

**Information Paper for the Groundwater Advisory Committee:
Current Procedure for Temporary Construction Dewatering Well Approvals
February 1, 2007**

Temporary construction dewatering wells, like other high capacity wells require an approval. These projects undergo the same locational review process applicable to permanent high capacity wells. Thus, trout streams, exceptional resource waters and outstanding resource waters receive the same protection with these projects as with other permanent high capacity well projects.

Regional department staff is also informed of the project before an approval is granted and asked to identify any concerns with the proposed well. Thus, any unique situations or site specific environmental conditions that are unknown outside of the immediate area can be raised and addressed before an approval is granted.

These projects differ from most other high capacity well projects because of the following project characteristics:

- The projects typically are for construction of publicly owned infrastructure or utilities.
- The projects are of short term duration. Most operate for a few non-winter months during a single year.
- Essentially all of the projects draw water from unconsolidated deposits. Temporary construction dewatering wells that are constructed in bedrock are extremely rare.
- The goal is to depress the water table by the depth necessary to facilitate the construction project, (usually 10 to 20 feet), not extract a certain volumetric rate of water. Thus, there is a greater probability that the actual groundwater extraction rate differs from initial estimates.
- The probability that such a system may impair a municipal well is much less than for a permanent high capacity well, because the water table is rarely depressed deep enough at the construction site to create a deep cone of depression that extends outward to the location of municipal wells.
- The pumping rate usually starts out at a significant rate, but declines rapidly after a sufficient cone of depression is established. At that time, the pumping rate would decrease because the dewatering system only needs to maintain the cone of depression, once it has been established.
- The probability that contaminated groundwater may be encountered is much greater because extracted groundwater is from a much shallower depth and the projects frequently are in areas with a long history of human activities.
- Wells covered under these approvals are not entered into the department's database of permanent wells.

The application and approval process for these projects differs from other permanent high capacity wells, as follows:

- A streamlined application form is used. It is a turn-around document where the DNR reviewer signs a copy of the application form and sends it back to the applicant instead of issuing an approval letter. (A multi-year high capacity well dewatering project would be considered a permanent project and does not undergo this streamlined procedure.) A generic list of conditions of approval and the first two pages of a blank application form is attached to this document.
- Applications are treated as a priority and approvals are issued quickly. In 2006, the average approval was issued in 11.3 calendar days for the 50 projects that were approved.
- Due to the greater probability that contaminated groundwater will be encountered, verification of the proximity of contaminated sites is emphasized in the review process. Otherwise, contaminated groundwater could inadvertently be discharged to surface waters. In some situations, a condition of approval will include a monitoring program for water quality.
- Essentially all projects will also need a discharge permit from the department's wastewater program. The conditions of approval for most dewatering well approvals include a requirement that such a permit is obtained.
- The water that is extracted is an undesired result of the dewatering activities, whereas in other high capacity well projects, the water is the desired product. Thus, the extracted water must be disposed. If the department determined that the base flow of a creek may be impaired from pumping activities, the department may specify the discharge location for that water as a condition of approval to maintain the base flow rate in the creek.

Dewatering Well System Approval Conditions:

1. A chlorine residual shall be maintained in the drilling water during the entire drilling operation of each dewatering well.
2. A written report describing the construction of the dewatering system shall be submitted to the Department of Natural Resources, Private Water Supply Section, at P.O. Box 7921, Madison, WI 53707, within 20 days of constructing any portion of the dewatering system.
3. A sign stating "WATER FROM THIS WELL SHALL NOT BE USED FOR HUMAN CONSUMPTION OR FOR THE WASHING OR PREPARATION OF FOOD PRODUCTS" shall be posted at the site of the discharge from the dewatering system and be maintained in a legible condition during the entire dewatering operation.
4. If a lineshaft turbine pump is used, any oil used in the prelubrication of the lineshaft turbine pump shall be food contact grade white mineral oil, Food and Drug Administration (FDA) approved.
5. The Department reserves the authority to require any schedule of reporting water levels within the dewatering system that it deems necessary. If a water level measuring device is not permanently installed in any well within the system for which the Department requires water levels to be reported, the Department's authority shall extend to require the well to be immediately taken out of service until the reporting can be implemented.
6. A free air-break of at least two discharge pipe diameters shall be maintained between the bottom of the discharge pipe from the dewatering system and overflow elevation of the receiving structure, or 2 feet above the regional flood elevation, whichever is higher.
7. A settling basin shall be provided for all the discharge waters from the dewatering system if the wells pump silt or sand.
8. A permit shall be obtained from the appropriate zoning authority for that portion of the construction project that is located within a floodplain.
9. A permit shall be obtained, if necessary, as required by Chapter 30, Wis. Stats. which does not allow discharges to scour the bank or bed of any navigable stream or lake. Under s.30.12, permits are required for any modification to a stream bank or bed, including supports for discharge pipes.
10. If not already obtained, a dewatering discharge permit shall be obtained in accordance with the requirements of the Wisconsin Pollution Discharge Elimination System (WPDES) as required by Chapter 283, Wisconsin Stats. This permit is required if the dewatering discharge is directly to the surface waters of the state and/or indirectly to the groundwaters of the state. The Department has the authority to enforce under Chapter 283, Wisconsin Stats., any rule adopted thereunder or any term or condition of any permit issued pursuant to Chapter 283, Wis. Stats.
11. If the dewatering wells are less than 25 feet deep, upon completion of the dewatering project, all of the dewatering wells shall be permanently abandoned by removing the well casings and screens and filling in the upper unsaturated portion of the remaining boreholes with a material that is less permeable than the surrounding soils. This abandonment is in variance to the requirements that are set forth in s. 812.26, Wis. Adm. Code, because the wells are used for a short period of time and the casings and screens are designed to be re-used for other dewatering wells. The abandonment of the dewatering wells shall be described in a written report that must be submitted to the Department of Natural Resources, Private Water Supply Section at P.O. Box 7921 Madison, WI 53707 within 20 days of the abandonment of the well.

Notice: Prior department approval is required for the construction, reconstruction or operation of a high capacity well or system of high capacity wells in accordance with Section NR 812.09(4)(a), Wisconsin Administrative Code. Personally identifiable information collected on this form, including such data as your name, address and phone number, will be used for management of department programs and is unlikely to be used for other purposes. This information will be addressable under Wisconsin's Open Records Laws, ss. 19.32 - 19.39, Wis. Stats.

Project Name and Description

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Dewatering System Property Owner

Name and Title		Company		
Street Address	City	State	ZIP Code	Contact Person
Telephone Number	Fax Number	E-Mail Address		

Dewatering System Operator

Name and Title		Company		
Street Address	City	State	ZIP Code	Contact Person
Telephone Number	Fax Number	E-Mail Address		

Proposed Dewatering System Location

Quarter of the Quarter	Quarter or Government Lot Number	Section Number or French Long Lot Number		
Township T _____ N	Range R _____	<input type="checkbox"/> East <input type="checkbox"/> West	<input type="checkbox"/> City <input type="checkbox"/> Village OF <input type="checkbox"/> Civil Town	County
Street or Grid Address (fire number)				

Dewatering System Operation

Name of Nearest Public Utility Well	Proposed Total Average Pumpage per Day	Proposed Total Maximum Pumpage per Day gallons	
Distance from Public Utility Well <input type="checkbox"/> Feet <input type="checkbox"/> Miles	Discharge Location Description (e.g. storm sewer, drainage swale, settling basin, etc.)		
Direction (e.g. WNW) to Public Utility Well	Total Number of Dewatering Wells/Points in Project		
Proposed Pump (Dewatering System) Capacity gallons per minute	Number of Wells/Points in Use at Any Given Time		
Dewatering Project Start Date (MM/DD/YYYY)	Dewatering Project Completion Date (MM/DD/YYYY)		
Proposed Aquifer Formation	At a Depth of:	Static Water Level	Proposed Dewatering Water Level

Well Construction

Total well depth (feet)	Borehole diameter (inches)	Drilling method (e.g. rotary, jetting, percussion, etc.)	
Geologic formations to be penetrated by well (e.g. sand, gravel, clay, sandstone, limestone, etc.)			
Casing depth (feet)	Well casing wall thickness (in.)	Casing material (e.g. steel, schedule 40 PVC)	Casing diameter (inches)

High Capacity Dewatering Well Application

Form 3300-258 (R 9/02)

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Well Construction (continued)

Method of connecting well casing segments <input type="checkbox"/> weld <input type="checkbox"/> solvent weld <input type="checkbox"/> threaded/mechanical		Height of well casing termination above local ground elevation (in)	
Well screen material (e.g. wire wound steel, slotted PVC)		Well screen length (ft)	Well screen diameter (in)
Method of attaching screen to well casing or placing screen		Type of well screen <input type="checkbox"/> wire wound <input type="checkbox"/> slotted pipe	Engineered gravel pack around screen <input type="checkbox"/> yes <input type="checkbox"/> no
Annular space seal material (e.g. bentonite, cement, native material)		Method of placing annular seal (e.g. tremie pipe)	

Pump Installation

Pump type (e.g. submersible, vacuum)	Individual pump capacity (gpm)	Well seal type and design	Check valve location
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Well Abandonment

Well abandonment method (e.g. fill with bentonite, collapsing formation, etc.)

Enclosures

- Plat map (project location marked)
- Engineering plan map of project (do not submit complete set of plans)
- Contamination sites (BRRTS information) with well locations and discharge location (www.dnr.state.wi.us/org/aw/rr/brrts/index.htm)
- Well construction diagram with dimensions
- Drawing of manifold design if multiple wells are connected together
- Discharge drawing
- If WPDES permit already issued, attach copy

Variance Request Signature

Are you requesting a variance for the proposed well(s) to have less than 25 feet of casing or for a variance to any part of ch. NR 812, Wis. Adm. Code? If yes, property owner signature required.

Property Owner Signature	Date Signed
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Applicant

Name: Last	First	MI	Signature		
Street Address		City	State	ZIP Code	Date (mm/dd/yyyy)
Company Name		(Area Code) Telephone Number		E-Mail Address	

Department Use Only

Receipt Date (mm/dd/yyyy)	Response Date (mm/dd/yyyy)
Review Engineer	Authorized Signature
Calculated Public Utility Well Drawdown Value or No Expected Impact Judgement Feet <input type="checkbox"/> No Expected Significant Impact	Action: Conditions of approval are attached <u>if</u> approved. <input type="checkbox"/> Approved <input type="checkbox"/> Denied