FRANK D. REMINGTON
CIRCUIT COURT, BR. 8

STATE OF WISCONSIN CIRCUIT COURT Branch ___ DANE COUNTY

FILED
OCT 28 2016
DANE COUNTY CIRCUIT COURT

CLEAN WISCONSIN, INC.
634 West Main Street, Suite 300
Madison, WI 53703

and

PLEASANT LAKE MANAGEMENT DISTRICT
P.O. Box 230
Coloma, WI 54930,

Petitioners,

v.

WISCONSIN DEPTARMENT OF
NATURAL RESOURCES,
101 South Webster Street
Madison, WI 53707,

Respondent.

Case No. 16CV2820

Case Code: 30607
Administrative Agency Review

PETITION FOR JUDICIAL REVIEW

Petitioners, Clean Wisconsin, Inc. and Pleasant Lake Management District, hereby petition the Court pursuant to Wis. Stat. §§ 227.52 and 227.53, for judicial review of a decision by the Wisconsin Department of Natural Resources, ("DNR"), dated September 30, 2016, to approve an application for the construction and operation of a high capacity well to Thomas and Penny Frozene ("Decision"). A copy of the Decision is attached hereto as Exhibit A. Petitioners further show to the Court as follows:

CHALLENGED DECISION

1. DNR's Decision approved the construction and operation of a high capacity well, file number 70-01-0587, to Thomas and Penny Frozene, located in the Town of Coloma, Waushara County. The approval, issued pursuant to Wis. Stat. § 281.34(2), permits the applicants to install and operate a 900 gallon per minute well on the property. The approved maximum yearly groundwater withdrawal for the property is approximately 272 million gallons, and the maximum monthly withdrawal is 38.9 million gallons (1.3 million gallons per day).

PARTIES

2. Petitioner Clean Wisconsin, Inc. is an environmental advocacy organization that works to protect and preserve Wisconsin's air and water and to create a cleaner environment by being the leading voice for environmental protection. Clean Wisconsin was founded in 1970 as Wisconsin's Environmental Decade and is an incorporated nonprofit organization under the laws of Wisconsin and section 501(c)(3) of the Internal Revenue Code. Clean Wisconsin's principal place of business is 634 West Main Street, Suite 300, Madison, Wisconsin.

3. Clean Wisconsin is a membership organization with six individual members in Waushara County. Clean Wisconsin also has members who reside outside of Waushara County but travel to that area of the state specifically for the unique recreational opportunities that Waushara County provides. Clean Wisconsin and its members have a direct interest in the physical environment that is adversely affected by the Decision. As described below, the approved high capacity well in Waushara County leaves navigable waters including Chaffee Creek, Fordham Creek, Tagatz Creek and Pleasant Lake, as well as other waters of the state, unprotected from the known impacts of groundwater pumping, thereby adversely affecting those public trust waters.

4. Petitioner Pleasant Lake Management District ("PLMD") is a public inland lake protection and rehabilitation district, organized pursuant to Wis. Stat. Chapter 33, for the purpose of protecting and enhancing Pleasant Lake in Waushara County, Wisconsin. As described below, PLMD has a direct interest in the physical environment that is adversely affected by the Decision, including but not limited to Pleasant Lake and its adjacent springs and wetlands.

5. DNR is an agency of the State of Wisconsin, as that term is defined by Wis. Stat. § 227.01(1), and as that term is used throughout Wis. Stat. Ch. 227. DNR's office is located at 202 South Webster Street, Madison, Wisconsin.

6. DNR is responsible for administering approvals for the construction of high capacity wells pursuant to relevant statutes and regulations found in Wis. Stat Ch. 281 and Wis. Admin. Code Chs. NR 812 and 820.

JURISDICTION AND VENUE

7. Petitioner Clean Wisconsin's principal place of business is in Dane County and Clean Wisconsin is therefore a "resident" of Dane County. Dane County Circuit Court therefore is the proper venue for this action as specified in Wis. Stat. §227.53(1)(a)(3).

8. The Decision is a final agency decision subject to judicial review under Wis. Stat. § 227.52, *et seq*.

9. This petition is timely filed.

BACKGROUND

10. The legislature entrusted DNR as the central unit of state government to protect and oversee the quality of the waters of the state, pursuant to Wis. Stat. Ch. 281, and DNR is the delegated trustee of the state's constitutional duty to protect navigable waters, pursuant to Wis. Const. Art. IX, Sec. 1.

11. DNR's authority to carry out the management of the waters of that state includes the regulation of high capacity wells.

12. In July 2011 the Wisconsin Supreme Court held that, based upon statutory and constitutional authorities, "DNR must consider the environmental impact of a proposed high capacity well when presented with sufficient concrete, scientific evidence of potential harm to waters of the state." *Lake Beulah Management District v. Department of Natural Resources*, 2011 WI 54 ¶4, 335 Wis. 2d 47, 799 N.W.2d 73.

13. Pursuant to the *Lake Beulah* decision, DNR adopted a policy of analyzing impacts of high capacity well pumping to waters of the state before acting on a high capacity well application.

14. In September 2014 the Division of Hearings and Appeals ("DHA") further found that DNR has the authority and duty to consider both individual and cumulative impacts to waters of the state from high capacity wells. DHA further found that "[i]t is scientifically unsupported, and impossible as a practical matter, to manage water resources if cumulative impacts are not considered." *In the Matter of a Conditional High Capacity Well Approval for Two Potable Wells to be Located in the Town of Richfield, Adams County Issued to Milk Source Holdings, LLC,* Wisconsin Division of Hearings and Appeals Case Nos. IH-12-03, IH-12-05, DNR 13-021, DNR 13-027 (hereinafter "*Richfield Dairy*").

15. Pursuant to the *Richfield Dairy* decision, DNR adopted a policy and practice of considering individual and cumulative impacts of high capacity wells to nearby waters of the state.

16. On April 3, 2014 Thomas and Penny Frozene applied for the required DNR approvals to facilitate the construction and operation of a new high capacity well to be located at W8390 Dyke Court, Westfield, WI 53964.

17. Before issuing the Decision in this case, DNR was aware that the proposed high capacity well likely would have significant individual and cumulative adverse impacts on navigable waters and other waters of the state.

18. Based on the impacts analysis, DNR staff recommended limiting the approval to 36.3 million gallons per year to protect and minimize impacts to nearby water resources. *See* DNR's "Frozene Application Summary," dated 7/13/2015, attached hereto as Exhibit B.

19. On May 10, 2016 Attorney General Brad Schimel issued an opinion renouncing DNR's authority to evaluate or consider impacts analysis of high capacity wells on state waters, including public trust resources, except to the extent expressly set forth in Wis. Stat. § 281.34(2), including cumulative impacts, based on the argument that such authority is not explicitly required or permitted by statute and therefore is prohibited by Wis. Stat. § 227.10(2m).

20. On June 10, 2016 DNR adopted Attorney General Schimel's opinion and subsequently began approving wells without addressing and irrespective of adverse individual and cumulative impacts to waters of the state, including public trust waters.

21. On September 30, 2016 DNR approved the Frozene well, without regard to and irrespective of its substantial adverse impacts to the waters of the state. The September 30, 2016 approval authorizes a withdrawal of up to 272 million gallons per year, significantly more than the DNR's recommended 36.3 million gallons per year necessary to minimize and avoid expected significant adverse impacts to waters of the state, including public trust waters.

INTEREST OF THE PETITIONERS

22. Petitioners' interests are directly injured because DNR did not address the individual and cumulative effects of pumping from the proposed well on Pleasant Lake, Chaffee Creek, Tagatz Creek, and Fordham Creek. Chaffee Creek and Fordham Creek are high quality trout streams, and Tagatz Creek is known to contain mottled sculpin, a fish species that is sensitive to flow change. DNR stated that a 3-4% depletion is a significant impact for Chaffee Creek, a 5% depletion is significant for Tagatz Creek, and a 4% depletion is significant for Fordham Creek. The University of Wisconsin – Stevens Point model showed a total cumulative depletion for Chaffee Creek of 22%, Tagatz Creek of 7.2%, and Fordham Creek of 23%, all well above the significant impact level for those water bodies. *See* Exhibit B.

23. Petitioners and their members rely on reasonable and appropriate approval standards that consider the environmental impacts of pumping from high capacity wells to protect their public trust interest in navigable waters of the state. Petitioners also have a substantial interest in DNR following the rule of law in the issuance of regulatory decisions and administration of regulatory programs.

24. Clean Wisconsin and its members have a direct interest in protecting groundwater quality from impacts of excessive groundwater pumping. Clean Wisconsin's members statewide also have an interest in ensuring that DNR fulfills its duty to manage the water resources of the State by implementing adequate approval processes for high capacity wells.

25. PLMD and its members also have a unique and substantial interest in the preservation and quality of Pleasant Lake, including but not limited to lake levels, littoral zones, water quality, fishery and navigation, as well as other ecological resources adjacent to and/or dependent upon the quantity and quality of the lake. As a small seepage lake that has suffered a

declining lake level and deteriorating biological quality over several years, PLMD and its members have a particular interest in protecting the lake against further incremental losses in water quantity and quality and ecological harm to lake biota.

26. Over-pumping from high capacity wells has the potential to impact seepage lakes, streams, rivers, wetlands and other surface water resources. Impacts include loss of surface area and volume, damage to fisheries and spawning areas, degradation of water quality, impacts to aesthetic beauty, impacts to navigation, and impacts to property values. These impacts directly infringe on the public trust rights of Petitioners.

27. DNR has been delegated the authority and duty to manage the water resources of the state. Its policy of evaluating and protecting waters of the state from the individual and cumulative impact of high capacity wells through its actions on well applications were reasonable and necessary to carry out its statutory and constitutionally delegated duties under both the *Lake Beulah* decision and the public trust doctrine.

GROUNDS FOR REVIEW

28. The Decision is an "administrative decision" under Wis. Stat. § 227.52, and subject to judicial review pursuant to the provisions of Chapter 227.

29. The Decision must be reversed, set aside, vacated and/or modified for, *inter alia*, the following reasons:

a. In issuing the Decision, DNR has incorrectly applied the applicable law and has failed to issue the decision as it was required by law to do. Wis. Stat. § 227.57(5).

b. In issuing the Decision, DNR has improperly exercised its discretion, failed to exercise its discretion, and is outside the range of discretion delegated to the agency. Wis. Stat. § 227.57(8).

RELIEF REQUESTED

WHEREFORE, Petitioners request judgment in their favor as follows:

1. Declaring that DNR's Decision is reversed, set aside, or vacated;

2. Declaring that DNR has the authority and duty to deny or condition approvals of high capacity well applications as necessary to protect waters of the state, including public trust resources;

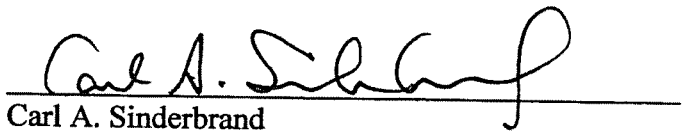
3. Declaring that DNR has the authority and duty to address the individual and cumulative effects of all high capacity wells on waters of the state;

4. Ordering such interlocutory or final relief as is necessary to preserve the interests of Petitioners and other members of the public; and

5. For such other relief as the Court may deem just and equitable.

Dated this 28th day of October, 2016.

AXLEY BRYNELSON, LLP



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State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
101 S. Webster Street
Box 7921
Madison WI 53707-7921

Scott Walker, Governor
Cathy Stepp, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711

Approval Date: **September 30, 2016**
Application No: **6767**

High Capacity Well File Number: **70-01-0587**
Water Use Property Number: **13625**

THOMAS & PENNY FROZENE
W8390 DYKE COURT
WESTFIELD WI 53964

SUBJECT : High Capacity Well Approval - Town of Coloma - Waushara County

Dear Mr. Frozene:

The Department of Natural Resources, Bureau of Drinking Water and Groundwater (department), has reviewed and approved your application for the construction and operation of a non-potable high capacity well, located in the Town of Coloma, Waushara County. The application was submitted by Haupt Well Drilling Inc. and received by the Department on 4/3/2014.

Your application has received an engineering and hydrogeological review to determine compliance with the well construction and pump installation requirements of ch. NR 812, Wis. Adm. Code and Ch.281, Wis. Stats. The department's engineering review indicates the proposed construction complies with ch. NR 812 requirements; however, you and your well driller are responsible for complying with all provisions of ch. NR 812 and the conditions contained in this approval. The department has determined to issue this conditional approval based on the information provided in your application and other available information. However, this approval may be subject to modification pursuant to s. 281.34 (7), Wis. Stats.

This approval consists of this letter and four attached sections: 1) Approval to construct a high capacity well; 2) High capacity well withdrawal approval; 3) Conditions and requirements for constructing and operating a high capacity well; and 4) Notice of appeal of rights and other legal notices.

Review this approval in its entirety. Please contact the department at 608-266-2299 with any questions or concerns.

Respectfully,

Rachel Greve

Rachel Greve, Hydrogeologist
State of Wisconsin - Department of Natural Resources
For the Secretary

cc:

Haupt Well Drilling Inc.
geodata@wgnhs.uwex.edu - via email
Elizabeth.Heinen@wisconsin.gov - via email
Kyle.Burton@wisconsin.gov - via email

file

EXHIBIT
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A

APPROVAL TO CONSTRUCT A HIGH CAPACITY WELL

THOMAS & PENNY FROZENE
W8390 DYKE COURT
WESTFIELD WI 53964

Approval Date: **09/30/2016**
County: **Waushara**
High Cap File Number: **70-01-0587**
Property Number: **13625**

Property Water Use: **IR10 - Agricultural irrigation**

Well Location

High Capacity Well Number:	73932
Well Name Assigned by Well Owner:	Irrigation
PLSS Description:	SW SE Sec31 T18N R8E
Latitude (Decimal Degrees):	43.98575
Longitude (Decimal Degrees):	-89.5926
Approved Pump Type:	Lineshaft turbine
Approved Pump Capacity (gpm):	900
Approved Discharge Type (Over Top of Casing Seal,Pitless Adapter or Unit):	Over top of casing
Approved Discharge Location (Building Pressure Tank,Pond, etc.):	Irrigation System

Well Construction

Drilling Method(s):	Reverse Rotary
Total Well Depth:	145'
Approved Finished Aquifer:	Sand/Gravel
Enlarged Drillhole Diameter / Depth Interval:	30" / 0' to 145'
Lower Drillhole Diameter / Depth Interval:	
Casing Diameter / Wall Thickness:	16" / 0.25"
Casing Material / Joint Type:	Steel / Welded
Depth of Grouted Casing:	115'
Screen Material / Slot Size in Inches / Depth Interval or N/A if none:	Galv. V-Wire / 0.06" / 115' to 145'
Annular Space Seal Type:	Native Drill Cuttings
Annular Space Seal Length:	95'

Standard Considerations and Requirements:

- You or your well driller must contact Elizabeth Heinen at 920-993-7056 at least one work day prior to starting construction in accordance with s. NR 812.03 (1), Wis. Adm. Code.
- The pump installation will discharge through a Department-approved pump and the entire discharge piping arrangement system shall be installed in a manner to meet the applicable requirements of Chapter NR 812, Wis. Adm. Code.
- Unless otherwise stated in explicit conditions specified in this approval, the approved high capacity well shall be constructed within a distance of 660 feet around the approved coordinates; this allowance is subject to setbacks defined in Ch. NR 812, Wis.Adm. Code.

HIGH CAPACITY WELL WITHDRAWAL APPROVAL

THOMAS & PENNY FROZENE
W8390 DYKE COURT
WESTFIELD WI 53964

Approval Date: **09/30/2016**
County: **Waushara**
High Cap File Number: **70-01-0587**
Property Number: **13625**

Property Water Use: **IR10 - Agricultural irrigation**

New Wells

Well Name	Water Use Code(s)	High Capacity Well Number	Pump Capacity (gpm)	Latitude - Decimal Degrees (e.g. 45.12345)	Longitude - Decimal Degrees (e.g. -89.12345)
Irrigation	IR10	73932	900	43.98575	-89.5926

Approved Withdrawals by Source

Well Name	Water Use Code	High Cap Well #	Pump Capacity (gpm)	Approved Daily Withdrawal (gallons)	Maximum Approved Monthly Withdrawal Amount (millions of gallons)											
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Irrigation	IR10	73932	900	1296000	0	0	0	38.9	38.9	38.9	38.9	38.9	38.9	38.9	0	0

Maximum Property Monthly Withdrawal Amounts (millions of gallons)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	38.9	38.9	38.9	38.9	38.9	38.9	38.9	0	0

Please note that your property approval is equal to the sum of the approved withdrawal amounts for each source.

CONDITIONS AND REQUIREMENTS FOR CONSTRUCTING AND OPERATING A HIGH CAPACITY WELL

1. **WELL CONSTRUCTION.** It is your responsibility and the responsibility of the well driller and the pump installer to ensure that the well construction and pump installation for the proposed high capacity well are completed in compliance with the requirements of Chapter NR 812, Wis. Adm. Code and in compliance with the conditions in this approval. If the department discovers features or aspects of the installation or operation that are in violation of Chapter NR 812, Wis. Adm. Code or in violation of the conditions of this approval, the approval will become void. It your responsibility to make any needed corrections to the well construction or the pump installation, or to any changes in operation or water usage.
2. **LOCATION.** In accordance with NR 812.09(2) & (4)(a), Wis. Adm. Code; the proposed high capacity well shall be constructed at the location in the construction approval. The well driller shall determine accurate coordinates for the latitude and longitude of the well location with the use of a Global Positioning System (GPS) unit and shall include these coordinates on the Well Construction Report. It remains the responsibility of the well owner and the well driller to confirm that the wells meet all setback distances required in Chapter NR 812, Wisconsin Administrative Code
3. **APPROVAL EXPIRATION.** If the construction of the proposed school or wastewater well has not commenced within two years from the date of this letter, this approval is void per NR 812.09(3). After two years, a new application must be made for approval of the plans and specifications before any construction work on this proposed well or pump installation may be undertaken.
4. **DRILLING NOTIFICATION.** In accordance with NR 812.03(1), Wis. Adm. Code, notice shall be provided to the Department's District Region Drinking Water Specialist on the department work day prior to commencing the construction of the proposed high capacity well.
5. **GROUTING NOTIFICATION.** Notice shall be provided to the Department's District Region Drinking Water Specialist on the department work day prior to commencing the grouting operation.
6. **UNUSED WELLS.** Any constructed well is expected to be used. According to NR 812(26)(3) Wis. Adm. Code any well or drillhole removed from service shall be properly filled and sealed according to the criteria and procedures in Section NR 812.26(3).
7. **REPORTING.** Withdrawals from each of your wells on this property must be recorded monthly and reported to the Department by March 1 of the subsequent calendar year in a format provided by the department in accordance with s. 281.34(5)(e), Wis. Stats., and NR 820.13(1), Wis. Adm. Code. Please consult current Department guidance regarding approved measurement and estimation methods.
8. **WELL CONSTRUCTION REPORT.** In accordance with NR 812.10(11), Wis. Adm. Code; the well driller shall prepare a Well Construction Report for the proposed high capacity well and shall submit the report to the Department within 30 days following completion of the well.
9. **WELL CONSTRUCTION LOG.** In accordance with NR 812.(18) Wis. Adm. Code; during construction of the proposed high capacity well, the well driller shall collect drill cutting samples at 5-foot intervals throughout the depth of the well and at each change in geologic formation. These samples shall be sent to the Wisconsin Geological & Natural History Survey (WGNHS) in Madison for examination and preparation of a certified geologic log of the well.
10. **WITHDRAWAL LIMITS.** In accordance with NR 812.09(4)(a), Wis. Adm. Code; the operation of the proposed high capacity well shall be limited to the withdrawal schedule found in the withdrawal approval.
11. **WATER WITHDRAWAL REGISTRATION.** Your approved withdrawal has been registered with the Department pursuant to s. 281.346, Wis. Stats., and Chapter NR 856, Wis. Adm. Code. Registration is required for persons who have a water supply system with the capacity to withdraw an average of 100,000 gallons per day (70 gallons per minute). You do not need to take any additional steps to register at this time. For more information on water use registration, go to http://dnr.wi.gov/org/water/dwg/greatlakes/registration.htm or call the Water Use Program at (608) 266-2299.
12. **WATER USE FEES.** Any person with a high capacity well with the capacity to make a withdrawal from the waters of the state averaging 100,000 gallons per day or more in any 30-day period shall pay to the department an annual water use fee of $125, and an additional fee for any Great Lakes basin withdrawals exceeding 50 million gallons per year. This high capacity well approval may be rescinded if these annual fees are not paid. See s. 281.346 (12), Wis. Stats., and Chapter NR 850, Wis. Adm. Code. For more information go to http://dnr.wi.gov/org/water/dwg/greatlakes/fees.htm or call the Water Use Program at (608) 266-2299.
13. **WATER USE PERMIT** (GREAT LAKES BASIN ONLY). In addition to a high capacity well approval, a water use permit is required for Great Lakes Basin withdrawals averaging 100,000 gallons per day or more in any 30-day period. See s. 281.346 (4m), Wis. Stats., and Ch. NR 860, Wis. Adm. Code. For more information on water use permitting go to http://dnr.wi.gov/topic/WaterUse/documents/PermittingFactsheet.pdf or call the Water Use Program at (608) 266-2299.
14. **CHANGE IN OWNERSHIP OR CONTROL.** Pursuant to NR 812.09(4)(a)2, Wis. Adm. Code, when an owner or operator relinquishes control of the operation of a high capacity well or well supply, a new approval shall be obtained by the new operator, owner or lessee before operation of the high capacity well or well supply is continued.

NOTICE OF APPEAL RIGHTS AND OTHER LEGAL NOTICES

If you believe that you have a right to challenge this decision, you should know that Wisconsin Statutes and Administrative Rules establish time periods within which requests to review Department decisions must be filed. For judicial review of a decision pursuant to Sections 227.52 and 227.53 of the State Statutes, you have 30 days after the decision is mailed, or otherwise served by the Department, to file your petition with the appropriate circuit court and serve the petition on the Department. Such a petition for judicial review must name the Department of Natural Resources as the respondent.

To request a contested case hearing pursuant to Section 227.42 of the State Statutes, you have 30 days after the decision is mailed, or otherwise served by the Department, to serve a petition for hearing on the Secretary of the Department of Natural Resources. The filing of a request for a contested case hearing is not a prerequisite for judicial review and does not extend the 30 day period for filing a petition for judicial review.

All requests for contested case hearings must be made in accordance with section 227.42, Wis. Stats., and section NR 2.05(5), Wisconsin Administrative Code, and served on the Secretary in accordance with section NR 2.03, Wisconsin Administrative Code. Pursuant to Section NR 2.05(5), Wisconsin Administrative Code, and Section 227.42, Wis. Stats., you are required to include specific information demonstrating the following:

1. The substantial interest of the petitioner which is injured in fact or threatened with injury by Department action or inaction:
2. That there is no evidence of legislative intent that this interest is not to be protected:
3. That the injury to the petitioner is different in kind or degree from the injury to the general public caused by the Department action or inaction: and
4. That there is a dispute of material fact (you must specify the disputed fact).

Frozene Application Summary R. Greve (07/13/2015)

***5/23/16 NOTE:** The following analysis was conducted for a conditioned pumping rate of 36.3 million gallons per year. At higher pumping rates, impacts to all resources would be greater than described here. The application requested an average pumping rate of 450gpm. For pumping 120 days per year at 450 gpm, the modeled steady state drawdown at Pleasant Lake increases from 0.14 feet (1.7 inches) to 0.30 feet (3.6 inches). Modeled stream depletions increase to 0.03 cfs (1.5%) for Fordham Creek, 0.04 cfs (2.3%) for Chaffee Creek, and 0.06 cfs (1.2%) for Tagatz Creek.*

Overview – Tom Frozene applied for a 900 gpm irrigation well (HC#73932) in southwestern Waushara County that would be completed to a depth of 145 feet in the sand and gravel aquifer. This was not previously a high capacity property. Surface water impacts from the applicant's well were assessed by UW-Stevens Point (UWSP) using a numeric groundwater model for a conditioned rate equivalent to 1 inch of water per week on 98 acres for 150 days per year. Modeled impact results are linear with pumping rate. DNR subsequently calculated impacts for 90 days of pumping annually, to represent the minimum amount to meet the applicant's water needs. The drawdown and stream depletion amounts in the following summary are calculated for the 90-day pumping scenario. However, test cases with the UWSP model indicate that in headwater areas, the predicted streamflow depletion may be over-estimated, so the stream depletion results given here are used as an upper bound on possible impacts.

Hydrogeology – The proposed well location is on the Johnstown Moraine, a ridge of glacial sediment that runs north-south through the Central Sands region. The proposed well is about 1000 feet west of the mapped surface water divide between the Mississippi River and Lake Michigan drainage basins. The well is east of the mapped groundwater divide (groundwater flows to the southeast). Glacial sediments are over 150 feet thick and consist of sand, gravel, and clay. The well is not expected to encounter the underlying sandstone bedrock.

Groundwater Resource Review

The proposed well is not located in a GPA or near a 1cfs spring. It will not impact a municipal well. Analytical solutions indicate the proposed well will not adversely impact existing wells.

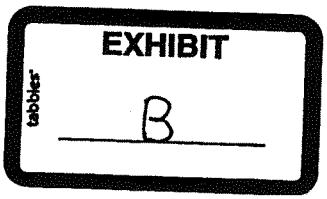
Stream Depletion – Chaffee, Tagatz and Fordham Creeks

Chaffee and Tagatz Creeks, in Waushara and Marquette Counties, are Class I trout streams and ORWs. Fordham Creek, in Adams County, is a Class I Trout Stream and ERW.

The natural community-modeled AUGQ50 for Chaffee Creek represents flow four miles downstream of the headwater and cannot be used for analysis in the headwater, near the proposed well. Chaffee Creek's average baseflow measured by UW-Stevens Point at CTH CH is 1.8 cfs, and the baseflow modeled for the Richfield Dairy EIS by S.S. Papadopulos and Associates (SSPA) is 1.7 cfs. The modeled depletion (upper bound) for Chaffee Cr. from the Frozene well is 8.1 gpm (0.018 cfs).

No measured flows are available for Tagatz Creek. The natural community modeled AUGQ50 for Tagatz Creek is 3.3 cfs at 4th Avenue, and the baseflow modeled for the Richfield Dairy EIS (SSPA) is 4.8 cfs. The modeled depletion (upper bound) for Tagatz Cr. from the Frozene well is 10.8 gpm (0.024 cfs).

No measured flows are available for Fordham Creek. The natural community modeled AUGQ50 is 2.2 cfs at 6th Court, and the baseflow modeled for the Richfield Dairy EIS (SSPA) is 1.8 cfs. The modeled depletion (upper bound) for Fordham Cr. from the Frozene well is 5.7 gpm (0.01 cfs).



Chaffee, Tagatz and Fordham Creek Fishery

Chaffee Creek has very good water quality and generally flows over sand. Brown trout were observed at CTH CH in 2003 and 2014 IBI surveys. Trout were also observed just downstream of the headwater spring pond during an August 2013 site visit. Fish curve analysis (WDNR ELOHA) shows a significant impact depletion level of 3-4% for brown trout in the Chaffee Creek headwater reach.

Tagatz Creek originates from spring ponds in the terminal moraine south of Pleasant Lake and drains southeasterly to the Montello River. Of fish species observed in a 2014 IBI survey at 4th Avenue (headwater area), the most sensitive to flow change was mottled sculpin. No trout were observed in the 2014 survey. Brook trout were among the species observed in downstream IBI surveys. The WDNR ELOHA significant impact depletion level for mottled sculpin Tagatz Creek is 5%.

Fordham Creek is a high-quality trout stream and is unique in supporting naturally-reproducing populations of brook, brown, and rainbow trout. The stream is a small, westerly-flowing tributary to Little Roche a Cri Creek fed by groundwater seeps and springs and wetland drainage. Siltation and sedimentation are existing problems throughout the stream. Several DNR habitat improvement efforts have been completed on Fordham Creek; including land purchases, installation of overhead cover, and streambank brushing. The WDNR ELOHA significant impact depletion level for Fordham Creek is 4% for brown trout.

Stream Cumulative Impact Assessment

The applicant's proposed well was assessed in conjunction with the impact of existing high capacity wells as modeled for the Richfield Dairy EIS (SSPA). Table 1 shows the impact of the Frozene proposed well and the existing wells with respect to stream depletion in Chaffee, Tagatz, and Fordham Creeks. Regardless of which allowable depletion is used (Michigan or WDNR ELOHA), the cumulative depletion exceeds the existing allowable threshold for all three creeks. However, UWSP predicts the Frozene incremental depletion to be small (less than 0.02 cfs, or 11 gpm) and may overestimate impacts.

Table 1: Streamflow Cumulative Impact Assessment. The UWSP model represents an upper bound on potential stream depletion.

Allowable Depletion	Reference Flow (SSPA model)	Stream Deplete from Frozene Well (UWSP model)	Depletion from Existing Wells (SSPA model)	Total Cumulative Depletion
Chaffee Creek • 4% (Michigan) • 3% (WDNR ELOHA)	1.7 cfs	0.018 cfs (1.1%)	0.36 cfs (21%)	0.38 cfs (22%)
Tagatz Creek • 4% (Michigan) • 5% (WDNR ELOHA)	4.8 cfs	0.024 cfs (0.5%)	0.32 cfs (6.7%)	0.34 cfs (7.2%)
Fordham Creek • 14% (Michigan) • 4% (WDNR ELOHA)	1.8 cfs	0.01 cfs (0.7%)	0.42 cfs (23%)	0.43 cfs (23%)

Water Table Drawdown - Chaffee Creek Spring Pond, Pleasant Lake

The Chaffee Creek spring pond is a calcareous fen, a rare wetland type sensitive to groundwater depletion. UWSP's modeling predicts that the steady state water table drawdown at the spring pond wetland would be 1.3 inches. UWSP previously modeled the cumulative drawdown due to existing wells to be 4 inches. According to testimony for the Richfield Dairy, a water table drawdown on 1-1.5 inches could cause about 10% of the fen area to lose sensitive, groundwater-dependent species and shift to a different wetland type.

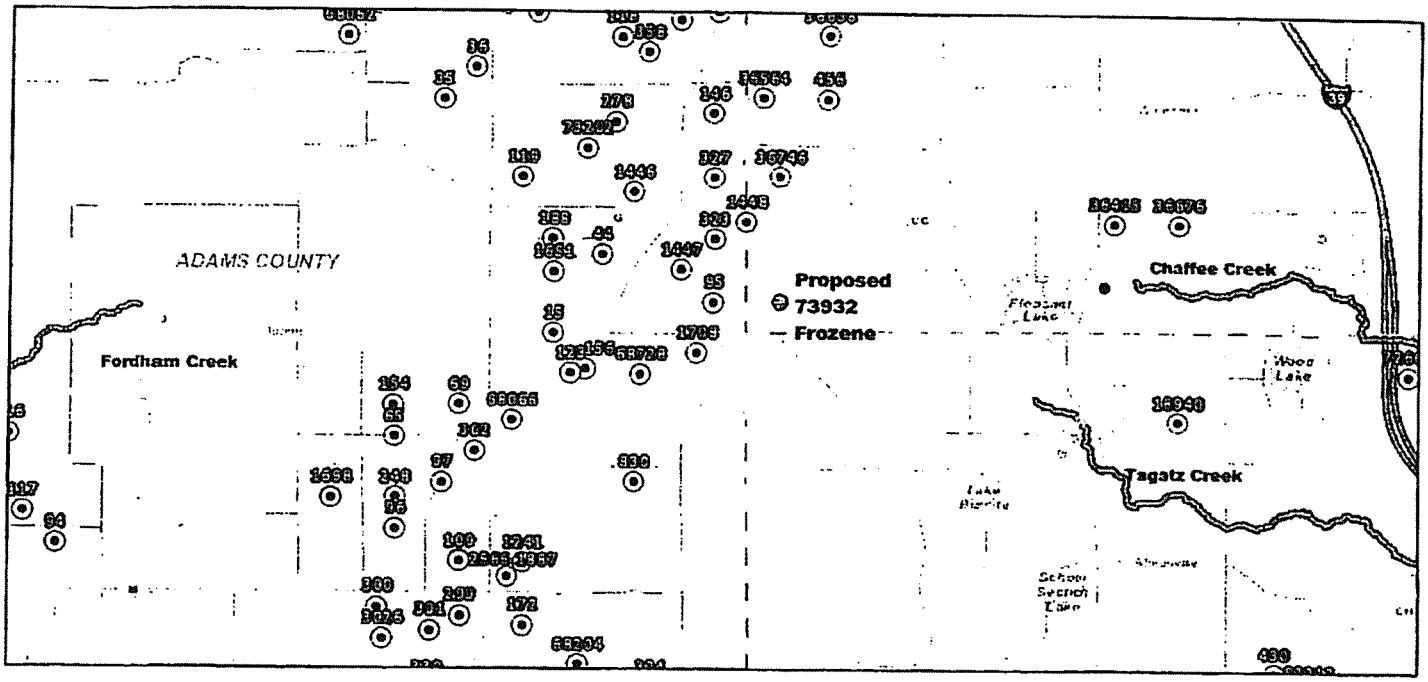
Pleasant Lake is a 130-acre seepage lake located 1.7 miles east of the proposed Frozene well. Its water level is generally an expression of the water table. The lake has a maximum depth of 23-30 feet and an average depth of 15 feet. Several environmentally sensitive areas have been identified, including the lake's southwest bay/wetland (Turtle Bay), and the sand and gravel bar extending from the north shore. Banded killifish, a state Special Concern species, are present in the lake. UWSP has modeled total drawdown of about 1.5 feet on the lake, due to the impacts of irrigation pumping. Based on separate UWSP modeling, the proposed Frozene well could cause an additional steady-state drawdown of 0.14 ft. (1.7 in.) to the lake, a total cumulative drawdown of 1.6 ft.

In Findings of Fact for the Richfield Dairy contested case hearing, where drawdown impacts to Pleasant Lake were a primary focus, the Administrative Law Judge found that "A preponderance of the evidence demonstrates that there already have been significant impacts to Pleasant Lake, due to both water level reductions and other stressors, including shoreline development and climatic changes" (FOF 45), that "Small changes in water level will have significant impact of the lake, due in part to the area of shallows that would be permanently or more frequently exposed, and loss of water temperature and nutrient control from springs" (FOF 47), and that "the 2.5 to 3 inch drop estimated by Dr. Kraft at the approved level of 72.5 million gallons will also likely cut off the lake's tenuous connection to the Turtle Bay wetland, an ecologically valuable area" (FOF 49). The judge ordered the Dairy be limited to a pumping rate of 52.5 million gallons per year; this was modeled to cause 1.9 inches of drawdown to Pleasant Lake.

If the Frozene well were to cause an additional 1.7 inches of drawdown (as modeled), this well plus the Richfield wells would reach the level the ALJ considered a significant impact for the lake (more than 2.5-3 inches). However, because the impact is modeled for steady state conditions at the maximum conditioned pumping rate, the actual it is likely that the actual drawdown would be less than 1.7 inches.

Discussion and Recommendations

- The impacts modeled by UWSP from the Frozene well are small (0.02 cfs or less depletion to streams, 1.7 inches of drawdown to Pleasant Lake, 1.3 inches of drawdown to the Chaffee Creek spring pond).
- Based on DNR's assessment of the UWSP groundwater model, the projected Frozene impacts are likely to be over-predicted, in which case they could reasonably be considered *de minimis*.
- The ALJ in the Richfield Dairy contested case allowed the dairy a "reasonable use" but restricted the diary to less water than it had requested.
- In the case of the Frozene application, a water use of 36.3 MG/yr would provide an average of 1 inch of water per week on 100 acres for 90 days. This would limit the amount of water to less than the applicant's preferred amount (2 inches per week) but would allow enough water to employ irrigation on the planned field(s). I recommend approving the well at 36.3 MG/yr.


ADAMS COUNTY
Fordham Creek
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Chaffee Creek
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