
| | | | | Open Hole from ft. to ft. | | | |
| | | | | Screen YES Make COOK Type stainless steel | | | |
| Diameter | | Slot/Gauze | | | | | |
| 4 | | 10 | | | | | |
| Length | | Set Between | | | | | |
| 4 | | 52 ft. and 52 ft. | | | | | |
| Static Water Level | | | | 18 ft. from Land surface | | Date Measured 09/28/1992 | |
| PUMPING LEVEL (below land surface) | | | | 33 ft. after 30 hrs. pumping | | 15 g.p.m. | |
| Well Head Completion | | | | Pitless adapter manufacturer MAASS Model | | | |
| <input type="checkbox"/> Casing Protection | | | | <input type="checkbox"/> 12 in. above grade | | | |
| <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | | | | | |
| NO REMARKS | | | | Grouting Information | | Well Grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| | | | | | | | |
| | | | | Nearest Known Source of Contamination | | | |
| | | | | __feet __direction __type | | | |
| | | | | Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| Pump <input type="checkbox"/> Not Installed | | | | Date Installed | | | |
| Manufacturer's name | | | | Model number | | HP Volts | |
| Length of drop Pipe __ft. | | | | Capacity __g.p.m. | | Type Material | |
| Abandoned Wells | | | | Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | |
| Variance | | | | Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| Well Contractor Certification | | | | Lahman Well Drilling | | 04051 | |
| First Bedrock | | | | License Business Name | | Lic. Or Reg. No. | |
| Last Strat | | | | Aquifer | | Name of Driller | |
| Depth to Bedrock ft. | | | | | | | |
| County Well Index Online Report | | | | 514124 | | Printed 4/3/2009 | |
| | | | | | | HE-01205-07 | |

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|------------------------------------------------------|--|---------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------|--|
| Minnesota Unique Well No. | | County Beltrami | | MINNESOTA DEPARTMENT OF HEALTH | | Entry Date 03/09/1993 | |
| 518168 | | Quad Quadrant ID | | WELL AND BORING RECORD | | Update Date 02/04/2004 | |
| | | | | Minnesota Statutes Chapter 103I | | Received Date | |
| Well Name KOLP, RICHARD | | | | Well Depth | | Depth Completed | |
| Township Range Dir Section Subsections Elevation ft. | | | | 54 ft. | | 54 ft. | |
| 147 33 W 31 DAC Elevation Method | | | | | | Date Well Completed | |
| | | | | | | 10/20/1992 | |
| Well Address | | | | Drilling Method Non-specified Rotary | | | |
| 3611 LAUREL DR NW | | | | Drilling Fluid | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| MN | | | | Revert | | From Ft. to Ft. | |
| | | | | Use Domestic | | | |
| Geological Material | | | | Casing Type Plastic Joint No Information Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> No Above/Below ft. | | | |
| SAND | | | | Casing Diameter | | Weight | |
| CLAY | | | | 4 in. to 50 ft. | | Hole Diameter | |
| SAND | | | | | | lbs./ft. | |
| | | | | | | 8.5 in. to 30 ft. | |
| | | | | | | 6.25 in. to 54 ft. | |
| | | | | Open Hole from ft. to ft. | | | |
| | | | | Screen YES Make JOHNSON Type | | | |
| | | | | Diameter | | Slot/Gauze | |
| | | | | 2 | | 12 | |
| | | | | Length | | Set Between | |
| | | | | 4 | | 50 ft. and 54 ft. | |
| | | | | | | | |
| | | | | Static Water Level | | | |
| | | | | 16 ft. from Land surface Date Measured 10/20/1992 | | | |
| | | | | PUMPING LEVEL (below land surface) | | | |
| | | | | 16 ft. after 120 hrs. pumping 35 g.p.m. | | | |
| | | | | Well Head Completion | | | |
| | | | | Pitless adapter manufacturer MAASS Model 4J1 | | | |
| | | | | <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade | | | |
| | | | | <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | |
| REMARKS | | | | Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| DICK'S MARINE | | | | | | | |
| | | | | Grout Material: Neat Cement from 7 to 30 ft. | | | |
| | | | | Grout Material: Cuttings from 30 to 39 ft. | | | |
| | | | | Nearest Known Source of Contamination | | | |
| | | | | 60 feet South West direction Septic tank/drain field type | | | |
| | | | | Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| | | | | Pump <input type="checkbox"/> Not Installed Date Installed 10/22/1992 | | | |
| | | | | Manufacturer's name STA-RITE Model number 10SP4C02T HP 0.5 Volts 220 | | | |
| | | | | Length of drop Pipe 40 ft. Capacity 10 g.p.m. Type Submersible Material | | | |
| | | | | Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | |
| | | | | Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| First Bedrock | | | | Well Contractor Certification | | | |
| Last Strat | | | | Nelson Well Drilling | | 04121 | |
| Aquifer | | | | License Business Name | | Lic. Or Reg. No. | |
| Depth to Bedrock ft. | | | | | | Name of Driller | |
| | | | | | | REED, G. | |
| County Well Index Online Report | | | | 518168 | | Printed 4/3/2009 | |
| | | | | | | HE-01205-07 | |

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|------------------------------------------------------|--|---------|--|----------|--|-----------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------|--|---------------------|--|
| Minnesota Unique Well No. | | County | | Beltrami | | MINNESOTA DEPARTMENT OF HEALTH | | Entry Date | | 10/26/1994 | |
| 547810 | | Quad | | | | WELL AND BORING | | Update Date | | 02/04/2004 | |
| | | Quad ID | | | | RECORD | | Received Date | | | |
| | | | | | | Minnesota Statutes Chapter 103I | | | | | |
| Well Name OLSON, REID & KATHY | | | | | | Well Depth | | Depth Completed | | Date Well Completed | |
| Township Range Dir Section Subsections Elevation ft. | | | | | | 55 ft. | | 55 ft. | | 06/23/1994 | |
| 147 33 W 31 ACC Elevation Method | | | | | | Drilling Method Non-specified Rotary | | | | | |
| Well Address | | | | | | Drilling Fluid | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| 2321 ANNE ST NW | | | | | | Bentonite | | From Ft. to Ft. | | | |
| BEMIDJI MN 56601 | | | | | | Use Domestic | | | | | |
| Geological Material | | | | | | Casing Type | | Plastic Joint No Information Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> No Above/Below ft. | | | |
| SAND | | | | | | Casing Diameter | | Weight | | Hole Diameter | |
| CLAY | | | | | | 4 in. to 50 ft. | | lbs./ft. | | 8 in. to 30 ft. | |
| SAND | | | | | | | | | | 6.25 in. to 55 ft. | |
| Color | | | | | | Open Hole from ft. to ft. | | | | | |
| YELLOW | | | | | | Screen YES Make Type stainless steel | | | | | |
| YELLOW | | | | | | Diameter Slot/Gauze Length Set Between | | | | | |
| YELLOW | | | | | | 2 10 5 50 ft. and 55 ft. | | | | | |
| Hardness | | | | | | Static Water Level | | | | | |
| SOFT | | | | | | 18 ft. from Land surface Date Measured 06/23/1994 | | | | | |
| SOFT | | | | | | PUMPING LEVEL (below land surface) | | | | | |
| HARD | | | | | | 18 ft. after 120 hrs. pumping 20 g.p.m. | | | | | |
| From | | | | | | Well Head Completion | | | | | |
| To | | | | | | Pitless adapter manufacturer Model | | | | | |
| 0 30 | | | | | | <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade | | | | | |
| 30 45 | | | | | | <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | | | |
| 45 55 | | | | | | Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| NO REMARKS | | | | | | Grout Material: Bentonite from 8 to 30 ft. 3 bags | | | | | |
| | | | | | | Nearest Known Source of Contamination | | | | | |
| | | | | | | 75 feet S direction Septic tank/drain field type | | | | | |
| | | | | | | Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | | | Pump <input type="checkbox"/> Not Installed Date Installed | | | | | |
| | | | | | | Manufacturer's name Model number HP Volts | | | | | |
| | | | | | | Length of drop Pipe ft. Capacity g.p.m Type Material | | | | | |
| | | | | | | Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | | | |
| | | | | | | Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| First Bedrock | | | | | | Well Contractor Certification | | | | | |
| Aquifer | | | | | | Nelson Well Drilling | | 04121 | | REED, G. | |
| Last Strat | | | | | | License Business Name | | Lic. Or Reg. No. | | Name of Driller | |
| Depth to Bedrock ft. | | | | | | | | | | | |
| County Well Index Online Report | | | | | | 547810 | | Printed 4/3/2009 | | | |
| | | | | | | | | HE-01205-07 | | | |

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| Minnesota Unique Well No. | | County | | Beltrami | | MINNESOTA DEPARTMENT OF HEALTH | | Entry Date | | 12/20/1995 | |
| 566297 | | Quad | | | | WELL AND BORING | | Update Date | | 02/04/2004 | |
| | | Quad ID | | | | RECORD | | Received Date | | | |
| | | | | | | Minnesota Statutes Chapter 103I | | | | | |
| Well Name BEWELY, DAVID | | | | | | Well Depth | | Depth Completed | | Date Well Completed | |
| Township Range Dir Section Subsections Elevation ft. | | | | | | 55 ft. | | 55 ft. | | 11/14/1995 | |
| 147 33 W 31 ACD Elevation Method | | | | | | Drilling Method Non-specified Rotary | | | | | |
| Well Address | | | | | | Drilling Fluid | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| 2120 ANNE ST | | | | | | Bentonite | | From Ft. to Ft. | | | |
| BEMIDJI MN 56601 | | | | | | Use Domestic | | | | | |
| Geological Material | | | | | | Casing Type | | Plastic Joint | | No Information Drive Shoe? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Above/Below ft. | |
| SAND | | | | | | Casing Diameter | | Weight | | Hole Diameter | |
| CLAY | | | | | | 4 in. to 51 ft. | | lbs./ft. | | 6.75 in. to 55 ft. | |
| SAND, GRAVEL | | | | | | Open Hole from ft. to ft. | | | | | |
| CLAY | | | | | | Screen YES Make HALBURTON Type stainless steel | | | | | |
| SAND | | | | | | Diameter | | Slot/Gauze | | Length Set Between | |
| SAND | | | | | | 2 | | 12 | | 4 51 ft. and 55 ft. | |
| | | | | | | Static Water Level | | | | | |
| | | | | | | 13 ft. from Land surface Date Measured 11/14/1995 | | | | | |
| | | | | | | PUMPING LEVEL (below land surface) | | | | | |
| | | | | | | 22 ft. after 60 hrs. pumping 25 g.p.m. | | | | | |
| | | | | | | Well Head Completion | | | | | |
| | | | | | | Pitless adapter manufacturer MONITOR Model SNAPPY | | | | | |
| | | | | | | <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade | | | | | |
| | | | | | | <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | | | |
| NO REMARKS | | | | | | Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | | | Grout Material: Bentonite from 8 to 30 ft. 2 bags | | | | | |
| | | | | | | Nearest Known Source of Contamination | | | | | |
| | | | | | | 60 feet W direction Septic tank/drain field type | | | | | |
| | | | | | | Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | | | Pump <input type="checkbox"/> Not Installed Date Installed 11/15/1995 | | | | | |
| | | | | | | Manufacturer's name MYERS Model number HP 0.5 Volts 230 | | | | | |
| | | | | | | Length of drop Pipe ft. Capacity 10 g.p.m Type Submersible Material | | | | | |
| | | | | | | Abandoned Wells Does property have any not in use and not sealed well(s)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | | | Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | | | |
| First Bedrock | | | | | | Well Contractor Certification | | | | | |
| Aquifer | | | | | | Aqua Well Drilling | | 04463 | | SCANDIN. R. | |
| Last Strat | | | | | | License Business Name | | Lic. Or Reg. No. | | Name of Driller | |
| County Well Index Online Report | | | | | | 566297 | | Printed 4/3/2009 | | | |
| | | | | | | | | HE-01205-07 | | | |

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| Minnesota Unique Well No. | | County | | Beltrami | | MINNESOTA DEPARTMENT OF HEALTH | | Entry Date | | 12/20/1995 | |
| 569841 | | Quad | | | | WELL AND BORING | | Update Date | | 07/24/2000 | |
| | | Quad ID | | | | RECORD | | Received Date | | | |
| | | | | | | Minnesota Statutes Chapter 103I | | | | | |
| Well Name HURLEY, LLOYD | | | | | | Well Depth | | Depth Completed | | Date Well Completed | |
| Township Range Dir Section Subsections Elevation ft. | | | | | | 57 ft. | | 57 ft. | | 11/20/1995 | |
| 147 33 W 31 DDC Elevation Method | | | | | | Drilling Method Non-specified Rotary | | | | | |
| Well Address | | | | | | Drilling Fluid | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| BANDWELL PARK | | | | | | Other | | From Ft. to Ft. | | | |
| MN | | | | | | Use Domestic | | | | | |
| Geological Material | | | | | | Casing Type | | Plastic Joint No Information Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> No Above/Below ft. | | | |
| SAND | | | | | | Casing Diameter | | Weight | | Hole Diameter | |
| CLAY | | | | | | 4 in. to 52 ft. | | lbs./ft. | | 8 in. to 57 ft. | |
| SAND | | | | | | Open Hole from ft. to ft. | | | | | |
| SAND | | | | | | Screen YES Make HOWARD SMITH Type stainless steel | | | | | |
| | | | | | | Diameter | | Slot/Gauze | | Length Set Between | |
| | | | | | | 2 | | 12 | | 5 52 ft. and 57 ft. | |
| | | | | | | Static Water Level | | | | | |
| | | | | | | 17 ft. from Land surface Date Measured 11/20/1995 | | | | | |
| | | | | | | PUMPING LEVEL (below land surface) | | | | | |
| | | | | | | ft. after hrs. pumping g.p.m. | | | | | |
| | | | | | | Well Head Completion | | | | | |
| | | | | | | Pitless adapter manufacturer Model | | | | | |
| | | | | | | <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade | | | | | |
| | | | | | | <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | | | |
| REMARKS | | | | | | Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| BANDWELL PARK | | | | | | Grout Material: Neat Cement from 8 to 40 ft. 1 yds. | | | | | |
| | | | | | | Nearest Known Source of Contamination | | | | | |
| | | | | | | __feet __direction __type | | | | | |
| | | | | | | Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | | | Pump <input type="checkbox"/> Not Installed Date Installed | | | | | |
| | | | | | | Manufacturer's name STA-RITE Model number __ HP 0.5 Volts 230 | | | | | |
| | | | | | | Length of drop Pipe __ft. Capacity 10 g.p.m Type Submersible Material | | | | | |
| | | | | | | Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | | | |
| | | | | | | Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | | | |
| | | | | | | Well Contractor Certification | | | | | |
| First Bedrock | | | | | | Sizer Water Well | | 04620 | | PINK, C. | |
| Last Strat | | | | | | License Business Name | | Lic. Or Reg. No. | | Name of Driller | |
| County Well Index Online Report | | | | | | 569841 | | Printed 4/3/2009 | | | |
| | | | | | | | | HE-01205-07 | | | |

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------|--|----------|--|-----------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------|--|---------------------|--|-------------------|--|
| Minnesota Unique Well No. | | County | | Beltrami | | MINNESOTA DEPARTMENT OF HEALTH | | Entry Date | | 03/06/1997 | | | |
| 576751 | | Quad | | | | WELL AND BORING | | Update Date | | 02/04/2004 | | | |
| | | Quad ID | | | | RECORD | | Received Date | | | | | |
| | | | | | | Minnesota Statutes Chapter 103I | | | | | | | |
| Well Name WIEBOLT, DARWIN | | | | | | Well Depth | | Depth Completed | | Date Well Completed | | | |
| Township Range Dir Section Subsections Elevation ft. | | | | | | 55 ft. | | 55 ft. | | 06/07/1996 | | | |
| 147 33 W 31 DAD Elevation Method | | | | | | Drilling Method Non-specified Rotary | | | | | | | |
| Well Address LUELE DR BEMIDJI MN 56601 Geological Material Color Hardness From To SAND BROWN SOFT 0 10 SAND GRAY SOFT 10 45 CLAY BROWN MEDIUM 45 49 SAND GRAY SOFT 49 55 | | | | | | Drilling Fluid | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | | | Bentonite | | From Ft. to Ft. | | | | | |
| | | | | | | Use Domestic | | | | | | | |
| | | | | | | Casing Type Plastic Joint No Information Drive Shoe? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Above/Below ft. | | | | | | | |
| | | | | | | Casing Diameter | | Weight | | Hole Diameter | | | |
| | | | | | | 4 in. to 51 ft. | | lbs./ft. | | 6.75 in. to 55 ft. | | | |
| | | | | | | Open Hole from ft. to ft. | | | | | | | |
| | | | | | | Screen YES Make JOHNSON Type stainless steel | | | | | | | |
| | | | | | | Diameter | | Slot/Gauze | | Length | | Set Between | |
| | | | | | | 2 | | 12 | | 4 | | 51 ft. and 55 ft. | |
| Static Water Level | | | | | | 20 ft. from Land surface Date Measured 06/07/1996 | | | | | | | |
| PUMPING LEVEL (below land surface) | | | | | | 30 ft. after 60 hrs. pumping 20 g.p.m. | | | | | | | |
| Well Head Completion | | | | | | Pitless adapter manufacturer MONITOR Model SNAPPY | | | | | | | |
| | | | | | | <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade | | | | | | | |
| | | | | | | <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | | | | | |
| NO REMARKS | | | | | | Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | | |
| | | | | | | Grout Material: Bentonite from 8 to 30 ft. 2 bags | | | | | | | |
| | | | | | | Nearest Known Source of Contamination | | | | | | | |
| | | | | | | 60 feet S direction Septic tank/drain field type | | | | | | | |
| | | | | | | Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | | |
| Pump <input type="checkbox"/> Not Installed Date Installed 06/14/1996 | | | | | | Manufacturer's name STA-RITE Model number HP 0.75 Volts 230 | | | | | | | |
| | | | | | | Length of drop Pipe 40 ft. Capacity 12 g.p.m Type Submersible Material | | | | | | | |
| First Bedrock Last Strat | | | | | | Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | | | | | |
| | | | | | | Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | | | | | |
| | | | | | | Well Contractor Certification | | | | | | | |
| | | | | | | Aqua Well Drilling | | 04463 | | SCANDIN. R. | | | |
| | | | | | | License Business Name | | Lic. Or Reg. No. | | Name of Driller | | | |
| County Well Index Online Report | | | | | | 576751 | | Printed 4/3/2009 | | | | | |
| | | | | | | | | HE-01205-07 | | | | | |

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|------------------------------------------------------|--|---------|--|----------|--|--------------------------------------------------------------------------|--|-----------------------------------------------------------|--|--------------------------------------------------------------------------|--|
| Minnesota Unique Well No. | | County | | Beltrami | | MINNESOTA DEPARTMENT OF HEALTH | | Entry Date | | 09/26/1997 | |
| 585876 | | Quad | | | | WELL AND BORING | | Update Date | | 10/08/2008 | |
| | | Quad ID | | | | RECORD | | Received Date | | | |
| | | | | | | Minnesota Statutes Chapter 103I | | | | | |
| Well Name OTTERTAIL REALTY | | | | | | Well Depth | | Depth Completed | | Date Well Completed | |
| Township Range Dir Section Subsections Elevation ft. | | | | | | 57 ft. | | 57 ft. | | 06/14/1997 | |
| 147 33 W 31 ADC Elevation Method | | | | | | | | | | | |
| | | | | | | Drilling Method Non-specified Rotary | | | | | |
| Well Address | | | | | | Drilling Fluid | | Well Hydrofractured? | | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 1925 ANN ST NW | | | | | | Bentonite | | From Ft. to Ft. | | | |
| BEMIDJI MN | | | | | | | | | | | |
| | | | | | | Use Domestic | | | | | |
| Geological Material | | | | | | Casing Type | | Plastic Joint No Information Drive Shoe? | | <input type="checkbox"/> Yes <input type="checkbox"/> No Above/Below ft. | |
| Color Hardness From To | | | | | | Casing Diameter | | Weight | | Hole Diameter | |
| NO RECORD 0 57 | | | | | | 4 in. to 53 ft. | | lbs./ft. | | 8.5 in. to 30 ft. | |
| | | | | | | | | | | 6.25 in. to 57 ft. | |
| | | | | | | Open Hole from ft. to ft. | | | | | |
| | | | | | | Screen YES | | Make JOHNSON | | Type stainless steel | |
| | | | | | | Diameter | | Slot/Gauze | | Length Set Between | |
| | | | | | | 2 | | 12 | | 4 53 ft. and 57 ft. | |
| | | | | | | | | | | | |
| | | | | | | Static Water Level | | | | | |
| | | | | | | 18 ft. from Land surface | | Date Measured | | 06/14/1997 | |
| | | | | | | PUMPING LEVEL (below land surface) | | | | | |
| | | | | | | 20 ft. after 2 hrs. pumping | | 30 g.p.m. | | | |
| | | | | | | Well Head Completion | | | | | |
| | | | | | | Pitless adapter manufacturer | | SNAPPY | | Model 8PL41U | |
| | | | | | | <input type="checkbox"/> Casing Protection | | <input type="checkbox"/> 12 in. above grade | | | |
| | | | | | | <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | | | |
| NO REMARKS | | | | | | Grouting Information | | Well Grouted? | | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| | | | | | | Grout Material: Neat Cement | | from 0 to 30 ft. | | 3 bags | |
| | | | | | | Nearest Known Source of Contamination | | | | | |
| | | | | | | 78 feet N direction | | Septic tank/drain field type | | | |
| | | | | | | Well disinfected upon completion? | | <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| | | | | | | Pump | | <input type="checkbox"/> Not Installed | | Date Installed 06/17/1997 | |
| | | | | | | Manufacturer's name MEYERS | | Model number 2N52-12 | | HP 0.5 Volts 220 | |
| | | | | | | Length of drop Pipe 40 ft. | | Capacity 12 g.p.m | | Type Submersible Material | |
| | | | | | | Abandoned Wells | | Does property have any not in use and not sealed well(s)? | | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| | | | | | | Variance | | Was a variance granted from the MDH for this well? | | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| First Bedrock | | | | | | Well Contractor Certification | | | | | |
| Aquifer | | | | | | Nelson Well Drilling | | 04121 | | REED, G. | |
| Last Strat | | | | | | License Business Name | | Lic. Or Reg. No. | | Name of Driller | |
| Depth to Bedrock ft. | | | | | | | | | | | |
| County Well Index Online Report | | | | | | 585876 | | Printed 4/3/2009 | | HE-01205-07 | |

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|------------------------------------------------------|--|---------|--|----------|--|-----------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------|--|
| Minnesota Unique Well No. | | County | | Beltrami | | MINNESOTA DEPARTMENT OF HEALTH | | Entry Date | | 05/10/1999 | |
| 599787 | | Quad | | | | WELL AND BORING | | Update Date | | 03/11/2005 | |
| | | Quad ID | | | | RECORD | | Received Date | | | |
| | | | | | | Minnesota Statutes Chapter 103I | | | | | |
| Well Name HWMENIK, JAMES | | | | | | Well Depth | | Depth Completed | | Date Well Completed | |
| Township Range Dir Section Subsections Elevation ft. | | | | | | 55 ft. | | 55 ft. | | 04/17/1998 | |
| 147 33 W 31 Elevation Method | | | | | | Drilling Method Non-specified Rotary | | | | | |
| Well Address | | | | | | Drilling Fluid | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| 1898 ANN ST | | | | | | Bentonite | | From Ft. to Ft. | | | |
| | | | | | | Use Domestic | | | | | |
| Geological Material | | | | | | Casing Type | | Plastic Joint | | No Information Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> No Above/Below ft. | |
| SAND | | | | | | Color | | Hardness | | From To | |
| SAND | | | | | | BROWN | | SOFT | | 0 15 | |
| CLAY | | | | | | GRAY | | SOFT | | 15 28 | |
| SAND | | | | | | GRAY | | SOFT | | 28 47 | |
| | | | | | | BROWN | | SOFT | | 47 55 | |
| | | | | | | Casing Diameter | | Weight | | Hole Diameter | |
| | | | | | | 4 in. to 55 ft. | | lbs./ft. | | | |
| | | | | | | Open Hole from ft. to ft. | | | | | |
| | | | | | | Screen YES Make JOHNSON Type stainless steel | | | | | |
| | | | | | | Diameter | | Slot/Gauze | | Length Set Between | |
| | | | | | | 2 | | 12 | | 5 50 ft. and 55 ft. | |
| | | | | | | Static Water Level | | | | | |
| | | | | | | 15 ft. from Land surface Date Measured 04/17/1998 | | | | | |
| | | | | | | PUMPING LEVEL (below land surface) | | | | | |
| | | | | | | ft. after hrs. pumping g.p.m. | | | | | |
| | | | | | | Well Head Completion | | | | | |
| | | | | | | Pitless adapter manufacturer SNAPPY Model | | | | | |
| | | | | | | <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade | | | | | |
| | | | | | | <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | | | |
| NO REMARKS | | | | | | Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | | | Grout Material: from 8 to 30 ft. 2 bags | | | | | |
| | | | | | | Nearest Known Source of Contamination | | | | | |
| | | | | | | 55 feet North West direction Tanks type | | | | | |
| | | | | | | Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | | | Pump <input type="checkbox"/> Not Installed Date Installed | | | | | |
| | | | | | | Manufacturer's name STARITE Model number HP 0.5 Volts 230 | | | | | |
| | | | | | | Length of drop Pipe ft. Capacity 10 g.p.m Type Submersible Material | | | | | |
| | | | | | | Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | | | |
| | | | | | | Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| First Bedrock | | | | | | Well Contractor Certification | | | | | |
| Last Strat | | | | | | Sizer Water Well | | 04620 | | PINK C. | |
| Aquifer | | | | | | License Business Name | | Lic. Or Reg. No. | | Name of Driller | |
| Depth to Bedrock ft. | | | | | | | | | | | |
| County Well Index Online Report | | | | | | 599787 | | Printed 4/3/2009 | | | |
| | | | | | | | | HE-01205-07 | | | |

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|------------------------------------------------------|--|---------|--|----------|--|--------------------------------------------------------------------------|--|---------------------------------------------------------------------|--|-------------------------------------------------------------------------------------|--|
| Minnesota Unique Well No. | | County | | Beltrami | | MINNESOTA DEPARTMENT OF HEALTH | | Entry Date | | 07/01/1998 | |
| 609276 | | Quad | | | | WELL AND BORING | | Update Date | | 07/24/2000 | |
| | | Quad ID | | | | RECORD | | Received Date | | | |
| | | | | | | Minnesota Statutes Chapter 103I | | | | | |
| Well Name DAHL, JOHN | | | | | | Well Depth | | Depth Completed | | Date Well Completed | |
| Township Range Dir Section Subsections Elevation ft. | | | | | | 60 ft. | | 60 ft. | | 04/14/1998 | |
| 147 33 W 31 DCB Elevation Method | | | | | | | | | | | |
| | | | | | | Drilling Method Non-specified Rotary | | | | | |
| Well Address | | | | | | Drilling Fluid | | Well Hydrofractured? | | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| BARDWELL PARK | | | | | | Bentonite | | From Ft. to Ft. | | | |
| BEMIDJI MN 56601 | | | | | | Use Domestic | | | | | |
| Geological Material | | | | | | Casing Type | | Plastic Joint No Information Drive Shoe? | | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Above/Below ft. | |
| Color | | | | | | Hardness | | From To | | | |
| SAND | | | | | | 0 | | 25 | | | |
| CLAY | | | | | | 25 | | 35 | | | |
| SAND | | | | | | 35 | | 50 | | | |
| SAND | | | | | | 50 | | 60 | | | |
| | | | | | | Casing Diameter | | Weight | | Hole Diameter | |
| | | | | | | 4 in. to 55 ft. | | lbs./ft. | | 8.8 in. to 60 ft. | |
| | | | | | | Open Hole | | from ft. to ft. | | | |
| | | | | | | Screen YES | | Make CERTAINTTEED | | Type plastic | |
| | | | | | | Diameter | | Slot/Gauze | | Length Set Between | |
| | | | | | | 4 | | 23 | | 5 55 ft. and 60 ft. | |
| | | | | | | Static Water Level | | | | | |
| | | | | | | 12 ft. from Land surface | | Date Measured | | 04/14/1998 | |
| | | | | | | PUMPING LEVEL (below land surface) | | | | | |
| | | | | | | 40 ft. after 60 hrs. pumping | | 30 g.p.m. | | | |
| | | | | | | Well Head Completion | | | | | |
| | | | | | | Pitless adapter manufacturer | | Model | | | |
| | | | | | | <input type="checkbox"/> Casing Protection | | <input checked="" type="checkbox"/> 12 in. above grade | | | |
| | | | | | | <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | | | |
| NO REMARKS | | | | | | Grouting Information | | Well Grouted? | | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| | | | | | | Grout Material: Bentonite | | from 0 to 30 ft. | | | |
| | | | | | | Nearest Known Source of Contamination | | | | | |
| | | | | | | 50 feet direction | | Septic tank/drain field type | | | |
| | | | | | | Well disinfected upon completion? | | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| | | | | | | Pump | | <input type="checkbox"/> Not Installed | | Date Installed | |
| | | | | | | Manufacturer's name | | Model number | | HP Volts | |
| | | | | | | Length of drop Pipe ft. | | Capacity g.p.m | | Type Material | |
| | | | | | | Abandoned Wells | | Does property have any not in use and not sealed well(s)? | | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| | | | | | | Variance | | Was a variance granted from the MDH for this well? | | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| First Bedrock | | | | | | Well Contractor Certification | | | | | |
| Last Strat | | | | | | North Star Drilling | | 49588 | | FELL B. | |
| Aquifer | | | | | | License Business Name | | Lic. Or Reg. No. | | Name of Driller | |
| Depth to Bedrock ft. | | | | | | | | | | | |
| County Well Index Online Report | | | | | | 609276 | | Printed 4/3/2009 | | HE-01205-07 | |

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|------------------------------------------------------|--|---------|--|----------|--|--------------------------------------------------------------------------|--|---------------------------------------------------------------------|--|-------------------------------------------------------------------------------------|--|
| Minnesota Unique Well No. | | County | | Beltrami | | MINNESOTA DEPARTMENT OF HEALTH | | Entry Date | | 08/02/2006 | |
| 721170 | | Quad | | | | WELL AND BORING | | Update Date | | 01/12/2006 | |
| | | Quad ID | | | | RECORD | | Received Date | | 01/12/2006 | |
| | | | | | | Minnesota Statutes Chapter 103I | | | | | |
| Well Name COOP. DEVELOPMENT | | | | | | Well Depth | | Depth Completed | | Date Well Completed | |
| Township Range Dir Section Subsections Elevation ft. | | | | | | 72 ft. | | 72 ft. | | 04/18/2005 | |
| 147 33 W 31 ACB Elevation Method | | | | | | | | | | | |
| | | | | | | Drilling Method Non-specified Rotary | | | | | |
| Well Address | | | | | | Drilling Fluid | | Well Hydrofractured? | | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| 2419 BORING CT NW | | | | | | Bentonite | | From Ft. to Ft. | | | |
| BEMIDJI MN 56601 | | | | | | | | | | | |
| | | | | | | Use Domestic | | | | | |
| Geological Material | | | | | | Casing Type | | Plastic Joint No Information Drive Shoe? | | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Above/Below ft. | |
| SAND | | | | | | Casing Diameter | | Weight | | Hole Diameter | |
| CLAY | | | | | | 4 in. to 60 ft. | | lbs./ft. | | 8.5 in. to 30 ft. | |
| SAND | | | | | | | | | | 6.25 in. to 72 ft. | |
| Color | | | | | | Open Hole | | from ft. to ft. | | | |
| BROWN | | | | | | Screen YES | | Make JOHNSON | | Type stainless steel | |
| BLUE | | | | | | Diameter | | Slot/Gauze | | Length | |
| BROWN | | | | | | 4 | | 10 | | 12 | |
| Hardness | | | | | | Set Between | | 60 ft. and 72 ft. | | | |
| MEDIUM | | | | | | | | | | | |
| MEDIUM | | | | | | | | | | | |
| HARD | | | | | | | | | | | |
| From | | | | | | Static Water Level | | | | | |
| 0 | | | | | | 15 ft. from Land surface | | Date Measured | | 04/18/2005 | |
| 28 | | | | | | PUMPING LEVEL (below land surface) | | | | | |
| 56 | | | | | | 20 ft. after 2 hrs. pumping | | 100 g.p.m. | | | |
| 72 | | | | | | | | | | | |
| | | | | | | Well Head Completion | | | | | |
| | | | | | | Pitless adapter manufacturer | | Model | | | |
| | | | | | | <input type="checkbox"/> Casing Protection N | | <input checked="" type="checkbox"/> 12 in. above grade | | | |
| | | | | | | <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | | | |
| NO REMARKS | | | | | | Grouting Information | | Well Grouted? | | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| | | | | | | Grout Material: Bentonite | | from | | to 30 ft. 3 bags | |
| | | | | | | | | | | | |
| | | | | | | Nearest Known Source of Contamination | | | | | |
| | | | | | | __feet __direction __type | | | | | |
| | | | | | | Well disinfected upon completion? | | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| | | | | | | Pump | | <input type="checkbox"/> Not Installed | | Date Installed 04/21/2005 | |
| | | | | | | Manufacturer's name GOULD | | Model number 556530 | | HP 3 Volts 230 | |
| | | | | | | Length of drop Pipe 40 ft. | | Capacity 70 g.p.m | | Type Submersible Material | |
| | | | | | | Abandoned Wells | | Does property have any not in use and not sealed well(s)? | | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| | | | | | | Variance | | Was a variance granted from the MDH for this well? | | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| First Bedrock | | | | | | Well Contractor Certification | | | | | |
| Aquifer | | | | | | Nelson Well Drilling | | 04121 | | REED, J. | |
| Last Strat | | | | | | License Business Name | | Lic. Or Reg. No. | | Name of Driller | |
| Depth to Bedrock ft. | | | | | | | | | | | |
| County Well Index Online Report | | | | | | 721170 | | Printed 4/3/2009 | | HE-01205-07 | |

APPENDIX C

ABLE Fire Training Center, Burnsville Groundwater Receptor Survey Documents



**FIGURE
RECEPTOR SURVEY
ABLE FIRE TRAINING CENTER
BURNSVILLE, MINNESOTA**

PROJECT NO.
45618DEL01

PREPARED BY
NR

DRAWN BY
DD

DATE
11/9/10

REVIEWED BY

FILE NAME
Burnsville-1



Receptor Survey Questionnaire

In Person Interview
8-17-10

PROPERTY ADDRESS: 12205 River Ridge Blvd - Northern Trail

1. Is there, or has there ever been, a water well on the property?

Yes ☐ **No** ☒ Unknown ☐

If you answered **No or Unknown**, proceed to Question 2.

No answer of any

1a. If you answered **Yes**, is the well *active* (in use), *abandoned* (not in use), or *sealed* (decommissioned following Minnesota Department of Health [MDH] Well Code guidelines).

☐ ACTIVE ☐ ABANDONED ☐ SEALED

1b. How deep is (was) the well? _____ FEET (if depth is unknown check here _____)

1c. In what year was the well installed (if known)? _____

1d. If the well was abandoned, what year was the well sealed? _____

3e. If the well is active, for what purpose is it used? Example: (drinking water, lawn sprinkler, cooling, etc.) _____

1f. Where on the property is (was) the well located? _____

1g. If there is currently a water supply well on the property, would you grant access to the property in order to obtain a water sample from either an indoor or outside faucet (at no cost to property owner)?

Yes **No**

Name _____

Telephone Number _____ DAY or EVENING (please circle one and state best time to reach you)

2. Is a public water supply currently utilized by the property?

☒ **Yes** ☐ **No**

3. May we contact you for further information if necessary? If so, please provide your name and telephone number.

Name *Store Manager*

Telephone Number _____ DAY or EVENING (please circle one and state best time to reach you)

Please complete this form and mail it back to Delta in the enclosed self-addressed stamped envelope. Delta thanks you in advance for taking the time to complete this form.

If you have any questions, or need help completing this form, please feel free to contact Nancy Rodning, Delta Consultants, at (651)697-5152 or 1-800-477-7411, or Nile Fellows, MPCA, at 651-757-2352.

Receptor Survey Questionnaire

PROPERTY ADDRESS: John Adamich => Dodge St Bensenville
12101 Hwy 35W

1. Is there, or has there ever been, a water well on the property? Yes ☒ No ☐ Unknown

If you answered **No or Unknown**, proceed to Question 2.

1a. If you answered **Yes**, is the well *active* (in use), *abandoned* (not in use), or *sealed* (decommissioned following Minnesota Department of Health [MDH] Well Code guidelines).

☐ ACTIVE ☐ ABANDONED ☐ SEALED

1b. How deep is (was) the well? FEET (if depth is unknown check here ☐)

1c. In what year was the well installed (if known)?

1d. If the well was abandoned, what year was the well sealed?

3e. If the well is active, for what purpose is it used? Example: (drinking water, lawn sprinkler, cooling, etc.)

1f. Where on the property is (was) the well located?

1g. If there is currently a water supply well on the property, would you grant access to the property in order to obtain a water sample from either an indoor or outside faucet (at no cost to property owner)?

Yes ☐ No ☐

Name

Telephone Number DAY or EVENING (please circle one and state best time to reach you)

2. Is a public water supply currently utilized by the property?

☒ Yes ☐ No

3. May we contact you for further information if necessary? If so, please provide your name and telephone number.

Name John Adamich => Dodge St Bensenville

Telephone Number 612/237-8001 (cell) DAY or EVENING (please circle one and state best time to reach you)

Please complete this form and mail it back to Delta in the enclosed self-addressed stamped envelope. Delta thanks you in advance for taking the time to complete this form.

If you have any questions, or need help completing this form, please feel free to contact Nancy Rodning, Delta Consultants, at (651)697-5152 or 1-800-477-7411, or Nile Fellows, MPCA, at 651-757-2352.

Receptor Survey Questionnaire

PROPERTY ADDRESS: 12101 Hwy 35 W SOUTH BURNSVILLE

1. Is there, or has there ever been, a water well on the property? Yes ☒ No ☐ Unknown

If you answered **No or Unknown**, proceed to Question 2.

1a. If you answered **Yes**, is the well *active* (in use), *abandoned* (not in use), or *sealed* (decommissioned following Minnesota Department of Health [MDH] Well Code guidelines).

☐ ACTIVE ☐ ABANDONED ☐ SEALED

1b. How deep is (was) the well? FEET (if depth is unknown check here ☐)

1c. In what year was the well installed (if known)?

1d. If the well was abandoned, what year was the well sealed?

3e. If the well is active, for what purpose is it used? Example: (drinking water, lawn sprinkler, cooling, etc.)

1f. Where on the property is (was) the well located?

1g. If there is currently a water supply well on the property, would you grant access to the property in order to obtain a water sample from either an indoor or outside faucet (at no cost to property owner)?

Yes No

Name JOHN ADAMICH

Telephone Number ^{CELL} 612-237-8001 ☒ DAY or ☐ EVENING (please circle one and state best time to reach you)

2. Is a public water supply currently utilized by the property? ☒ Yes ☐ No

3. May we contact you for further information if necessary? If so, please provide your name and telephone number.

Name JOHN ADAMICH

Telephone Number ^{CELL} 612-237-8001 ☐ DAY or ☐ EVENING (please circle one and state best time to reach you)

Please complete this form and mail it back to Delta in the enclosed self-addressed stamped envelope. Delta thanks you in advance for taking the time to complete this form.

If you have any questions, or need help completing this form, please feel free to contact Nancy Rodning, Delta Consultants, at (651)697-5152 or 1-800-477-7411, or Nile Fellows, MPCA, at 651-757-2352.

Receptor Survey Questionnaire

*- in person interview
8-17-10*

PROPERTY ADDRESS: 600 121st St. W. - Waseca Suburban

1. Is there, or has there ever been, a water well on the property?

Yes (No) Unknown

Not aware of

If you answered **No or Unknown**, proceed to Question 2.

1a. If you answered **Yes**, is the well *active* (in use), *abandoned* (not in use), or *sealed* (decommissioned following Minnesota Department of Health [MDH] Well Code guidelines).

_____ ACTIVE _____ ABANDONED _____ SEALED

1b. How deep is (was) the well? _____ FEET (if depth is unknown check here _____)

1c. In what year was the well installed (if known)? _____

1d. If the well was abandoned, what year was the well sealed? _____

3e. If the well is active, for what purpose is it used? Example: (drinking water, lawn sprinkler, cooling, etc.) _____

1f. Where on the property is (was) the well located? _____

1g. If there is currently a water supply well on the property, would you grant access to the property in order to obtain a water sample from either an indoor or outside faucet (at no cost to property owner)?

Yes No

Name _____

Telephone Number _____ DAY or EVENING (please circle one and state best time to reach you)

2. Is a public water supply currently utilized by the property?

Yes No

3. May we contact you for further information if necessary? If so, please provide your name and telephone number.

Name _____

Telephone Number _____ DAY or EVENING (please circle one and state best time to reach you)

Please complete this form and mail it back to Delta in the enclosed self-addressed stamped envelope. Delta thanks you in advance for taking the time to complete this form.

If you have any questions, or need help completing this form, please feel free to contact Nancy Rodning, Delta Consultants, at (651)697-5152 or 1-800-477-7411, or Nile Fellows, MPCA, at 651-757-2352.

Receptor Survey Questionnaire

in Person Interview
8-17-10

PROPERTY ADDRESS: 12001 Hwy 35 - All State Self Storage

1. Is there, or has there ever been, a water well on the property?

Yes ☒ No ☐ Unknown ☐

If you answered **No** or **Unknown**, proceed to Question 2.

1a. If you answered **Yes**, is the well *active* (in use), *abandoned* (not in use), or *sealed* (decommissioned following Minnesota Department of Health [MDH] Well Code guidelines).

☐ ACTIVE ☐ ABANDONED ☐ SEALED

1b. How deep is (was) the well? _____ FEET (if depth is unknown check here _____)

1c. In what year was the well installed (if known)? _____

1d. If the well was abandoned, what year was the well sealed? _____

3e. If the well is active, for what purpose is it used? Example: (drinking water, lawn sprinkler, cooling, etc.) _____

1f. Where on the property is (was) the well located? _____

1g. If there is currently a water supply well on the property, would you grant access to the property in order to obtain a water sample from either an indoor or outside faucet (at no cost to property owner)?

Yes ☐ No ☐

Name _____

Telephone Number _____ DAY or EVENING (please circle one and state best time to reach you)

2. Is a public water supply currently utilized by the property?

☒ Yes ☐ No

3. May we contact you for further information if necessary? If so, please provide your name and telephone number.

Name owner/manager

Telephone Number _____ DAY or EVENING (please circle one and state best time to reach you)

Please complete this form and mail it back to Delta in the enclosed self-addressed stamped envelope. Delta thanks you in advance for taking the time to complete this form.

If you have any questions, or need help completing this form, please feel free to contact Nancy Rodning, Delta Consultants, at (651)697-5152 or 1-800-477-7411, or Nile Fellows, MPCA, at 651-757-2352.

Receptor Survey Questionnaire

PROPERTY ADDRESS:

11737 HWY 35W CHASE GOLF

1. Is there, or has there ever been, a water well on the property?

Yes

No

Unknown

If you answered **No** or **Unknown**, proceed to Question 2.

1a. If you answered **Yes**, is the well *active* (in use), *abandoned* (not in use), or *sealed* (decommissioned following Minnesota Department of Health [MDH] Well Code guidelines).

ACTIVE

ABANDONED

SEALED

1b. How deep is (was) the well? FEET (if depth is unknown check here)

1c. In what year was the well installed (if known)?

1d. If the well was abandoned, what year was the well sealed?

3e. If the well is active, for what purpose is it used? Example: (drinking water, lawn sprinkler, cooling, etc.)

1f. Where on the property is (was) the well located?

1g. If there is currently a water supply well on the property, would you grant access to the property in order to obtain a water sample from either an indoor or outside faucet (at no cost to property owner)?

Yes

No

Name

MICHAEL MCGOWAN

Telephone Number

(952) 890-1081

DAY or EVENING (please circle one and state best time to reach you)

2. Is a public water supply currently utilized by the property?

Yes

No

3. May we contact you for further information if necessary? If so, please provide your name and telephone number.

Name

ABOVE

Telephone Number

DAY or EVENING (please circle one and state best time to reach you)

Please complete this form and mail it back to Delta in the enclosed self-addressed stamped envelope. Delta thanks you in advance for taking the time to complete this form.

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11-3-10 no water supply wells, just monitoring wells.

PLEASE
CONTACT
FRED CAMPBELL
MPCA

In Person Interview - 8-17-10

Receptor Survey Questionnaire

PROPERTY ADDRESS: Bury & Carlson - 201 121st St. NW

1. Is there, or has there ever been, a water well on the property?

Yes ☒ No ☐ Unknown ☐

If you answered **No** or **Unknown**, proceed to Question 2.

1a. If you answered **Yes**, is the well *active* (in use), *abandoned* (not in use), or *sealed* (decommissioned following Minnesota Department of Health [MDH] Well Code guidelines).

_____ **ACTIVE** _____ **ABANDONED** _____ **SEALED**

1b. How deep is (was) the well? _____ **FEET** (if depth is unknown check here _____)

1c. In what year was the well installed (if known)? _____

1d. If the well was abandoned, what year was the well sealed? _____

3e. If the well is active, for what purpose is it used? Example: (drinking water, lawn sprinkler, cooling, etc.) _____

1f. Where on the property is (was) the well located? _____

1g. If there is currently a water supply well on the property, would you grant access to the property in order to obtain a water sample from either an indoor or outside faucet (at no cost to property owner)?

Yes **No**

Name _____

Telephone Number _____ **DAY** or **EVENING** (please circle one and state best time to reach you)

2. Is a public water supply currently utilized by the property?

☒ **Yes** ☐ **No**

3. May we contact you for further information if necessary? If so, please provide your name and telephone number.

Name _____

Telephone Number _____ **DAY** or **EVENING** (please circle one and state best time to reach you)

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If you have any questions, or need help completing this form, please feel free to contact Nancy Rodning, Delta Consultants, at (651)697-5152 or 1-800-477-7411, or Nile Fellows, MPCA, at 651-757-2352.

Receptor Survey Questionnaire

PROPERTY ADDRESS: Rivers Edge Business Center, 25 W. Cliff Road, Burnsville

1. Is there, or has there ever been, a water well on the property?

Yes ☒ No ☐ Unknown ☐

If you answered **No** or **Unknown**, proceed to Question 2.

1a. If you answered **Yes**, is the well *active* (in use), *abandoned* (not in use), or *sealed* (decommissioned following Minnesota Department of Health [MDH] Well Code guidelines).

ACTIVE ABANDONED SEALED

1b. How deep is (was) the well? _____ FEET (if depth is unknown check here _____)

1c. In what year was the well installed (if known)? _____

1d. If the well was abandoned, what year was the well sealed? _____

3e. If the well is active, for what purpose is it used? Example: (drinking water, lawn sprinkler, cooling, etc.) _____

1f. Where on the property is (was) the well located? _____

1g. If there is currently a water supply well on the property, would you grant access to the property in order to obtain a water sample from either an indoor or outside faucet (at no cost to property owner)?

Yes No

Name _____

Telephone Number _____ DAY or EVENING (please circle one
and state best time to reach you)

2. Is a public water supply currently utilized by the property?

Yes **No**

3. May we contact you for further information if necessary? If so, please provide your name and telephone number.

Name MICHAEL VALENTINE, MANAGING PARTNER

Telephone Number 612-850-4374 DAY of EVENING (please circle one and state best time to reach you)

Please complete this form and mail it back to Delta in the enclosed self-addressed stamped envelope. Delta thanks you in advance for taking the time to complete this form.

If you have any questions, or need help completing this form, please feel free to contact Nancy Rodning, Delta Consultants, at (651)697-5152 or 1-800-477-7411, or Nile Fellows, MPCA, at 651-757-2352.

Receptor Survey Questionnaire

PROPERTY ADDRESS: 12259 (12250-12268) Nicollet Avenue, Burnsville

1. Is there, or has there ever been, a water well on the property?

Yes No ☒ Unknown

If you answered **No** or **Unknown**, proceed to Question 2.

1a. If you answered **Yes**, is the well *active* (in use), *abandoned* (not in use), or *sealed* (decommissioned following Minnesota Department of Health [MDH] Well Code guidelines).

ACTIVE _____ ABANDONED _____ SEALED _____

1b. How deep is (was) the well? _____ FEET (if depth is unknown check here _____)

1c. In what year was the well installed (if known)? _____

1d. If the well was abandoned, what year was the well sealed? _____

3e. If the well is active, for what purpose is it used? Example: (drinking water, lawn sprinkler, cooling, etc.) _____

1f. Where on the property is (was) the well located? _____

1g. If there is currently a water supply well on the property, would you grant access to the property in order to obtain a water sample from either an indoor or outside faucet (at no cost to property owner)?

Yes No

Name _____

Telephone Number _____ DAY or EVENING (please circle one
and state best time to reach you)

2. Is a public water supply currently utilized by the property?

Yes **No**

3. May we contact you for further information if necessary? If so, please provide your name and telephone number. _____

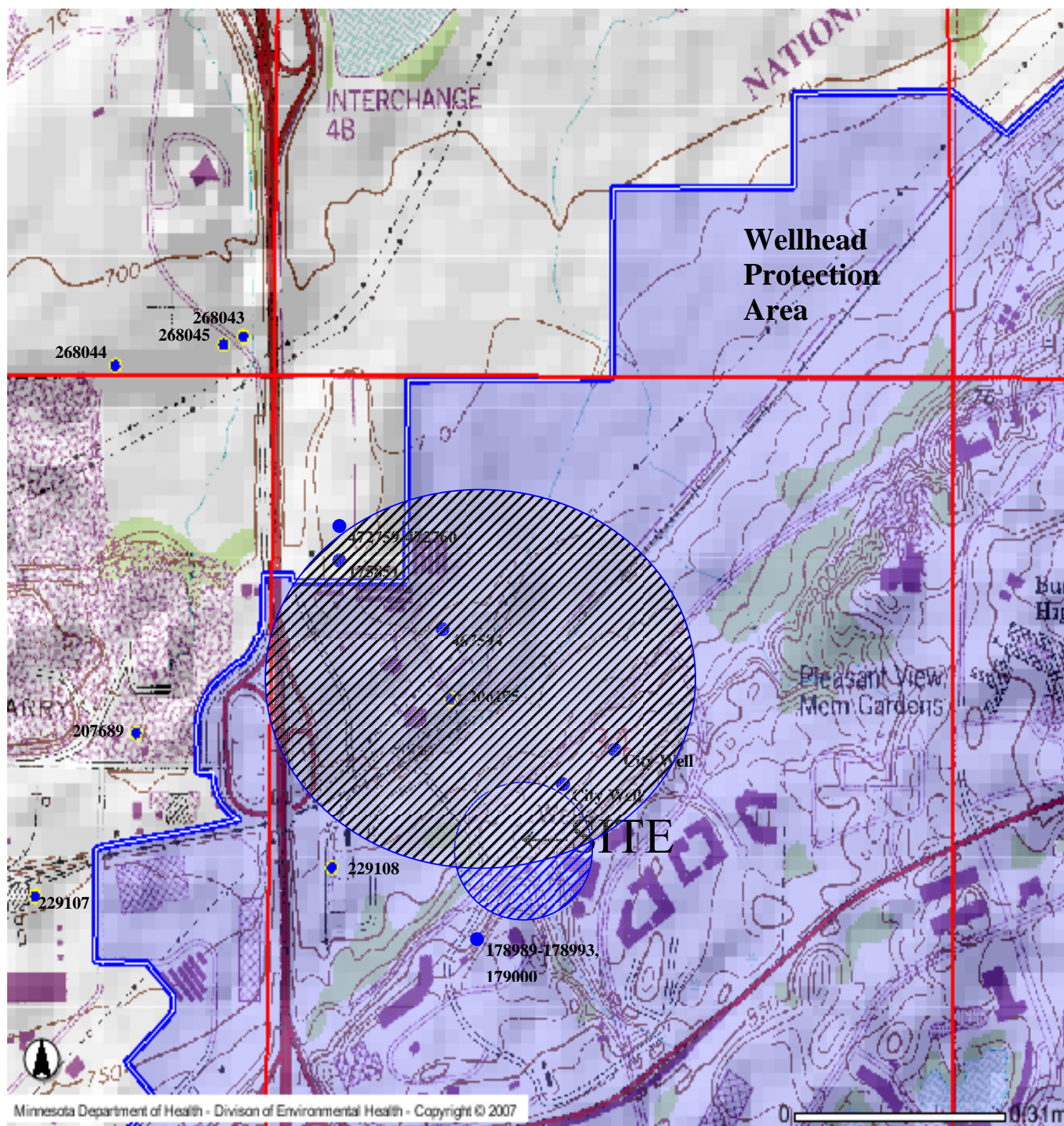
Name Vicki Kaur - Wellington Mgmt

Telephone Number 651-999-5537 DAY or EVENING (please circle one and state best time to reach you)

Please complete this form and mail it back to Delta in the enclosed self-addressed stamped envelope. Delta thanks you in advance for taking the time to complete this form.

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BURNSVILLE CWI Well Map



Approximate Area of Receptor Survey

| | | | | | | | | | |
|-----------------------------------------------------------------------------------------------------------------------------------|--|------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------|--|--------------------|--|
| Minnesota Unique Well No. | | County Dakota | | MINNESOTA DEPARTMENT OF HEALTH | | Entry Date 06/22/2001 | | | |
| 175851 | | Quad Quad ID | | WELL AND BORING RECORD | | Update Date Received Date | | | |
| | | | | Minnesota Statutes Chapter 103I | | | | | |
| Well Name BURNSVILLE TW | | | | Well Depth | | Depth Completed | | | |
| Township Range Dir Section Subsections Elevation ft. | | | | 100 ft. | | 100 ft. | | | |
| 27 24 W 34 BCD Elevation Method | | | | | | Date Well Completed | | | |
| | | | | Drilling Method Non-specified Rotary | | | | | |
| Geological Material DRIFT SHAKOPEE Color YELLOW Hardness HARD From 0 17 To 17 100 | | | | Drilling Fluid | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| | | | | -- | | From Ft. to Ft. | | | |
| | | | | Use Test well | | | | | |
| | | | | Casing Type Steel (black or low carbon) Joint No Information Drive Shoe? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | Above/Below 2 ft. | | | |
| | | | | Casing Diameter | | Weight | | Hole Diameter | |
| | | | | 6 in. to 60 ft. | | 20 lbs./ft. | | | |
| | | | | Open Hole from 60 ft. to 160 ft. | | | | | |
| | | | | Screen NO Make Type | | | | | |
| | | | | Diameter | | Slot/Gauze | | Length Set Between | |
| | | | | | | | | | |
| | | | | Static Water Level | | | | | |
| | | | | 5 ft. from Land surface Date Measured 04/16/1980 | | | | | |
| | | | | PUMPING LEVEL (below land surface) | | | | | |
| | | | | ft. after hrs. pumping g.p.m. | | | | | |
| | | | | Well Head Completion | | | | | |
| | | | | Pitless adapter manufacturer Model | | | | | |
| | | | | <input type="checkbox"/> Casing Protection <input checked="" type="checkbox"/> 12 in. above grade | | | | | |
| | | | | <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | | | |
| NO REMARKS | | | | Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | Grout Material: Neat Cement | | from 0 to 60 ft. 2.5 yds. | | | |
| | | | | Nearest Known Source of Contamination | | | | | |
| | | | | __feet __direction __type | | | | | |
| | | | | Well disinfected upon completion? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | Pump <input type="checkbox"/> Not Installed Date Installed 05/16/1980 | | | | | |
| | | | | Manufacturer's name DEMPSTER Model number 15C2-59-S1 HP 0.5 Volts 115 | | | | | |
| | | | | Length of drop Pipe 54 ft. Capacity 20 g.p.m Type Submersible Material Galvanized | | | | | |
| First Bedrock Last Strat | | | | Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | Well Contractor Certification | | | | | |
| | | | | Stevens Well Co. | | 27194 KADERLIK, C. | | | |
| | | | | License Business Name | | Lic. Or Reg. No. Name of Driller | | | |
| County Well Index Online Report | | | | 175851 | | Printed 4/2/2009 | | | |
| | | | | | | HE-01205-07 | | | |

| | | | | | | | | | | | | |
|------------------------------------------------------|--|---------|--|--------|--|------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------|---------------|----------------------------------------------------------------------------------------------|------------|--|
| Minnesota Unique Well No. | | County | | Dakota | | MINNESOTA DEPARTMENT OF HEALTH | | | Entry Date | | 06/22/2001 | |
| 178989 | | Quad | | | | WELL AND BORING | | | Update Date | | | |
| | | Quad ID | | | | RECORD | | | Received Date | | | |
| | | | | | | Minnesota Statutes Chapter 103I | | | | | | |
| Well Name BURNSVILLE MW | | | | | | Well Depth | | Depth Completed | | Date Well Completed | | |
| Township Range Dir Section Subsections Elevation ft. | | | | | | 110 ft. | | 110 ft. | | 06/00/1981 | | |
| Elevation Method | | | | | | Drilling Method Non-specified Rotary | | | | | | |
| Well Address | | | | | | Drilling Fluid | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | |
| 12111 RIVER RIDGE | | | | | | -- | | From Ft. to Ft. | | | | |
| BURNSVILLE MN | | | | | | Use Monitor well | | | | | | |
| Geological Material | | | | | | Casing Type | | Steel (black or low carbon) | | Joint Welded Drive Shoe? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | |
| DRIFT | | | | | | No Above/Below | | ft. | | | | |
| LIMEROCK | | | | | | Casing Diameter | | Weight | | Hole Diameter | | |
| SANDSTONE | | | | | | 12 in. to 11 ft. | | 49 lbs./ft. | | 18.5 in. to 11 ft. | | |
| LIMEROCK | | | | | | 6 in. to 70 ft. | | 19 lbs./ft. | | 12 in. to 70 ft. | | |
| | | | | | | Open Hole from 70 ft. to 110 ft. | | | | | | |
| | | | | | | Screen NO Make Type | | | | | | |
| | | | | | | Diameter | | Slot/Gauze | | Length Set Between | | |
| | | | | | | Static Water Level | | | | | | |
| | | | | | | ft. from Date Measured | | | | | | |
| | | | | | | PUMPING LEVEL (below land surface) | | | | | | |
| | | | | | | ft. after hrs. pumping 200 g.p.m. | | | | | | |
| | | | | | | Well Head Completion | | | | | | |
| | | | | | | Pitless adapter manufacturer Model | | | | | | |
| | | | | | | <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade | | | | | | |
| | | | | | | <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | | | | |
| NO REMARKS | | | | | | Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | |
| | | | | | | Grout Material: Neat Cement from 0 to 70 ft. | | | | | | |
| | | | | | | Nearest Known Source of Contamination | | | | | | |
| | | | | | | __feet __direction __type | | | | | | |
| | | | | | | Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | |
| | | | | | | Pump <input type="checkbox"/> Not Installed Date Installed | | | | | | |
| | | | | | | Manufacturer's name Model number __ HP _ Volts | | | | | | |
| | | | | | | Length of drop Pipe _ft. Capacity _g.p.m Type Material | | | | | | |
| | | | | | | Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | |
| | | | | | | Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | |
| First Bedrock | | | | | | Well Contractor Certification | | | | | | |
| Last Strat | | | | | | Stevens Well Co. | | 27194 | | KADERLIK, C. | | |
| Aquifer | | | | | | License Business Name | | Lic. Or Reg. No. | | Name of Driller | | |
| Depth to Bedrock ft. | | | | | | | | | | | | |
| County Well Index Online Report | | | | | | 178989 | | Printed 4/2/2009 | | | | |
| | | | | | | | | HE-01205-07 | | | | |

| | | | | | | | | | | | | |
|------------------------------------------------------|--|---------|--|--------|--|------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------|---------------|------------------------------------------------------------------------------------------------------|------------|--|
| Minnesota Unique Well No. | | County | | Dakota | | MINNESOTA DEPARTMENT OF HEALTH | | | Entry Date | | 06/22/2001 | |
| 178990 | | Quad | | | | WELL AND BORING | | | Update Date | | 06/22/2001 | |
| | | Quad ID | | | | RECORD | | | Received Date | | | |
| | | | | | | Minnesota Statutes Chapter 103I | | | | | | |
| Well Name BURNSVILLE MW | | | | | | Well Depth | | Depth Completed | | Date Well Completed | | |
| Township Range Dir Section Subsections Elevation ft. | | | | | | 110 ft. | | 110 ft. | | 06/00/1981 | | |
| 27 24 W 34 Elevation Method | | | | | | Drilling Method Non-specified Rotary | | | | | | |
| Well Address | | | | | | Drilling Fluid | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | |
| 12111 RIVERRIDGE BL | | | | | | -- | | From Ft. to Ft. | | | | |
| BURNSVILLE MN | | | | | | Use Test well | | | | | | |
| Geological Material | | | | | | Casing Type | | Steel (black or low carbon) | | Joint No Information Drive Shoe? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | |
| DRIFT | | | | | | No | | Above/Below 110 ft. | | | | |
| LIMEROCK | | | | | | Casing Diameter | | Weight | | Hole Diameter | | |
| SANDSTONE | | | | | | 12 in. to 11 ft. | | 49 lbs./ft. | | 18.5 in. to 11 ft. | | |
| LIMEROCK | | | | | | 6 in. to 70 ft. | | 19 lbs./ft. | | 12 in. to 70 ft. | | |
| SANDSTONE | | | | | | Open Hole from 70 ft. to 110 ft. | | | | | | |
| LIMEROCK | | | | | | Screen NO Make Type | | | | | | |
| | | | | | | Diameter | | Slot/Gauze | | Length Set Between | | |
| | | | | | | Static Water Level | | | | | | |
| | | | | | | ft. from Date Measured | | | | | | |
| | | | | | | PUMPING LEVEL (below land surface) | | | | | | |
| | | | | | | ft. after hrs. pumping 200 g.p.m. | | | | | | |
| | | | | | | Well Head Completion | | | | | | |
| | | | | | | Pitless adapter manufacturer Model | | | | | | |
| | | | | | | <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade | | | | | | |
| | | | | | | <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | | | | |
| REMARKS | | | | | | Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | |
| MONITORING WELL SHAKOPEE. | | | | | | Grout Material: Neat Cement from 0 to 70 ft. | | | | | | |
| | | | | | | Nearest Known Source of Contamination | | | | | | |
| | | | | | | __feet __direction __type | | | | | | |
| | | | | | | Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | |
| | | | | | | Pump <input type="checkbox"/> Not Installed Date Installed | | | | | | |
| | | | | | | Manufacturer's name Model number __ HP _ Volts | | | | | | |
| | | | | | | Length of drop Pipe _ft. Capacity _g.p.m. Type Material | | | | | | |
| | | | | | | Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | |
| | | | | | | Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | |
| First Bedrock | | | | | | Well Contractor Certification | | | | | | |
| Last Strat | | | | | | Stevens Well Co. | | 27194 | | KADERLIK, C. | | |
| Aquifer | | | | | | License Business Name | | Lic. Or Reg. No. | | Name of Driller | | |
| Depth to Bedrock ft. | | | | | | | | | | | | |
| County Well Index Online Report | | | | | | 178990 | | Printed 4/2/2009 | | | | |
| | | | | | | | | HE-01205-07 | | | | |

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|-------------------------------------------------------|--|---------|--|--------|--|------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------|---------------|----------------------------------------------------------------------------------------------|------------|--|
| Minnesota Unique Well No. | | County | | Dakota | | MINNESOTA DEPARTMENT OF HEALTH | | | Entry Date | | 06/22/2001 | |
| 178991 | | Quad | | | | WELL AND BORING | | | Update Date | | | |
| | | Quad ID | | | | RECORD | | | Received Date | | | |
| | | | | | | Minnesota Statutes Chapter 103I | | | | | | |
| Well Name BURNSVILLE MW | | | | | | Well Depth | | Depth Completed | | Date Well Completed | | |
| Township Range Dir Section Subsections Elevation ft. | | | | | | 110 ft. | | 110 ft. | | 06/00/1981 | | |
| 27 24 W 34 Elevation Method | | | | | | Drilling Method Non-specified Rotary | | | | | | |
| Well Address | | | | | | Drilling Fluid | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | |
| 12111 RIVER RIDGE BL | | | | | | -- | | From Ft. to Ft. | | | | |
| | | | | | | Use Monitor well | | | | | | |
| Geological Material | | | | | | Casing Type | | Steel (black or low carbon) | | Joint Welded Drive Shoe? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | |
| DRIFT | | | | | | No Above/Below | | ft. | | | | |
| LIMEROCK | | | | | | Casing Diameter | | Weight | | Hole Diameter | | |
| SANDSTONE | | | | | | 12 in. to 12 ft. | | 49 lbs./ft. | | 18.5 in. to 12 ft. | | |
| LIMEROCK | | | | | | 6 in. to 70 ft. | | 19 lbs./ft. | | 12 in. to 70 ft. | | |
| | | | | | | Open Hole from 70 ft. to 110 ft. | | | | | | |
| | | | | | | Screen NO Make Type | | | | | | |
| | | | | | | Diameter | | Slot/Gauze | | Length Set Between | | |
| | | | | | | Static Water Level | | | | | | |
| | | | | | | ft. from Date Measured | | | | | | |
| | | | | | | PUMPING LEVEL (below land surface) | | | | | | |
| | | | | | | ft. after hrs. pumping 200 g.p.m. | | | | | | |
| | | | | | | Well Head Completion | | | | | | |
| | | | | | | Pitless adapter manufacturer Model | | | | | | |
| | | | | | | <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade | | | | | | |
| | | | | | | <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | | | | |
| REMARKS | | | | | | Grouting Information Well Grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | |
| IN THE PUMP SECTION LOCK BOXES & RECORDERS WERE USED. | | | | | | | | | | | | |
| | | | | | | Nearest Known Source of Contamination | | | | | | |
| | | | | | | __feet __direction __type | | | | | | |
| | | | | | | Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | |
| | | | | | | Pump <input type="checkbox"/> Not Installed Date Installed | | | | | | |
| | | | | | | Manufacturer's name Model number __ HP _ Volts | | | | | | |
| | | | | | | Length of drop Pipe _ft. Capacity _g.p.m Type Material | | | | | | |
| | | | | | | Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | |
| | | | | | | Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | |
| First Bedrock | | | | | | Well Contractor Certification | | | | | | |
| Last Strat | | | | | | Stevens Well Co. | | 27194 | | KADERLIK, C. | | |
| Aquifer | | | | | | License Business Name | | Lic. Or Reg. No. | | Name of Driller | | |
| Depth to Bedrock ft. | | | | | | | | | | | | |
| County Well Index Online Report | | | | | | 178991 | | Printed 4/2/2009 | | | | |
| | | | | | | | | HE-01205-07 | | | | |

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|------------------------------------------------------|--|---------|--|--------|--|------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------|--|
| Minnesota Unique Well No. | | County | | Dakota | | MINNESOTA DEPARTMENT OF HEALTH | | Entry Date | | 06/22/2001 | |
| 178992 | | Quad | | | | WELL AND BORING | | Update Date | | 06/22/2001 | |
| | | Quad ID | | | | RECORD | | Received Date | | | |
| | | | | | | Minnesota Statutes Chapter 103I | | | | | |
| Well Name BURNSVILLE MW | | | | | | Well Depth | | Depth Completed | | Date Well Completed | |
| Township Range Dir Section Subsections Elevation ft. | | | | | | 220 ft. | | 220 ft. | | 06/00/1981 | |
| 27 24 W 34 Elevation Method | | | | | | Drilling Method Non-specified Rotary | | | | | |
| Well Address | | | | | | Drilling Fluid | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| 12111 RIVER RIDGE BL | | | | | | -- | | From Ft. to Ft. | | | |
| MN | | | | | | Use Monitor well | | | | | |
| Geological Material | | | | | | Casing Type | | Steel (black or low carbon) | | Joint Welded Drive Shoe? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| CLAY | | | | | | No | | Above/Below | | ft. | |
| COARSE GRAVEL | | | | | | Casing Diameter | | Weight | | Hole Diameter | |
| LIMESTONE | | | | | | 12 in. to 35 ft. | | lbs./ft. | | 18.5 in. to 35 ft. | |
| LIMEROCK CAVERN | | | | | | 6 in. to 185 ft. | | lbs./ft. | | 12 in. to 183 ft. | |
| LIMEROCK | | | | | | Open Hole from ft. to ft. | | | | | |
| LIMEROCK CAVERN | | | | | | Screen NO Make Type | | | | | |
| LIMEROCK | | | | | | Diameter | | Slot/Gauze | | Length Set Between | |
| LIMEROCK | | | | | | | | | | | |
| SANDSTONE | | | | | | Static Water Level | | | | | |
| LIMEROCK | | | | | | ft. from Date Measured | | | | | |
| SANDSTONE W/LIMEROCK LENS | | | | | | PUMPING LEVEL (below land surface) | | | | | |
| LIMEROCK | | | | | | ft. after hrs. pumping g.p.m. | | | | | |
| SANDROCK ONEOTA | | | | | | Well Head Completion | | | | | |
| SANDSTONE/ JORDAN | | | | | | Pitless adapter manufacturer Model | | | | | |
| | | | | | | <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade | | | | | |
| | | | | | | <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | | | |
| REMARKS | | | | | | Grouting Information Well Grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| JORDAN EVERY 8-10 FEET HAD HARD LENSES. | | | | | | | | | | | |
| | | | | | | Nearest Known Source of Contamination | | | | | |
| | | | | | | __feet __direction __type | | | | | |
| | | | | | | Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | | | Pump <input type="checkbox"/> Not Installed Date Installed | | | | | |
| | | | | | | Manufacturer's name Model number __ HP _ Volts | | | | | |
| | | | | | | Length of drop Pipe _ft. Capacity _g.p.m. Type Material | | | | | |
| | | | | | | Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | | | Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| First Bedrock | | | | | | Well Contractor Certification | | | | | |
| Last Strat | | | | | | Stevens Well Co. | | 27194 | | KADERLIK, C. | |
| Aquifer | | | | | | License Business Name | | Lic. Or Reg. No. | | Name of Driller | |
| Depth to Bedrock ft. | | | | | | | | | | | |
| County Well Index Online Report | | | | | | 178992 | | Printed 4/2/2009 | | | |
| | | | | | | | | HE-01205-07 | | | |

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| Minnesota Unique Well No. | | County Dakota | | MINNESOTA DEPARTMENT OF HEALTH | | Entry Date 06/22/2001 | |
| 178993 | | Quad Quad ID | | WELL AND BORING RECORD | | Update Date Received Date | |
| | | | | Minnesota Statutes Chapter 103I | | | |
| Well Name BURNSVILLE MW | | | | Well Depth | | Depth Completed | |
| Township Range Dir Section Subsections Elevation ft. | | | | 220 ft. | | 220 ft. | |
| 27 24 W 34 Elevation Method | | | | | | Date Well Completed | |
| | | | | Drilling Method Non-specified Rotary | | 06/00/1981 | |
| Well Address | | | | Drilling Fluid | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 12111 RIVER RIDGE BL | | | | -- | | From Ft. to Ft. | |
| | | | | Use Monitor well | | | |
| Geological Material | | | | Casing Type Steel (black or low carbon) Joint Welded Drive Shoe? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | |
| Color Hardness From To | | | | No Above/Below ft. | | | |
| DRIFT BLACK SOFT 0 11 | | | | | | | |
| LIMEROCK YELLOW HARD 11 94 | | | | Casing Diameter Weight Hole Diameter | | | |
| SANDSTONE YELLOW SOFT 94 100 | | | | 12 in. to 11 ft. 49 lbs./ft. 18.5 in. to 11 ft. | | | |
| LIMEROCK YELLOW HARD 100 163 | | | | 6 in. to 183 ft. 19 lbs./ft. 12 in. to 183 ft. | | | |
| SANDSTONE WHT/GRY M.HARD 163 220 | | | | Open Hole from 183 ft. to 220 ft. | | | |
| | | | | Screen NO Make Type | | | |
| | | | | Diameter Slot/Gauze Length Set Between | | | |
| | | | | Static Water Level | | | |
| | | | | ft. from Date Measured | | | |
| | | | | PUMPING LEVEL (below land surface) | | | |
| | | | | ft. after hrs. pumping 200 g.p.m. | | | |
| | | | | Well Head Completion | | | |
| | | | | Pitless adapter manufacturer Model | | | |
| | | | | <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade | | | |
| | | | | <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | |
| REMARKS | | | | Grouting Information Well Grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| LOCK BOXES & RECORDERS | | | | | | | |
| | | | | Nearest Known Source of Contamination | | | |
| | | | | __feet __direction __type | | | |
| | | | | Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| | | | | Pump <input type="checkbox"/> Not Installed Date Installed | | | |
| | | | | Manufacturer's name Model number __ HP _ Volts | | | |
| | | | | Length of drop Pipe _ft. Capacity _g.p.m. Type Material | | | |
| | | | | Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| | | | | Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| First Bedrock | | | | Well Contractor Certification | | | |
| Last Strat | | | | Stevens Well Co. | | 27194 KADERLIK, C. | |
| Aquifer | | | | License Business Name | | Lic. Or Reg. No. Name of Driller | |
| Depth to Bedrock ft. | | | | | | | |
| County Well Index Online Report | | | | 178993 | | Printed 4/2/2009 | |
| | | | | | | HE-01205-07 | |

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| Minnesota Unique Well No. | | County | | Dakota | | MINNESOTA DEPARTMENT OF HEALTH | | Entry Date | | 06/22/2001 | |
| 179000 | | Quad | | | | WELL AND BORING | | Update Date | | | |
| | | Quad ID | | | | RECORD | | Received Date | | | |
| | | | | | | Minnesota Statutes Chapter 103I | | | | | |
| Well Name BURNSVILLE MW | | | | | | Well Depth | | Depth Completed | | Date Well Completed | |
| Township Range Dir Section Subsections Elevation ft. | | | | | | 220 ft. | | 220 ft. | | 06/00/1981 | |
| Elevation Method | | | | | | Drilling Method Non-specified Rotary | | | | | |
| Well Address | | | | | | Drilling Fluid | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| 121111 RIVER RIDGE BL | | | | | | -- | | From Ft. to Ft. | | | |
| BURNSVILLE MN | | | | | | Use Monitor well | | | | | |
| Geological Material | | | | | | Casing Type | | Steel (black or low carbon) | | Joint Welded Drive Shoe? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| DRIFT | | | | | | No | | Above/Below 2.5 ft. | | | |
| LIMEROCK | | | | | | Casing Diameter | | Weight | | Hole Diameter | |
| SANDSTONE | | | | | | 12 in. to 11 ft. | | 49 lbs./ft. | | 18.5 in. to 11 ft. | |
| LIMEROCK | | | | | | 6 in. to 183 ft. | | 19 lbs./ft. | | 12 in. to 183 ft. | |
| SANDROCK | | | | | | Open Hole from 183 ft. to 220 ft. | | | | | |
| SANDSTONE | | | | | | Screen NO Make Type | | | | | |
| | | | | | | Diameter | | Slot/Gauze | | Length Set Between | |
| | | | | | | Static Water Level | | | | | |
| | | | | | | ft. from Date Measured | | | | | |
| | | | | | | PUMPING LEVEL (below land surface) | | | | | |
| | | | | | | ft. after hrs. pumping 200 g.p.m. | | | | | |
| | | | | | | Well Head Completion | | | | | |
| | | | | | | Pitless adapter manufacturer Model | | | | | |
| | | | | | | <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade | | | | | |
| | | | | | | <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | | | |
| NO REMARKS | | | | | | Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | | | Grout Material: Neat Cement from 0 to 183 ft. | | | | | |
| | | | | | | Nearest Known Source of Contamination | | | | | |
| | | | | | | __feet __direction __type | | | | | |
| | | | | | | Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | | | Pump <input type="checkbox"/> Not Installed Date Installed | | | | | |
| | | | | | | Manufacturer's name Model number __ HP _ Volts | | | | | |
| | | | | | | Length of drop Pipe _ft. Capacity _g.p.m Type Material | | | | | |
| | | | | | | Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| | | | | | | Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | |
| First Bedrock | | | | | | Well Contractor Certification | | | | | |
| Last Strat | | | | | | Stevens Well Co. | | 27194 | | KADERLIK, C. | |
| Aquifer | | | | | | License Business Name | | Lic. Or Reg. No. | | Name of Driller | |
| Depth to Bedrock ft. | | | | | | | | | | | |
| County Well Index Online Report | | | | | | 179000 | | Printed 4/2/2009 | | | |
| | | | | | | | | HE-01205-07 | | | |

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| Minnesota Unique Well No. | | County Dakota | | MINNESOTA DEPARTMENT OF HEALTH | | Entry Date 10/19/1990 | |
| 206175 | | Quad Bloomington | | WELL AND BORING RECORD | | Update Date 06/22/2001 | |
| Quad ID 104D | | | | Minnesota Statutes Chapter 103I | | Received Date | |
| Well Name BURNSVILLE | | | | Well Depth | | Depth Completed | |
| Township Range Dir Section Subsections Elevation | | | | 220 ft. | | Date Well Completed | |
| 27 24 W 34 BDC Elevation Method | | | | 7.5 minute topographic map (+/- 5 feet) | | 12/20/1963 | |
| | | | | Drilling Method -- | | | |
| | | | | Drilling Fluid | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| | | | | -- | | From Ft. to Ft. | |
| | | | | Use Abandoned Status Inactive | | | |
| | | | | Casing Type Steel (black or low carbon) Joint No Information Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> No Above/Below 0 ft. | | | |
| | | | | Casing Diameter | | Weight | |
| | | | | 6 in. to 180 ft. | | lbs./ft. | |
| | | | | 6 in. to 180 ft. | | lbs./ft. | |
| | | | | Open Hole from ft. to ft. | | | |
| | | | | Screen NO Make Type | | | |
| | | | | Diameter | | Slot/Gauze | |
| | | | | | | Length | |
| | | | | | | Set Between | |
| Well Address | | | | | | | |
| 12111 RIVER RIDGE BL | | | | | | | |
| BURNSVILLE MN | | | | | | | |
| Geological Material | | | | Color | | Hardness | |
| FILL | | | | 0 | | 12 | |
| SHAKOPEE-ONEOTA DOLOMITE | | | | 12 | | 168 | |
| JORDAN SANDSTONE | | | | 168 | | 220 | |
| | | | | Static Water Level | | | |
| | | | | ft. from Date Measured | | | |
| | | | | PUMPING LEVEL (below land surface) | | | |
| | | | | 0 ft. after hrs. pumping 200 g.p.m. | | | |
| | | | | Well Head Completion | | | |
| | | | | Pitless adapter manufacturer Model | | | |
| | | | | <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade | | | |
| | | | | <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | |
| REMARKS | | | | Grouting Information Well Grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| ABANDONED OPEN HOLE ARTESIAN FLOW OPEN HOLE | | | | | | | |
| CASING: 010 TO 0012:006 TO 0180. | | | | | | | |
| Located United States Geological Survey | | | | Method Digitized - scale 1:24,000 or larger (Digitizing Table) | | | |
| Unique Number Verification N/A | | | | Date N/A | | | |
| System UTM - Nad83, Zone15, Meters X: 477578 Y: 4959030 | | | | Nearest Known Source of Contamination | | | |
| | | | | __feet __direction __type | | | |
| | | | | Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| | | | | Pump <input type="checkbox"/> Not Installed Date Installed | | | |
| | | | | Manufacturer's name Model number __ HP 0 Volts | | | |
| | | | | Length of drop Pipe __ft. Capacity __g.p.m Type Material | | | |
| | | | | Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| | | | | Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| | | | | Well Contractor Certification | | | |
| First Bedrock Prairie Du Chien Group | | | | Tri-state Well Co. | | 27118 | |
| Last Strat Jordan | | | | License Business Name | | Lic. Or Reg. No. | |
| | | | | | | Name of Driller | |
| County Well Index Online Report | | | | 206175 | | Printed 6/26/2008 | |
| | | | | | | HE-01205-07 | |

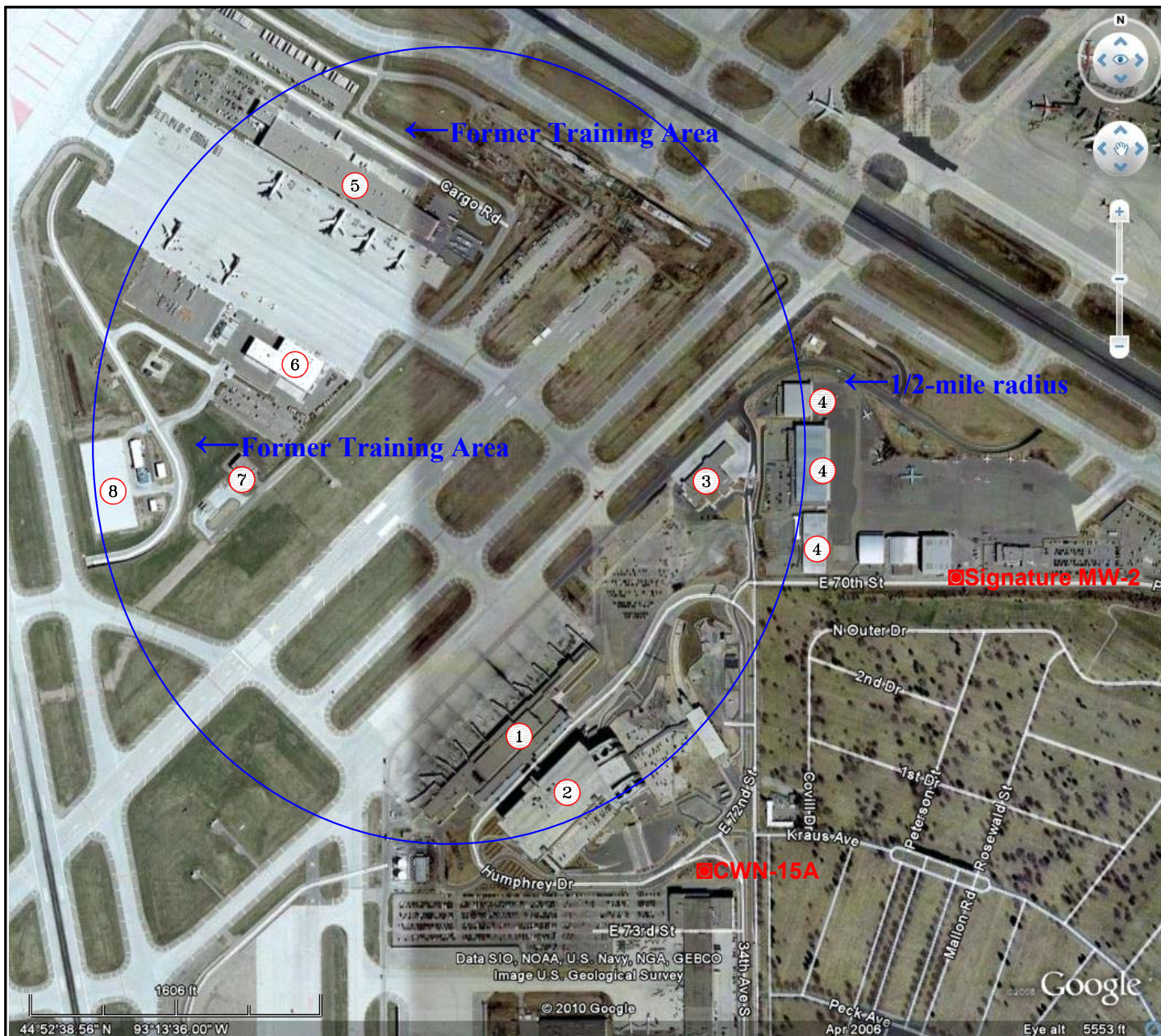
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|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------|--|
| Minnesota Unique Well No. | | County Quad Quad ID | | Dakota Bloomington 104D | | MINNESOTA DEPARTMENT OF HEALTH WELL AND BORING RECORD Minnesota Statutes Chapter 103I | | Entry Date 05/20/1991 Update Date 03/08/2007 Received Date | |
| 229108 | | Well Name NORTHWESTERN STATES CEMENT CO. | | Well Depth 270 ft. | | Depth Completed 270 ft. | | Date Well Completed 10/04/1963 | |
| Township Range Dir Section Subsections Elevation 27 24 W 34 CBCABA Elevation Method | | 743 ft. 7.5 minute topographic map (+/- 5 feet) | | Drilling Method -- | | | | | |
| Well Address BURNSVILLE MN Geological Material GLACIAL DRIFT SHAKOPEE-ONEOTA DOLOMITE JORDAN SANDSTONE | | Drilling Fluid -- | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No From Ft. to Ft. | | | | | |
| | | Use Industrial | | | | | | | |
| | | Casing Type Steel (black or low carbon) Joint No Information Drive Shoe? <input type="checkbox"/> Yes <input type="checkbox"/> No Above/Below 0 ft. | | | | | | | |
| | | Casing Diameter 20 in. to 29 ft. | | Weight lbs./ft. | | Hole Diameter | | | |
| | | 12 in. to 194 ft. | | lbs./ft. | | | | | |
| | | Open Hole from 194 ft. to 270 ft. | | | | | | | |
| | | Screen NO Make Type | | | | | | | |
| | | Diameter Slot/Gauze Length Set Between | | | | | | | |
| | | Static Water Level -1 ft. from Land surface Date Measured 10/04/1963 | | | | | | | |
| | | PUMPING LEVEL (below land surface) 14 ft. after hrs. pumping 360 g.p.m. | | | | | | | |
| Well Head Completion Pitless adapter manufacturer Model <input type="checkbox"/> Casing Protection <input type="checkbox"/> 12 in. above grade <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | | | | | | | |
| REMARKS WELL FLOWS DON'T KNOW HOW HIGH ABOVE GROUND LEVEL. LINER PIPE GROUTED WITH PURE CEMENT. | | Grouting Information Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | Grout Material: Neat Cement | | from to ft. | | | |
| Located Minnesota Geological Survey Method Digitization (Screen) - Map (1:24,000) Unique Number Verification Information from owner Date 08/30/2004 System UTM - Nad83, Zone15, Meters X: 477296 Y: 4958679 | | Nearest Known Source of Contamination _feet _direction _type Well disinfected upon completion? <input type="checkbox"/> Yes <input type="checkbox"/> No | | Pump <input type="checkbox"/> Not Installed Date Installed Manufacturer's name Model number _ HP _ Volts Length of drop Pipe _ft. Capacity _g.p.m. Type Material | | | | | |
| First Bedrock Prairie Du Chien Group Last Strat Jordan | | Aquifer Jordan Depth to Bedrock 27 ft. | | Abandoned Wells Does property have any not in use and not sealed well(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No Variance Was a variance granted from the MDH for this well? <input type="checkbox"/> Yes <input type="checkbox"/> No Well Contractor Certification Tri-state Well Co. 27118 BENEKE, R. License Business Name Lic. Or Reg. No. Name of Driller | | | | | |
| County Well Index Online Report | | 229108 | | Printed 6/26/2008 HE-01205-07 | | | | | |

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| Minnesota Unique Well No. | | County | | Dakota | | MINNESOTA DEPARTMENT OF HEALTH | | Entry Date | | 12/04/1992 | |
| 467594 | | Quad | | Bloomington | | WELL AND BORING | | Update Date | | 10/01/2008 | |
| | | Quad ID | | 104D | | RECORD | | Received Date | | | |
| | | | | | | Minnesota Statutes Chapter 103I | | | | | |
| Well Name MW-1 | | | | | | Well Depth | | Depth Completed | | Date Well Completed | |
| Township Range Dir Section Subsections Elevation ft. | | | | | | 22 ft. | | 22 ft. | | 10/09/1990 | |
| 27 24 W 34 BBA Elevation Method | | | | | | | | | | | |
| | | | | | | Drilling Method Power Auger | | | | | |
| Well Address | | | | | | Drilling Fluid | | Well Hydrofractured? | | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 121ST ST & PLEASANT LM | | | | | | -- | | From Ft. to Ft. | | | |
| BURNSVILLE MN | | | | | | | | | | | |
| | | | | | | Use Monitor well | | | | | |
| Geological Material | | | | | | Casing Type | | Steel (black or low carbon) | | Joint Threaded Drive Shoe? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| SAND FILL | | | | | | No Above/Below 3 ft. | | | | | |
| SWAMP DEPOSIT | | | | | | Casing Diameter | | Weight | | Hole Diameter | |
| SANDY SILTY CLAY | | | | | | 2 in. to 16.5 ft. | | lbs./ft. | | 8.25 in. to 21.5 ft. | |
| COARSE SAND | | | | | | | | | | | |
| Color | | | | | | Open Hole | | from ft. to ft. | | | |
| BROWN | | | | | | | | | | | |
| BLACK | | | | | | | | | | | |
| BROWN | | | | | | | | | | | |
| BROWN | | | | | | | | | | | |
| MEDIUM | | | | | | | | | | | |
| From | | | | | | Diameter | | Slot/Gauze | | Length | |
| 0 | | | | | | 2 | | 10 | | 5 | |
| 3 | | | | | | | | | | Set Between | |
| 13 | | | | | | | | | | 16.3 ft. and 21.3 ft. | |
| 18 | | | | | | | | | | | |
| 22 | | | | | | | | | | | |
| | | | | | | Static Water Level | | | | | |
| | | | | | | 19 ft. from Land surface | | Date Measured | | 10/09/1990 | |
| | | | | | | PUMPING LEVEL (below land surface) | | | | | |
| | | | | | | ft. after hrs. pumping | | g.p.m. | | | |
| | | | | | | Well Head Completion | | | | | |
| | | | | | | Pitless adapter manufacturer | | Model | | | |
| | | | | | | <input type="checkbox"/> Casing Protection | | <input checked="" type="checkbox"/> 12 in. above grade | | | |
| | | | | | | <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | | | |
| REMARKS | | | | | | Grouting Information | | Well Grouted? | | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 121ST ST. & PLEASANT AVE., BURNSVILLE | | | | | | | | | | | |
| BURNSVILLE IND. PARK 3RD ADDITION, BLOCK 3, LOT 1 | | | | | | Grout Material: Neat Cement | | from 2 to 14 ft. | | 0.05 yds. | |
| DAKOTA COUNTY PERMIT #90-6095; MW 1 | | | | | | Grout Material: CONCRETE | | from to 2 ft. | | | |
| | | | | | | Nearest Known Source of Contamination | | | | | |
| | | | | | | 1500 feet North West direction | | Landfill type | | | |
| | | | | | | Well disinfected upon completion? | | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | |
| | | | | | | Pump | | <input type="checkbox"/> Not Installed | | Date Installed | |
| | | | | | | Manufacturer's name | | Model number | | HP Volts | |
| | | | | | | Length of drop Pipe ft. | | Capacity g.p.m | | Type Material | |
| | | | | | | Abandoned Wells | | Does property have any not in use and not sealed well(s)? | | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| | | | | | | Variance | | Was a variance granted from the MDH for this well? | | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| | | | | | | Well Contractor Certification | | | | | |
| First Bedrock | | | | | | American Eng Testing | | M0024 | | ROMAN. B. | |
| Last Strat | | | | | | License Business Name | | Lic. Or Reg. No. | | Name of Driller | |
| Depth to Bedrock ft. | | | | | | | | | | | |
| County Well Index Online Report | | | | | | 467594 | | | | Printed 4/2/2009 | |
| | | | | | | | | | | HE-01205-07 | |

| | | | | | | | | | | | |
|------------------------------------------------------|--|---------|--|--------|--|--------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------|--|
| Minnesota Unique Well No. | | County | | Dakota | | MINNESOTA DEPARTMENT OF HEALTH | | Entry Date | | 09/29/2008 | |
| 472759 | | Quad | | | | WELL AND BORING | | Update Date | | 09/29/2008 | |
| | | Quad ID | | | | RECORD | | Received Date | | | |
| | | | | | | Minnesota Statutes Chapter 103I | | | | | |
| Well Name MW-1 | | | | | | Well Depth | | Depth Completed | | Date Well Completed | |
| Township Range Dir Section Subsections Elevation ft. | | | | | | 22 ft. | | 21 ft. | | 09/18/1990 | |
| 27 24 W 34 BB Elevation Method | | | | | | | | | | | |
| Well Address | | | | | | Drilling Method Power Auger | | | | | |
| BURNSVILLE MN | | | | | | Drilling Fluid | | Well Hydrofractured? <input type="checkbox"/> Yes <input type="checkbox"/> No | | From Ft. to Ft. | |
| | | | | | | Use Monitor well | | | | | |
| Geological Material | | | | | | Casing Type Steel (black or low carbon) | | Joint Threaded | | Drive Shoe? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | |
| FILL, MIX OF SILT OR FLY ASH & PEA | | | | | | No Above/Below 2.7 ft. | | | | | |
| PEAT | | | | | | Casing Diameter | | Weight | | Hole Diameter | |
| ORG CLAY W/ FEW SHELLS, ROOTS PEAT | | | | | | 2 in. to 10.5 ft. | | lbs./ft. | | 8 in. to 20.5 ft. | |
| SANDY LEAN CLAY SOME GRAVEL | | | | | | | | | | | |
| LEAN CLAY W/ SAND | | | | | | | | | | | |
| SANDY LEAN CLAY W/ SOME GRAVEL STI | | | | | | | | | | | |
| Color Hardness From To | | | | | | | | | | | |
| 0 1 | | | | | | | | | | | |
| 1 3 | | | | | | | | | | | |
| 3 8 | | | | | | | | | | | |
| 8 9 | | | | | | | | | | | |
| 9 17 | | | | | | | | | | | |
| 17 22 | | | | | | | | | | | |
| | | | | | | Open Hole from ft. to ft. | | | | | |
| | | | | | | Screen YES Make WESCO Type stainless steel | | | | | |
| | | | | | | Diameter | | Slot/Gauze | | Length Set Between | |
| | | | | | | 2 | | 10 | | 10.5 ft. and 20.5 ft. | |
| | | | | | | | | | | | |
| | | | | | | Static Water Level | | | | | |
| | | | | | | 14.1 ft. from Land surface | | Date Measured | | 09/18/1990 | |
| | | | | | | PUMPING LEVEL (below land surface) | | | | | |
| | | | | | | ft. after hrs. pumping | | g.p.m. | | | |
| | | | | | | Well Head Completion | | | | | |
| | | | | | | Pitless adapter manufacturer | | Model | | | |
| | | | | | | <input type="checkbox"/> Casing Protection | | <input checked="" type="checkbox"/> 12 in. above grade | | | |
| | | | | | | <input type="checkbox"/> At-grade (Environmental Wells and Borings ONLY) | | | | | |
| REMARKS | | | | | | Grouting Information | | Well Grouted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| LOCATION: MAP ATTACHED TO WELL LOG | | | | | | Grout Material: Neat Cement | | from | | to 5.5 ft. | |
| | | | | | | Nearest Known Source of Contamination | | | | | |
| | | | | | | __feet __direction __type | | | | | |
| | | | | | | Well disinfected upon completion? | | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | | |
| | | | | | | Pump <input type="checkbox"/> Not Installed | | Date Installed | | | |
| | | | | | | Manufacturer's name | | Model number | | __ HP _ Volts | |
| | | | | | | Length of drop Pipe __ft. | | Capacity __g.p.m | | Type Material | |
| | | | | | | Abandoned Wells | | Does property have any not in use and not sealed well(s)? | | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| | | | | | | Variance | | Was a variance granted from the MDH for this well? | | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| | | | | | | Well Contractor Certification | | | | | |
| First Bedrock | | | | | | Gislason, John | | M0070 | | BRABENDER, K. | |
| Last Strat | | | | | | License Business Name | | Lic. Or Reg. No. | | Name of Driller | |
| County Well Index Online Report | | | | | | 472759 | | | | Printed 4/2/2009 | |
| | | | | | | | | | | HE-01205-07 | |

APPENDIX D

MSP Airport Groundwater Receptor Survey Documents



LEGEND:

- Monitoring Well
- Property Occupant
- ① Humphrey Terminal
- ② Humphrey Terminal Parking Ramp
- ③ MSP Fire Station No. 1
- ④ Hangers 4-8
- ⑤ FedEx
- ⑥ UPS
- ⑦ South airfield lighting electrical center
- ⑧ Glycol Management Facility

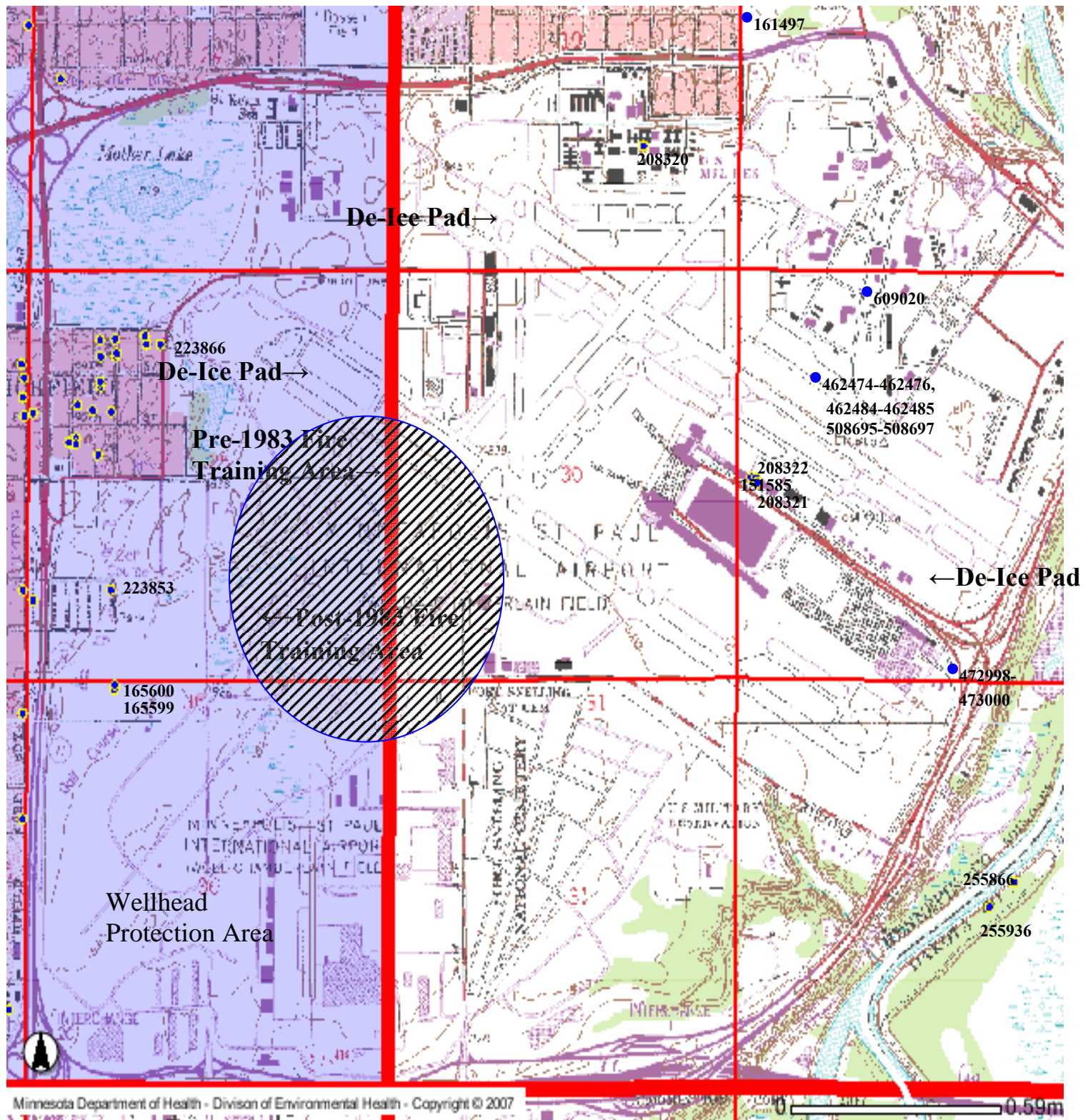


**FIGURE
RECEPTOR SURVEY
FORMER FIRE TRAINING AREAS
MSP AIRPORT
MINNEAPOLIS, MINNESOTA**

| | | |
|---------------------------|-------------------|----------------------------|
| PROJECT NO. 45618DELO1 | PREPARED BY NR | DRAWN BY DD |
| DATE 11/9/10 | REVIEWED BY | FILE NAME MSP Airport-1 |



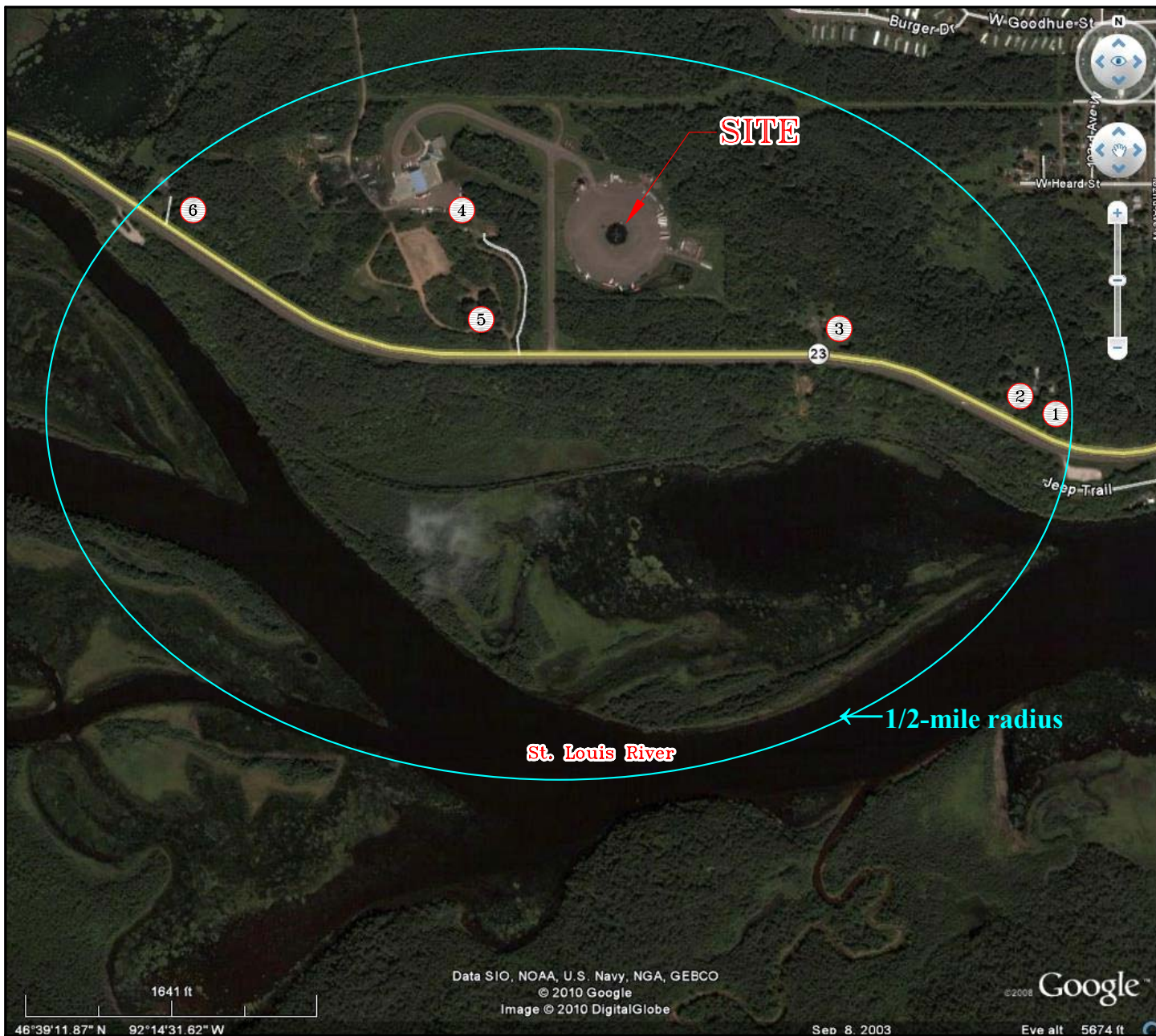
MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT CWI Well Map



Approximate Area of Receptor Survey

APPENDIX E

Lake Superior College ERTC Receptor Survey Documents



LEGEND:

Property Occupant

- ① Residence – 10401 Hwy 23
- ② Residence – 10423 Hwy 23
- ③ Residence – 11801 Hwy 23
- ④ Residence – 11601 Hwy 23
- ⑤ Residence – 11605 Hwy 23
- ⑥ Residence – 11825 Hwy 23



**FIGURE
RECEPTOR SURVEY
LAKE SUPERIOR COLLEGE ERTC
11501 HIGHWAY 23
DULUTH, MINNESOTA**

| | | |
|---------------------------|-------------------|-------------------------|
| PROJECT NO. 45618DELO1 | PREPARED BY NR | DRAWN BY DD |
| DATE 11/9/10 | REVIEWED BY | FILE NAME Superior-1 |



Receptor Survey Questionnaire

via telephone
11-2-10

PROPERTY ADDRESS: 11825 Hwy 23

1. Is there, or has there ever been, a water well on the property? ☒ Yes ☐ No ☐ Unknown

If you answered **No** or **Unknown**, proceed to Question 2.

1a. If you answered **Yes**, is the well *active* (in use), *abandoned* (not in use), or *sealed* (decommissioned following Minnesota Department of Health [MDH] Well Code guidelines).

☐ ACTIVE ☐ ABANDONED ☐ SEALED

1b. How deep is (was) the well? ☐ FEET (if depth is unknown check here ☐)

1c. In what year was the well installed (if known)? ☐

1d. If the well was abandoned, what year was the well sealed? ☐

3e. If the well is active, for what purpose is it used? Example: (drinking water, lawn sprinkler, cooling, etc.) All domestic

1f. Where on the property is (was) the well located? ☐

1g. If there is currently a water supply well on the property, would you grant access to the property in order to obtain a water sample from either an indoor or outside faucet (at no cost to property owner)?

☒ Yes ☐ No

Name Bob Espenson

Telephone Number 218-626-2746 DAY or EVENING (please circle one and state best time to reach you)
218-393-4966

2. Is a public water supply currently utilized by the property?

Yes ☐ ☒ No

3. May we contact you for further information if necessary? If so, please provide your name and telephone number.

Name ☐

Telephone Number ☐ DAY or EVENING (please circle one and state best time to reach you)

Please complete this form and mail it back to Delta in the enclosed self-addressed stamped envelope. Delta thanks you in advance for taking the time to complete this form.

If you have any questions, or need help completing this form, please contact Nancy Rodning, Delta Consultants, at (651)697-5152 or 1-800-477-7411, or MPCA Project Manager Nile Fellows at 651-757-2352.

Receptor Survey Questionnaire

- via telephone
10-26-10

PROPERTY ADDRESS: 10401 Hwy 23

1. Is there, or has there ever been, a water well on the property? ☒ Yes ☐ No ☐ Unknown

If you answered **No** or **Unknown**, proceed to Question 2.

1a. If you answered **Yes**, is the well *active* (in use), *abandoned* (not in use), or *sealed* (decommissioned following Minnesota Department of Health [MDH] Well Code guidelines).

☐ ACTIVE ☒ ABANDONED ☐ SEALED

1b. How deep is (was) the well? _____ FEET (if depth is unknown check here _____)

1c. In what year was the well installed (if known)? _____

1d. If the well was abandoned, what year was the well sealed? _____

3e. If the well is active, for what purpose is it used? Example: (drinking water, lawn sprinkler, cooling, etc.) _____

1f. Where on the property is (was) the well located? well didn't have good water. Use well from next door - nephew's well water

1g. If there is currently a water supply well on the property, would you grant access to the property in order to obtain a water sample from either an indoor or outside faucet (at no cost to property owner)?

Yes No

Name Ruth McLutye

Telephone Number 218-626-1128 DAY or EVENING (please circle one and state best time to reach you)

2. Is a public water supply currently utilized by the property? Yes ☒ No

3. May we contact you for further information if necessary? If so, please provide your name and telephone number.

Name _____

Telephone Number _____ DAY or EVENING (please circle one and state best time to reach you)

Please complete this form and mail it back to Delta in the enclosed self-addressed stamped envelope. Delta thanks you in advance for taking the time to complete this form.

If you have any questions, or need help completing this form, please feel free to contact Nancy Rodning, Delta Consultants, at (651)697-5152 or 1-800-477-7411, or Nile Fellows, MPCA, at 651-757-2352.

Receptor Survey Questionnaire

- In Person Interview

PROPERTY ADDRESS: 11405 W Hwy 23

1. Is there, or has there ever been, a water well on the property? ☒ Yes ☐ No ☐ Unknown

If you answered **No** or **Unknown**, proceed to Question 2.

1a. If you answered **Yes**, is the well *active* (in use), *abandoned* (not in use), or *sealed* (decommissioned following Minnesota Department of Health [MDH] Well Code guidelines).

☒ ACTIVE ☐ ABANDONED ☐ SEALED

1b. How deep is (was) the well? _____ FEET (if depth is unknown check here _____)

1c. In what year was the well installed (if known)? ?

1d. If the well was abandoned, what year was the well sealed? _____

3e. If the well is active, for what purpose is it used? Example: (drinking water, lawn sprinkler, cooling, etc.) air - drinking, etc

1f. Where on the property is (was) the well located? in house

1g. If there is currently a water supply well on the property, would you grant access to the property in order to obtain a water sample from either an indoor or outside faucet (at no cost to property owner)?

☒ Yes ☐ No

Name JERRY FERRARI

Telephone Number 626 3525 DAY or EVENING (please circle one and state best time to reach you)

2. Is a public water supply currently utilized by the property? ☐ Yes ☐ No

3. May we contact you for further information if necessary? If so, please provide your name and telephone number.

Name _____

Telephone Number _____ DAY or EVENING (please circle one and state best time to reach you)

Please complete this form and mail it back to Delta in the enclosed self-addressed stamped envelope. Delta thanks you in advance for taking the time to complete this form.

If you have any questions, or need help completing this form, please feel free to contact Nancy Rodning, Delta Consultants, at (651)697-5152 or 1-800-477-7411, or Nile Fellows, MPCA, at 651-757-2352.

Pump - 150'
Well - 75'

Receptor Survey Questionnaire

In Person Interviewed

PROPERTY ADDRESS: 10801 Hwy 23 Dumuth 55808

1. Is there, or has there ever been, a water well on the property? ☒ Yes ☐ No ☐ Unknown

If you answered **No** or **Unknown**, proceed to Question 2.

1a. If you answered **Yes**, is the well *active* (in use), *abandoned* (not in use), or *sealed* (decommissioned following Minnesota Department of Health [MDH] Well Code guidelines).

☒ ACTIVE ☐ ABANDONED ☐ SEALED

1b. How deep is (was) the well? _____ FEET (if depth is unknown check here ?)

1c. In what year was the well installed (if known)? 1950s

1d. If the well was abandoned, what year was the well sealed? _____

3e. If the well is active, for what purpose is it used? Example: (drinking water, lawn sprinkler, cooling, etc.) drinking, etc.

1f. Where on the property is (was) the well located? house corner - SE corner

1g. If there is currently a water supply well on the property, would you grant access to the property in order to obtain a water sample from either an indoor or outside faucet (at no cost to property owner)?

Yes ☐ No ☐

Name John McIntosh

Telephone Number 218-213-7850 cell DAY or EVENING (please circle one and state best time to reach you)

2. Is a public water supply currently utilized by the property?

Yes ☐ No ☒

3. May we contact you for further information if necessary? If so, please provide your name and telephone number.

Name _____

Telephone Number _____ DAY or EVENING (please circle one and state best time to reach you)

Please complete this form and mail it back to Delta in the enclosed self-addressed stamped envelope. Delta thanks you in advance for taking the time to complete this form.

If you have any questions, or need help completing this form, please feel free to contact Nancy Rodning, Delta Consultants, at (651)697-5152 or 1-800-477-7411, or Nile Fellows, MPCA, at 651-757-2352.

Receptor Survey Questionnaire

PROPERTY ADDRESS: 11601 HIGHWAY 23, DULUTH, MN 55808

1. Is there, or has there ever been, a water well on the property? ☒ Yes ☐ No ☐ Unknown

If you answered **No** or **Unknown**, proceed to Question 2.

1a. If you answered **Yes**, is the well *active* (in use), *abandoned* (not in use), or *sealed* (decommissioned following Minnesota Department of Health [MDH] Well Code guidelines).

☒ ACTIVE ☐ ABANDONED ☐ SEALED

1b. How deep is (was) the well? 411 FEET (if depth is unknown check here _____)

1c. In what year was the well installed (if known)? 1991

1d. If the well was abandoned, what year was the well sealed? -NA-

3e. If the well is active, for what purpose is it used? Example: (drinking water, lawn sprinkler, cooling, etc.) DRINKING WATER, SHOWERS, LAUNDRY

USE
1f. Where on the property is (was) the well located? APPROXIMATELY 40'
NORTHWEST OF THE HOUSE IN THE REAR
YARD AREA

1g. If there is currently a water supply well on the property, would you grant access to the property in order to obtain a water sample from either an indoor or outside faucet (at no cost to property owner)?

☒ Yes ☐ No

Name DIXON K. BASTIE

Telephone Number (218) 348-2287 ☒ DAY or EVENING (please circle one and state best time to reach you)

2. Is a public water supply currently utilized by the property?

Yes ☒ No

3. May we contact you for further information if necessary? If so, please provide your name and telephone number.

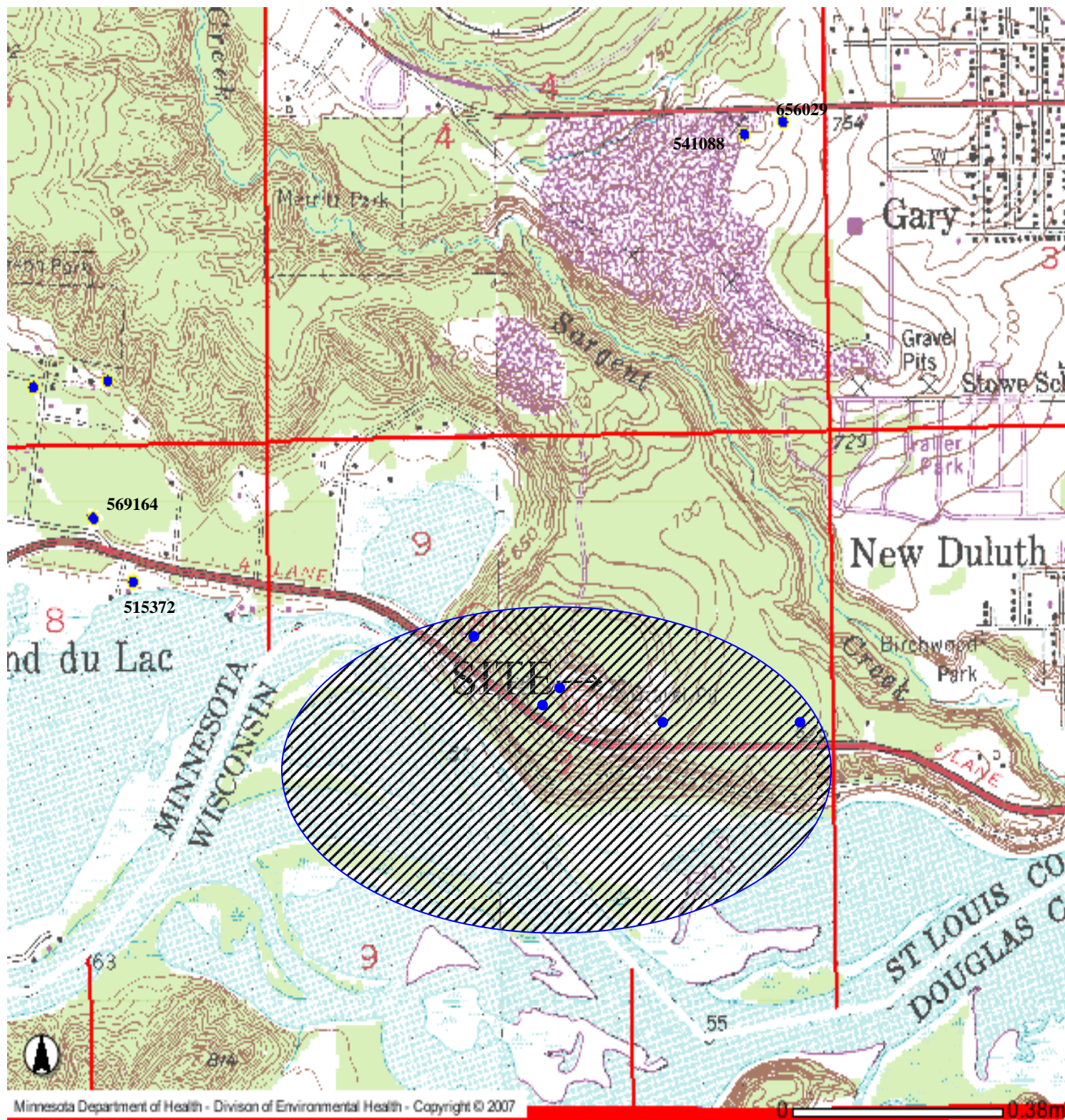
Name -- SEE ABOVE --

Telephone Number _____ DAY or EVENING (please circle one and state best time to reach you)

Please complete this form and mail it back to Delta in the enclosed self-addressed stamped envelope. Delta thanks you in advance for taking the time to complete this form.

If you have any questions, or need help completing this form, please feel free to contact Nancy Rodning, Delta Consultants, at (651)697-5152 or 1-800-477-7411, or Nile Fellows, MPCA, at 651-757-2352.

LAKE SUPERIOR COLLEGE - DULUTH CWI Well Map



Approximate Area of Receptor Survey

APPENDIX F



Kandiyohi County Landfill Sample Location Map and Laboratory Data



**Kandiyohi Landfill
Firefighting Foam Discharge Site
New London, MN**



Legend

-  Foam Use Area
-  Sample Location

N



0 95 190 380 570 760 Feet

| CLIENT ID | Kandiyohi DMW-1A | Kandiyohi DMW-3 | Lab Blank | Spiked Matrix | Spiked Matrix (Duplicate) |
|-------------|------------------|-----------------|-------------|-----------------|-------------------------------|
| AXYS ID | L15189-1 | L15189-2 | WG33729-101 | WG33729-102 (A) | WG33729-103 (DUP WG33729-102) |
| WORKGROUP | WG33729 | WG33729 | WG33729 | WG33729 | WG33729 |
| Sample Size | 0.491 L | 0.505 L | 0.500 L | | |
| UNITS | ng/L | ng/L | ng/L | % Recov | % Recov |
| PFBA | < 2.54 | 7.61 | < 2.50 | 94.4 | 94 |
| PFPeA | < 2.54 | < 2.48 | < 2.50 | 93.6 | 92.7 |
| PFHxA | < 2.54 | < 2.48 | < 2.50 | 100 | 98.4 |
| PFHpA | < 2.54 | < 2.48 | < 2.50 | 88.8 | 87.7 |
| PFOA | < 2.54 | < 2.48 | < 2.50 | 94.6 | 86.4 |
| PFNA | < 2.54 | < 2.48 | < 2.50 | 92.8 | 96.4 |
| PFDA | < 2.54 | < 2.48 | < 2.50 | 101 | 93.2 |
| PFUnA | < 2.54 | < 2.48 | < 2.50 | 99.7 | 93.9 |
| PFDoA | < 2.54 | < 2.48 | < 2.50 | 104 | 100 |
| PFBS | < 5.09 | < 4.95 | < 5.00 | 97.2 | 85.9 |
| PFHxS | < 5.09 | < 4.95 | < 5.00 | 102 | 84.4 |
| PFOS | < 5.09 | < 4.95 | < 5.00 | 95 | 73.8 |
| PFOSA | < 2.54 | < 2.48 | < 2.50 | 85.9 | 79.3 |

< = less than the detection limit; number following this symbol represents the detection limit.

Groundwater Analytical Results, PFCs
Kandiyohi County Landfill
Delta Project No. 19382DEL0

| | | | Perfluorobutanoic acid (PFBA) | Perfluoro-n-pentanoic acid (PFPeA) | Perfluorohexanoic acid (PFHxA) | Perfluoroheptanoic acid (PFHpA) | Perfluorooctanoic acid (PFOA) | Perfluorononanoic acid (PFNA) | Perfluorodecanoic acid (PFDA) | Perfluoroundecanoic acid (PFUnA) | Perfluorododecanoic acid (PFDoA) | Perfluorobutanoic sulfonate (PFBS) | Perfluorohexane sulfonate (PFHxS) | Perfluorooctane sulfonate (PFOS) | Perfluorooctane sulfonamide (PFOSA) |
|--------------------------------|-------------|------------|-------------------------------|------------------------------------|--------------------------------|---------------------------------|-------------------------------|-------------------------------|-------------------------------|----------------------------------|----------------------------------|------------------------------------|-----------------------------------|----------------------------------|-------------------------------------|
| #Perfluorinated Carbon Chains: | | | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 4 | 6 | 8 | 8 |
| Health-Based Limits: | | | 7000 ⁽¹⁾ | ND | ND | ND | 300 ⁽²⁾ | ND | ND | ND | ND | 7000 ⁽¹⁾ | RAA ⁽³⁾ | 300 ⁽²⁾ | ND |
| Sample ID | Sample Date | Laboratory | | | | | | | | | | | | | |
| Kandiyohi DMW-1A | 1/12/2010 | Axys | < 2.43 | < 2.43 | < 2.43 | < 2.43 | < 2.43 | < 2.43 | < 2.43 | < 2.43 | < 2.43 | < 4.87 | < 4.87 | < 4.87 | < 2.43 |
| Kandiyohi DMW-3 | 1/12/2010 | Axys | 6.1 | < 2.51 | < 2.51 | < 2.51 | < 2.51 | < 2.51 | < 2.51 | < 2.51 | < 2.51 | < 5.01 | < 5.01 | < 5.01 | < 2.51 |
| Kandiyohi DMW-1A | 5/4/2010 | Axys | < 2.49 | < 2.49 | < 2.49 | < 2.49 | < 2.49 | < 2.49 | < 2.49 | < 2.49 | < 2.49 | < 4.99 | < 4.99 | < 4.99 | < 2.49 |
| Kandiyohi DMW-3 | 5/4/2010 | Axys | 11 | < 2.49 | < 2.49 | < 2.49 | < 2.49 | < 2.49 | < 2.49 | < 2.49 | < 2.49 | < 4.98 | < 4.98 | < 4.98 | < 2.49 |
| Kandiyohi DMW-1A | 10/1/2010 | Axys | < 2.54 | < 2.54 | < 2.54 | < 2.54 | < 2.54 | < 2.54 | < 2.54 | < 2.54 | < 2.54 | < 5.09 | < 5.09 | < 5.09 | < 2.54 |
| Kandiyohi DMW-3 | 10/1/2010 | Axys | 7.61 | < 2.48 | < 2.48 | < 2.48 | < 2.48 | < 2.48 | < 2.48 | < 2.48 | < 2.48 | < 4.95 | < 4.95 | < 4.95 | < 2.48 |
| | | | | | | | | | | | | | | | |

Notes:

All results and standards are in nanograms per liter (ng/L), which is equivalent to parts per trillion.

Axys: Axys Analytical Services LTD

Bolded type indicates detection above the laboratory method detection limit.

(1) Health-Based Value (HBV) for chronic exposure defined by the Minnesota Department of Health.

(2) Health Risk Limit (HRL) for drinking water defined by the Minnesota Department of Health.

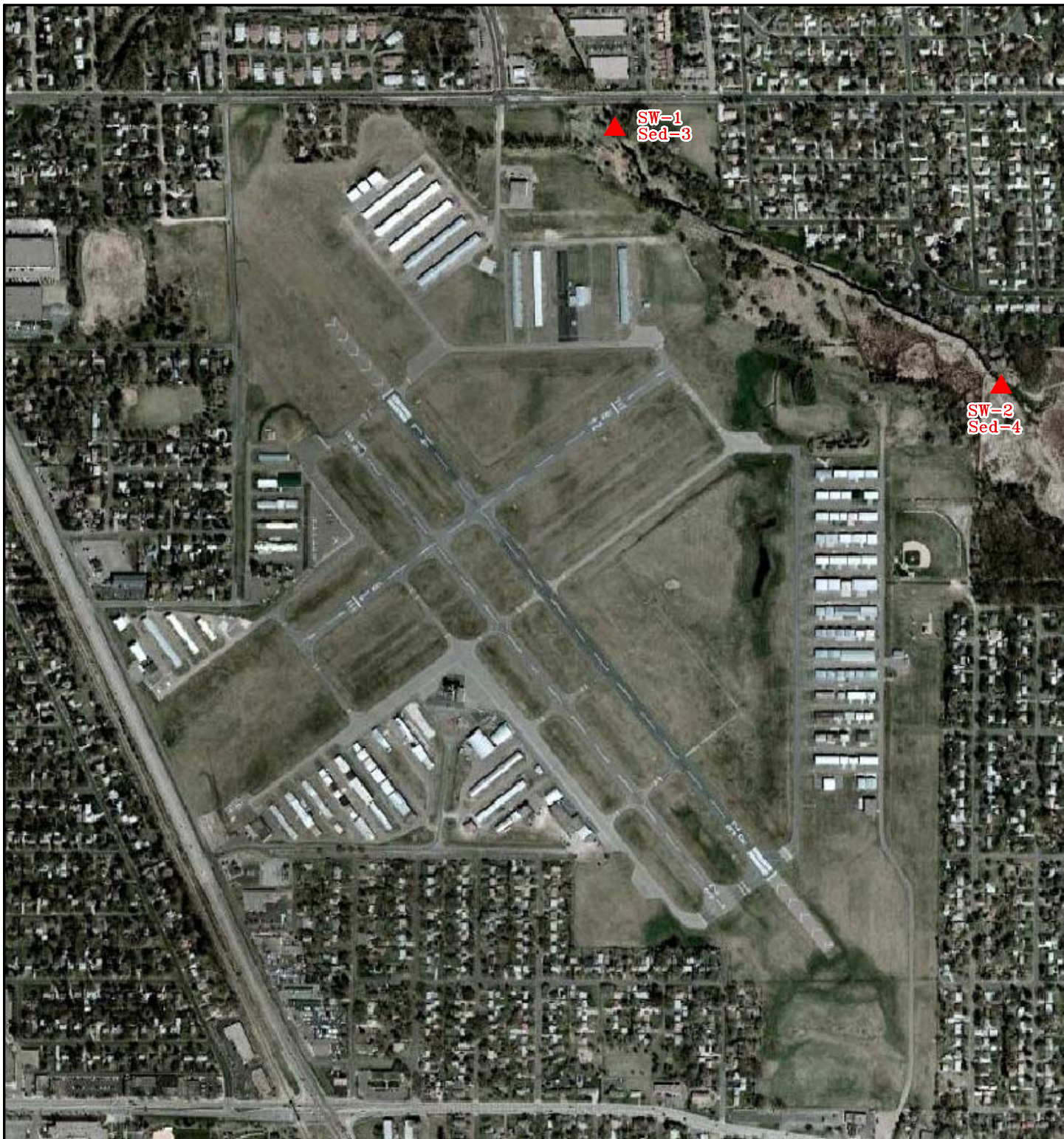
(3) Risk Assessment Advise (RAA) set by the Minnesota Department of Health for PFHxS does not specify numeric values.

ND: No health-based limit defined.

DELTA

APPENDIX G

Crystal Airport – Shingle Creek Sample Location Map and Laboratory Data



LEGEND:

▲ Sample Location

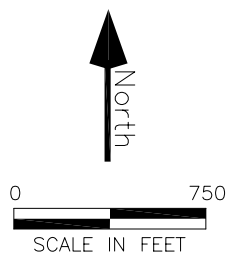


FIGURE
OCTOBER 2010 SAMPLE LOCATIONS
CRYSTAL AIRPORT
CRYSTAL, MINNESOTA

| | | |
|---------------------------|-------------------|------------------------|
| PROJECT NO. 45618DEL01 | PREPARED BY NR | DRAWN BY DD |
| DATE 11/10/10 | REVIEWED BY | FILE NAME Crystal-1 |



| CLIENT ID | Crystal SW-1 | Crystal SW-2 | Lab Blank | Spiked Matrix | Spiked Matrix (Duplicate) |
|-------------|--------------|--------------|-------------|-----------------|-------------------------------|
| AXYS ID | L15487-1 | L15487-2 | WG34176-101 | WG34176-102 (A) | WG34176-103 (DUP WG34176-102) |
| WORKGROUP | WG34176 | WG34176 | WG34176 | WG34176 | WG34176 |
| Sample Size | 0.503 L | 0.484 L | 0.500 L | | |
| UNITS | ng/L | ng/L | ng/L | % Recov | % Recov |
| PFBA | 35.7 | 25.4 | < 2.50 | 105 | 118 |
| PFPeA | 5.54 | 4.58 | < 2.50 | 100 | 103 |
| PFHxA | 5.62 | 4.91 | < 2.50 | 109 | 116 |
| PFHpA | 3.31 | < 2.58 | < 2.50 | 99.5 | 95.3 |
| PFOA | 6.28 | 5.95 | < 2.50 | 113 | 110 |
| PFNA | < 2.48 | < 2.58 | < 2.50 | 98.8 | 112 |
| PFDA | < 2.48 | < 2.58 | < 2.50 | 111 | 113 |
| PFUnA | < 2.48 | < 2.58 | < 2.50 | 102 | 102 |
| PFDoA | < 2.48 | < 2.58 | < 2.50 | 111 | 110 |
| PFBS | < 4.97 | < 5.16 | < 5.00 | 121 | 120 |
| PFHxS | < 4.97 | < 5.16 | < 5.00 | 116 | 117 |
| PFOS | 8.18 | < 5.16 | < 5.00 | 106 | 103 |
| PFOSA | < 2.48 | < 2.58 | < 2.50 | 102 | 99.2 |

< = less than the detection limit; number following this symbol represents the detection limit.