ENVIRONMENTAL ANALYSIS AND DECISION ON THE NEED FOR AN ENVIRONMENTAL IMPACT STATEMENT (EIS)
Form 1600-1 Rev. 3-87

Department of Natural Resources (DNR)

Region or Bureau West Central Region
Type List Designation NR 150.03(8)(h)1.

NOTE TO REVIEWERS: This document is a DNR environmental analysis that evaluates probable environmental effects and decides on the need for an EIS. The attached analysis includes a description of the proposal and the affected environment. The DNR has reviewed the attachments and, upon certification, accepts responsibility for their scope and content to fulfill requirements in s. NR 150.22, Wis. Adm. Code. Your comments should address completeness, accuracy or the EIS decision. For your comments to be considered, they must be received by the contact person before 4:30 p.m., August 25, 2000.

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Applicant: Great Spring Waters of America, Inc. (a.k.a. Perrier Group of America, hereafter referred to as Perrier)

Address: 777 West Putnam Avenue, Greenwich, CT 06830

Title of Proposal: Perrier High Capacity Wells

Location: Section 22, Township 14 North, Range 7 East, New Haven Township, Adams County

PROJECT SUMMARY

1. General Description (brief overview)

Perrier, a division of Nestle, S.A., has applied to Department of Natural Resources (DNR) for a high capacity well approval to obtain groundwater (that would likely under normal conditions express itself through a spring at the ground surface) in southeastern Adams County. Wells would be installed in section 22, T14N, R7E, Town of New Haven (see attachment 1).

Two or more 8" diameter stainless steel cased wells with 100' stainless steel screens would be installed in drilled boreholes to a maximum depth of 200' in a sand and gravel aquifer overlying sandstone. The wells would operate 24 hours/day, seven days/week. They would be located near two spring sites, Jensen's Pond and Buckley Springs Pond (both are collectively referred to as the Big Springs site). Overflow from Jensen's Pond makes up most of the headwaters of Big Spring Creek. Exact well locations are unknown pending completion of ongoing on-site groundwater studies and aquifer response modeling. The wells would initially have a combined estimated pumping rate of 150-350 gallons/minute (216, 000 to 504,000 gallons per day), with a potential build-out capacity after five years of 500 gallons/minute (720,000 gallons/day).

By comparison, an average high capacity agricultural irrigation well typically pumps between 500-1500 gallons/minute, a manufacturing plant well at 100-3000 gallons/minute, and a well for a dairy or food processing plant at between 50-500 gallons/minute (all on an intermittent basis, whereas Perrier pumping

would be continuous). A 1000 gallon/minute irrigation system uses the equivalent of a 70 gallon/minute pump on a continuous annual basis. For further comparison, a water bottling plant located in the subject basin uses between 20,000 and 30,000 gallons per day and the old Heilman Brewery in La Crosse has in years past used 2,000,000 to 3,000,000 gallons per day. Both of these facilities pump from deep, sandstone aquifers. This information is provided to give a context of Perrier wells compared to other high capacity wells in Wisconsin. It is not intended to suggest any operational impact correlation with the other wells.

Perrier also has conceptual plans to construct and operate a nearby water bottling plant, but it has not yet made a final decision on the exact location of such a plant. If one potential site is used water would be conveyed via pipeline from the well site 1.75 miles south and across State Trunk Highway (STH) 23. Since it is still in a conceptual stage and no permit applications for a bottling plant have yet been submitted to the Department, the bottling plant is not considered a part of the high capacity well application project. If Perrier proceeds with development plans it would formally apply for required state (and local) approvals at that time. Because the bottling plant is a possible related operation it is, to the extent possible, discussed in this environmental assessment.

The company has said any potential bottling plant south of STH 23 would be developed in stages over a five-year period. It would house two or more bottling lines for PET (individual sized) plastic bottles and 1 and 2 1/2 gallon plastic containers under the Ice Mountain Spring Water label. There may be a plastic bottle molding line. There would also be office space, parking areas, interior roads and stormwater management structures (see attachment 2). Phase 1 development, scheduled for summer 2001, includes a 292,500 square-foot plant building, 12,500 square-foot office and ancillary facilities. Initial bottling capacity would be 150-350 gallons/minute. The possible plant would initially employ 45 people. If subsequent, staged expansions are pursued the maximum plant build-out would be done over a five year period and cover 1,007,500 square-feet with 25,000 square-feet of office space. It would be capable of a maximum bottling rate of 500 gallons/minute, employ 250 people and operate 24 hours/day and seven days/week. If the potential site south of STH 23 is utilized, the plant would have a total built footprint of ~80 acres on an existing 304-acre parcel now being used for farming. Ancillary facilities would include a stormwater management system designed to a 25-year, 24-hour storm event, an on-site high capacity well with a maximum pumping capacity of 250 gallons/minute for sanitary and equipment washdown purposes and a septic system. Industrial wastewater would probably be collected and treated separately at a DNR approved on- or off-site facility yet to be determined.

If the potential bottling plant site south of STH 23 is developed, a pipeline system would follow CTH G right-of-way (ROW) for 1.75 miles from the well sites to the bottling plant site. It would consist of 2-4 parallel pipes with diameters ranging from 4-8 inches placed 6-7' below ground in 3-6' wide trenches 3-6'. Stream, wetland and possibly road/driveway crossings would be bored below stream/wetland/road/driveway level and all disturbed areas would be restored.

A more complete description of the high capacity well project and the conceptual plans for a possible water bottling plant is contained in Perrier's application and in sections 5 and 7 of this environmental assessment (EA). Copies of the application have been provided to and are available for review at public libraries in Adams, Wisconsin Dells, Portage, Montello and Wautoma.

2. Purpose and Need (include history and background as appropriate)

Growing demand in the Midwest for Perrier's Ice Mountain Spring Water brand has prompted the company to seek to develop a water source and bottling facility in the area. Stringent federal spring-water labeling regulations limit the number of candidate water supply sites available. Another limitation is to find a site capable of producing the volume and quality of water needed to make the costs of bottling plant development a viable corporate option.

To meet projected corporate production goals Perrier would like to know by late summer of 2000 if its application for high capacity wells at the Big Springs site will be approved. If approval cannot be obtained

within that timeline Perrier has indicated it may need to seek other candidate sites. No specific alternate sites have been identified, but there has been mention of one or more possible Michigan sites.

Per s. NR 812.09(1), Wis. Adm. Code, the Department has 65 business days from the time a complete application is submitted to make a decision on the application (i.e. approve, approve with conditions or deny). In this instance the Department has 65 business days after a complete application has been received and the Department has completed the environmental analysis and review process to make that decision.

3. Authorities and Approvals (list local, state and federal permits or approvals required)

For Perrier proposed actions:

DNR -High capacity well approval, compliance with new well construction and pump installation requirements, ch. 281, Wis. Stats., and ch. NR 812, Wis. Adm. Code (see discussion below)
-Preparation of an Environmental Assessment (EA) for high capacity well approval-discretionary as per s. NR 150.20(1)(a), Wis. Adm. Code (see discussion below)

If Perrier decides to develop a bottling plant, these authorities may apply (subject to location, design, etc.):

DNR -Air emission permits for direct (all or some of boiler, emergency electrical generator, and plastic bottle molding lines) and indirect (vehicle parking facilities) sources associated with possible bottling plant and operations permit (ch. 285, Wis. Stats., and chs. NR 400, 406, and 411, Wis. Adm. Code)
-Wisconsin Pollution Discharge Elimination System (WPDES) general permit for non-contact cooling or boiler blow down waters discharged to either surface or groundwater (chs. NR 102-106, and 200 series, Wis. Adm. Code) and/or potential WPDES permit for industrial wastewater treatment facility (if not hauled to an existing approved treatment plant) (ch. NR 108, Wis. Adm. Code)
-Construction Site Stormwater Discharge permit and required erosion control plan for land disturbing activities at any bottling plant site (ch. NR 216, Wis. Adm. Code)
-Compliance with capacity development regulations for non-transient, non-community on-site drinking water system at any bottling plant (ch. NR 809, Wis. Adm. Code)
-Approval for any bottling plant site high capacity well (same regulations as above)
-Approval for any pipeline waterway crossings permit (s. 182.017, Wis. Stats.)

DOT -Approval for possible plant site driveway access to and possible pipeline crossing of state/federal highways; any state/federal roadway improvements needed may be the responsibility of Perrier

DCOM -Approval of building plans and sanitary wastewater treatment system at any bottling plant
-Regulation of any truck fueling station

DATCP -Under ch. 97, Wis. Stats., and under ch. ATCP 70, Wis. Admin. Code, any bottling facility and water supply wells would need a license to operate as a food processing facility

Adams Co. -If one potential site is utilized, approval of Perrier petition for rezoning of a plant site (also possibly high capacity well sites) from A-1 Exclusive Agriculture to I-1 Industrial
-Permit, if needed, for use of CTH G right-of-way for pipeline
-Permit for septic system

The following paragraphs provide additional summary information relative to Department regulations regarding high capacity wells. More detailed information can be found in the applicable statutes/rules referenced.

DNR authority for regulating high capacity wells is contained in s. 281.17, Wis. Stats. and is specifically described in ch. NR 812, Wis. Adm. Code, entitled "Well Construction and Pump Installation". A high capacity well is any well on one property where the combined capacity of all wells on the property is at least

70 gallons/minute. The well(s) must meet construction requirements mainly designed to prevent a potential open conduit for pollutants at the land surface from entering the underlying aquifer and to protect the quality of the water being discharged from the wells. The Department may specify more stringent well location, well construction and pump installation requirements when deemed necessary for the protection of public safety, safe drinking water and the groundwater resource. The Department may deny, grant a limited approval or modify an approval under which the location, depth, pumping capacity or rate of flow and ultimate use is restricted so that the supply of water for any public utility will not be impaired. Current rules do not specifically provide additional authority to restrict pumping rates beyond that needed to prevent municipal water utility impairment.

Perrier has consented to DNR using broad authority under sections 31.02, 227.44(5), 281.11 and 281.12, Wis. Stats., to protect groundwater and nearby surface waters and wetlands. Absent such consent DNR would have been limited to using its specific authority in section 281.17, Wis. Stats., and ch. NR 812, Wis. Adm. Code.

Wisconsin has a "reasonable use standard" relating to water withdrawals established by 1974 case law. In State vs. Michels Pipeline Construction, Inc., 63 Wis.2d 278(1974), the Wisconsin Supreme Court established that a landowner could withdraw, use and sell groundwater in any amount provided that such withdrawal does not cause unreasonable harm to others (more on this in section 22).

In response to environmental concerns Perrier has voluntarily committed to operate the project so as not to cause a significant adverse impact to any water resources (groundwater, wetlands and surface waters). DNR advised Perrier that environmental studies would be needed to assess impact potential. The study effort was designed by Perrier. The study includes pre- and post-operational studies and monitoring to predict and/or measure any significant adverse impacts that may occur. If studies/monitoring indicate any significant adverse impacts would result, Perrier has agreed not to challenge DNR authority or jurisdiction to initially impose limits or subsequently require operational changes to prevent such impacts. Perrier has reserved the right to challenge the reasonableness of any such operational limits as DNR may impose, as is a permittee's right. DNR believes the technical studies/monitoring will not only help determine operational limits needed, but will also provide sound, science-based data by which to defend its position if challenged. By Perrier conducting reasonable studies to assess impact potential and DNR retaining the right to restrict (and if need be modify) pumping operations to prevent significant adverse impacts, DNR believes the identified need for and intent of new legislative proposals will be met (see sections 20f and 22).

DNR authority to prepare an environmental assessment (EA) is described in ch. NR 150, Wis. Adm. Code, entitled "Environmental Analysis and Review Procedures for Department Actions". Every Department action, such as issuance of a permit, acquiring land, developing rules, administering grants, issuing fishing licenses, etc. is listed as a type I, II, III or IV action depending on its potential to be a major action that significantly affects the quality of the human environment. Based on the impact potential of that specific action, the Department conducts a commensurate environmental review process, which includes varying levels of opportunity for public input before the action is taken (i.e. permit issued, land acquired, etc.). For type I actions, those which normally would result in significant impacts, a very detailed environmental impact statement (EIS) is prepared and formal hearings are held allowing for public input. For type II actions, those which have the potential to cause significant impacts, a less detailed environmental assessment (EA) is prepared and a news release is distributed to advise the public of their opportunity for review and input. For type III actions, which normally do not have significant impact potential, neither an EIS or EA is prepared, but a news release is put out to offer the public a chance to comment. Type IV actions are those which either individually or cumulatively do not significantly affect the quality of the human environment, do not significantly affect energy usage and do not involve unresolved conflicts in the use of available resources. Type IV actions do not require the Department to prepare an EIS or EA or otherwise provide an opportunity for public input.

EISs are not commonplace. The Department has prepared 21 EISs since 1990, twelve for new power plants or expansions that were prepared in cooperation with the Public Service Commission. Most of the EISs were for actions listed as type I (EIS required) in ch. NR 150, Wis. Adm. Code. The others were for

what would normally have been type II actions (EA required, followed by EIS decision). In those cases the Department made an up-front determination that the projects were major actions that would significantly affect the quality of the human environment, and EISs, rather than EAs, were prepared. There has never been an EIS written by DNR for a type III or IV action.

Issuance of a high capacity well approval is listed in ch. NR 150, Wis. Adm. Code as a type IV action (s. NR 150.03(8)(h)1, Wis. Adm. Code). However, s. NR 150.20(1)(a), Wis. Adm. Code provides that the Department may prepare an EA on a proposed action to aid Department decision making if critical resources may be affected or if there may be substantial risk to human life, health or safety. In this instance the discretionary criteria to prepare an EA have not been met. Nonetheless, the Department decided to prepare an EA for two reasons: 1) because of the significant public interest and concern over the proposed high capacity wells; and 2) Perrier decided not to challenge the Department's lack of authority to prepare the EA. The Department is not aware of any previous time that an EA has been prepared for a high capacity well application (or any other type IV action). After the EA public comment period is closed, all comments received are considered and a determination is made if the environmental review process is complete or if additional analysis or an EIS is needed (see section 30).

Content requirements for EISs and EAs are the same, but the EIS is more detailed. The EA is used to determine if an EIS is required. Neither an EIS or EA determine if a permit or approval is issued or other action taken and under what conditions. Instead, they are used to provide information to help the Department make informed decisions on a proposed action.

As noted above, Perrier voluntarily agreed to conduct environmental studies, allow DNR to stipulate high capacity well operating restrictions and allow DNR to prepare an environmental assessment. Had Perrier not done so, DNR would be obligated under state law to approve the well application without any measure of environmental protection beyond preventing municipal water utility impairment. Attachment 14 shows a side-by-side comparison of environmental protection to be gained by Perrier's voluntary approach versus the strict limits of law if Perrier chose to be uncooperative.

4. Estimated Cost and Funding Source

Perriers' estimated cost for the high capacity well project and other potential related activities, including the possible bottling plant, is $35 million for initial phase development and up to $80 million at full development.

Perrier has had preliminary discussions with Department of Commerce regarding possible state economic assistance grants, below-market interest rates or tax incentives that may be available for new business development and jobs creation/training grants. Though no arrangements have been finalized, Department of Commerce has indicated that one or more of the following programs may be available: Community Development Block Grant for Economic Development (CDBG-ED); Major Economic Development (MED) Program; Customized Labor Training (CLT) Program; The Enterprise Development Zone Program; or the Community Development Zone Program.

PROPOSED PHYSICAL CHANGES (More fully describe the proposal)

5. Manipulation of Terrestrial Resources (include relevant quantities - sq. ft., cu. yard., etc.)

Wellheads would be contained in on-grade 150-200 square-foot steel or masonry well housing. Less than 1.0 miles of gravel roads would be constructed for access to well sites.

If one potential site south of STH 23 is utilized for a water bottling plant, water would be delivered from the wells by pipeline. Pipeline trenches 3-6' wide would be excavated 6-7' below grade except at streams (two crossings, Big Spring Creek and a tributary, which crosses CTH G near Golden Avenue), a few roadway ditch wetlands and possibly at roadway/driveway crossings, where directional or horizontal boring methods

would be used. Seep collars and erosion control measures would be used where needed.

Possible plant site location on the potential 304-acre farm parcel site minimizes disturbance to natural vegetation and existing topography (see Attachment 2). Approximately 80 acres of primarily cropland would potentially be disturbed for buildings, access roads and parking areas. An existing 50' high earthen berm on the north and a wooded hill on the east would be maintained as buffers and for visual screening. Stormwater and erosion control measures following best management practices would be required before site grading, and during and after site development. DNR would review the plans before a stormwater permit is issued and construction could commence. Existing structures (two sheds, residential trailer, and silo) at the northeast corner of the potential plant site would be demolished or relocated, with demolition material recycled if possible or disposed of at an approved landfill. An existing 6" steel cased well would be properly abandoned. A 0.4 mile paved entrance road would be constructed off a new STH 23 intersection and angle southwest to the potential plant site. Interior paved roads and separate employee and truck parking areas would be constructed. A fire lane would be built to the west. The potential plant site would be graded and at full development a maximum 1,007,500 square-foot single story, slab-on-grade plant building would be constructed. Tests indicate on-site soils are generally adequate for plant building load bearing. Scattered pockets of perched water table may be encountered and would be removed. No wetlands exist in the footprint of possible plant construction. A high capacity well would be installed north of the plant for sanitary, equipment washing and fire protection use. An above-ground water tank would be built to store back-up water for fire protection. A septic tank, piping and drain field would be installed east of the possible bottling plant and would accommodate 2000 gallons/day of sanitary wastewater. A truck fueling station would be located east of the possible plant off the east interior road leading to the south parking lot. The station would include an underground/above ground storage tank, a containment pad and two pumps.

6. Manipulation of Aquatic Resources (include relevant quantities - cubic feet per second(cfs), acre feet, MGD, etc.)

Operation of the wells would withdraw groundwater from the underlying aquifer at maximum rates described earlier. The nearest municipal well is located six miles west at Wisconsin Dells. Preliminary tests at lower than Perrier proposed maximum withdrawal rates have been conducted. Perrier believes studies to date indicate: little or no impacts to adjacent wetlands; groundwater levels would not be impacted beyond 150' from wells; a small (0.1') reduction in pond elevation at Buckley Pond and none at Jensen's Pond; and a minor reduction in stream flow at downstream receiving waters.

The preliminary studies conducted by Perrier were not designed to evaluate or make conclusions regarding possible long-term impacts of the proposed production wells. Modeling of surface and groundwater interaction in the study area is being conducted. The model will be able to simulate the effect of pumping a well or wells at varying rates and locations. Additional tests at higher pumping rates will be undertaken at a later date. The higher rate pumping tests will be used to verify actual site conditions and calibrate the model. The impacts of withdrawals on groundwater and pond levels and stream flows are described in more detail in sections 15 and 16.

The well at the potential plant site would have a maximum pumping rate of 250 gallons/ minute and a maximum total daily withdrawal of 75,000 gallons. Water from the possible plant well would not have to be "spring water" and the well could therefore be constructed in deeper strata than production wells. Some of the water may be returned to the aquifer as wastewater discharge, but this is uncertain at this time. The nearest residence private water supply is estimated to be at least 800' away from the proposed well site.

The potential bottling plant site and access roads have been conceptually designed to avoid direct impacts to wetlands located at the southeast corner of the farm property. The wetland, totaling 27 acres on the property, is part of a large wetland complex that extends east and south of the farm property (see section 11). Production wells would be located to avoid impacts to wetlands. If built, the pipeline would be bored under two stream crossings (Big Spring Creek and a tributary from the west).

The only direct physical disturbance to any surface waters or wetlands for any part of project development

would be that associated with voluntary stream or wetland restoration efforts that are conceptually planned by Perrier at some future time. Later sections of the EA discuss these possible improvements which, if pursued, would have to comply with applicable water regulations/permit requirements.

7. Buildings, Treatment Units, Roads and Other Structures (include size of facilities, road miles, etc.)

As described earlier, the main facilities, at full development, would be:

Well site:

- two or more high capacity wells to maximum depth of 200' at well site, 500 gallons/minute combined maximum pumping capacity, wells would be contained within 150-200 sq. ft. steel or masonry well houses
- less than 1.0 mile graveled access roads to wells from existing local roads

Potential plant site (at full development, if one potential site is used):

- 1,007,500 sq. ft. bottling plant
- 25,000 sq. ft. office area
- 0.4 mile paved interior roads, truck, trailer, staging and employee parking areas
- stormwater structures at the plant site, including three detention basins
- 1.5 miles of 2-4 parallel pipelines buried along CTH G right-of-way
- one high capacity well, 250 gallons/minute at maximum capacity
- (possible) 75,000 gals/day treatment system for industrial wastewater (or haul to DNR approved off-site system)
- plant sanitary wastewater piping, at-grade 6000 gallon septic tank and 5 cell drain field over <1 acre, capacity to treat 2000 gals/day
- an above-ground water tank for fire suppression reserve
- ~ 250 acres of the plant site will remain as green space (includes landscaped areas and sedimentation basins)

In addition, hook-ups by the local electrical supplier (Alliant Energy) would be needed, connecting the high capacity wells and possible bottling plant to existing distribution lines located along adjacent roads. The possible plant would require ~ 7 megawatts of electricity and either 470 cubic feet per day of natural gas or, as a second option, 3400 gallons per day of fuel oil. If a 7-day fuel oil supply were stored on-site it would require a tank roughly equal in size to two large tanker trucks. Perrier reports that local providers have the capacity to provide these energy/fuel services. If a gas line is not available Perrier indicates it would also consider LP gas as an alternate energy source. A local telephone company would provide telecommunications service.

DOT has indicated that Perrier may have to bear the costs of constructing a new access at STH 23 to the potential bottling plant site.

Perrier has gone on record that it would bear any contributing costs required of the Town of New Haven for making access or utility improvements.

8. Emissions and Discharges (include relevant characteristics and quantities)

At the well or any plant sites there would be temporary, minor emissions of fossil fuel exhaust associated with well, plant buildings and road installation.

At any plant site there may be several emissions/discharges as described below.

Sanitary Wastewater

A sanitary septic system would be installed to accommodate 2000 gallons/day. If one potential bottling plant site is used, a drain field would be located 400' southwest of the plant site.

Industrial Wastewater

Perrier has not finalized plans for disposal of up to 75,000 gallons per day of industrial process wastewater. Alternatives being considered include: storage in an on-site holding tank with ultimate transfer to a DNR approved off-site wastewater treatment plant (the nearest, Wisconsin Dells-Lake Delton sewage treatment plant, has capacity available, though permission to use has not been obtained); landspreading on approved fields; or treatment on-site with treated wastewater discharged to a surface water or in-ground for infiltration (i.e. ridge and furrow system).

Preliminary review of alternatives presented indicates that hauling to an off-site WWTP, landspreading or treatment on-site with an infiltration discharge would likely be the most practical options for this potential plant location. Disposal at an approved off-site wastewater treatment plant (WWTP) would not require DNR approval. Each of the other treatment options would require a separate DNR WPDES discharge permit, plan and specification review and approval to ensure that the discharge would not cause adverse impacts.

Stormwater

Site clearing for any bottling plant site would temporarily expose native soils, which in turn could be subject to erosion. Construction of plant buildings and paved parking areas and roads would create impervious surfaces from which, during runoff events, stormwater would be generated. A Construction Site Stormwater Discharge permit would be needed prior to construction to prevent the discharge of pollutants carried by stormwater runoff from entering surface waters. A preliminary stormwater management plan is contained in Perrier's Application, Preliminary Design Report, Section 1. The plan describes use of diversion ditches, stormwater detention basins, grass filters, riprapped (rock) flumes, oil/water separators at parking lot inlets and other measures to control erosion and pollutant discharge. Perrier would have to prepare final plans and submit a permit application for DNR review. Additional discussion is provided in section 15.

Solid and Hazardous Waste

It is not anticipated that a plant, at any location, would produce any hazardous waste. Common industrial chemicals would be used for plant equipment cleaning and sanitizing and as lubricants. A complete list of agents to be used and attendant Material Safety Data sheets is contained in the application. If proper storage and handling procedures are followed there should be no unusual or serious worker or environmental risk. Perrier should have a safety plan in place for storage, proper handling and emergency response if there is unsafe human exposure or a spill.

Approximately 3000 cubic yards per month solid waste would be generated, mostly consisting of packaging products such as wood pallets, cardboard and paper products. Perrier expects an approximately 80% diversion or recycling rate. All non-recyclables and demolition materials from removal of any existing buildings at the potential construction site would be disposed of at an off-site, licensed landfill.

Air Emissions

Truck and worker traffic to and from any plant site will cause a small increase in fossil fuel burning air emissions. Dust would temporarily be generated during construction of the possible bottling plant and access road. Use of dust suppression measures could be employed to minimize any such impacts.

An environmental assessment of air emissions was provided as part of Perrier's permit application (see Perrier Environmental Assessment, page 7). Air emissions were calculated at the potential plant site from the primary and emergency boilers, emergency generator, fire pump engine, hot melt line, video-jet line and parking lot. Perrier suggests that air permits are not required for any of these sources. Based on information submitted, DNR Air Management staff have determined that a construction permit may be required for some or all of these emissions and possibly others not noted in Perrier's Application (i.e. plant plastic bottle molding lines). Discussions are underway to resolve whether or not a construction permit

would be needed. If a construction permit were required, a separate DNR environmental review process would be completed and the permit would have to be obtained before any phase of plant construction could begin. In addition to the construction permit all other emissions at any bottling plant may be required to obtain an operations permit. Any permits issued would require the application of suitable control measures such that ambient air standards are being met to protect public health and welfare and prevent detrimental effects on property and the environment.

Demolition of any existing structures on the property being considered for the bottling plant would require a separate permit review under section NR 406.04(1)(n), Wis. Adm. Code. Any authorization for demolition would require thorough pre-inspection and the use of suitable control measures to prevent harmful air emissions.

9. Other Changes

Noise would be generated during construction of the wells and possible pipelines, roadway improvements and the bottling plant. In addition, operation of a bottling plant and wells and employee and truck traffic would generate localized noise. Though expected to be minor, such noises would be required to comply with Adams County special regulations, section 5-15.09(B)(5), to prevent unacceptable noise impacts (also see section 15).

Any plant and access road lighting would be designed to industry standards and directed downward to prevent off-site lighting impacts.

10. Identify the maps, plans and other descriptive material attached

Attachment 1- Location Maps
Attachment 2- Conceptual Bottling Plant Site Plan
Attachment 3- Well Site Water Bodies and Flow Measurements
Attachment 4- Well Site Soils X-Section
Attachment 5- Well Site Wetlands
Attachment 6- Jensen Pond Monitoring Wells
Attachment 7- Buckley Springs Monitoring Wells
Attachment 8- Jensen Step Test Maximum Drawdown
Attachment 9- Buckley Springs Step Test Maximum Drawdown
Attachment 10- Summary of Wisconsin High Capacity Well Program, DNR, March, 2000(unpublished)
Attachment 11- DNR Technical Guidance for Documenting Changes in Private Flowing Wells(unpublished)
Attachment 12- DNR Technical Guidance for Documenting Changes in Private Non-flowing Wells
Attachment 13- DRAFT Agreement between Perrier and DNR. Requires Perrier to conduct studies, requires that Perrier not challenge DNR authority to prescribe operating conditions and stipulates that Perrier operations will not have significant adverse impacts on groundwater, surface waters or wetlands
Attachment 14- Comparison of environmental information/protection to be gained by Perrier voluntary commitments versus strict limits of the law if dealing with an uncooperative applicant

AFFECTED ENVIRONMENT (Describe existing features that may be affected by proposal)

Information Based On:

[X] Literature/correspondence (major sources indicated where applicable)

-Perrier's high capacity well permit application, potential bottling plant design report, environmental assessment and associated appendices, work plans, technical studies, etc.

[X] Personal Contacts (see list in item 28)

Field Analysis By: [X] Author [X] Other (see list in item 28)

Past Experience With Site By: [X] Other (see list in item 28)

11. Physical features (air - topography - soils - water - wetlands)

Foreword

Much of the information in this section is based on Perrier technical studies and surveys designed and conducted (ongoing) in consultation with DNR, and subsequent reports prepared by Perrier consultants. A complete copy of the project application, including all technical reports and work plans for continuing studies, is on file at local public libraries listed in section 1.

No long-term historic Big Spring Creek flow data or underlying groundwater water table data is available. The nearest USGS surface water flow gage that has long-term historic data is located to the north about 42 miles on Tenmile Creek in Wood County. The nearest USGS water table gage is located about 23 miles north at Friendship. Records dating back to 1969 at this gage indicate the late March, 2000 recorded water table was about half way between the mean and average lowest water levels compared to historic records. This information is available at web site address: wi.water.us.gov.

Measured March 21-22, 2000 Big Spring Creek and tributary stream flows are shown on attachment 3.

Air

Air quality in the area is good. Chapter NR 400, Wis. Adm. Code, establishes rules to regulate air pollution. Criteria pollutants regulated include particulate matter, sulfur dioxide, organic compounds, nitrogen oxides, carbon monoxide and lead. Hazardous air contaminants and visible emissions are also regulated. The Big Springs area is outside any regulated pollutant non-attainment area.

Topography

Topography at project well sites is flat to gently rolling. The land is bisected by Big Spring Creek and its tributaries, often created by discharges from excavated spring ponds. Surface drainage is to the southeast. Well site lands are used as cropland or pasture.

The potential bottling plant site terrain is gently sloped to the west. Mounds, up to 50' high, surround the potential site to the north, east and south. The 0.4 mile long access road from STH 23 would cross between the north and east mounds as it heads southwest to the potential plant site. Land around most of the possible access road gently slopes southeasterly.

Geology, Soils and Groundwater Aquifer

Landscape in the project area consists of flat to gently sloping drainages between rolling ground moraines. The project area is located at the southeastern base of the Johnston Moraine and falls within the area flooded by the Lewiston arm of glacial Lake Wisconsin. The area is dominated by fine-grained soils characteristic of the Kewaunee-Poygan map unit.

Silt and clay deposits confine the underlying sand and gravel aquifer at the well sites. Bedrock is primarily sandstone. Surface clays measuring 0-50' deep confine a 150-200' sand and gravel aquifer that is the source of springs at both Jensen's and Buckley Ponds (see attachment 4). Springs occur at both ponds through sand conduits in the clay overburden. Pre-existing wells advanced through the clay layer near both ponds show flowing artesian conditions. Groundwater movement is generally south-southeasterly from recharge areas to the springheads and surface waters at and surrounding the project area.

At the potential plant site soils range from clays to medium sands. Though scattered pockets of perched water may be encountered, the depth to groundwater from the land surface is at least 20'.

Water Resources

Jensen's Pond and Wetlands (also called Big Springs)

Jensen's Pond is located just east of CTH G at the west-center edge of section 22, Town of New Haven. The pond has numerous springheads that were excavated between 1957 and 1965 (based on review of old aerial photos), probably to create a wildlife or fishing pond. Dredged material was deposited to form earthen berms to contain the pond and to concentrate the outflow into a confined outlet and stream channel. The pond measures approximately three acres in size and is shallow, mostly less than 3' deep.

The original (and existing) wetland community is mainly a sedge meadow. An extensive peat body that exhibits remnant fen characteristics (fen is a special wetland type, see later discussion in this section on wetlands) is a dominant wetland feature north of the pond. To the east extensive spring seeps are found at the base of an oak-covered slope. The largest of these seeps, with a measured flow of 0.45 cubic feet per second (cfs), drains northeast across gravel beds toward the pond. Another springhead comes to the pond from the west. A diverse assemblage of wetland plants occupies the peat body, spring seep areas and pond perimeter. A list of dominant vegetation species can be found in the project application, Wetland Resources Study Report.

Buckley Pond and Wetlands

Buckley Pond (also called Buckley Springs or Buckley Springs Pond) is located near the center of section 22. Two ponds were also created sometime between 1957 and 1965 by excavation in a spring head wetland area. Dredged material was used to construct an earthen dam on the SE end of the main pond. To the northwest is the smaller, upper pond, which contains the main part of the spring. Water from the upper pond flows into the lower pond via a 12" culvert, with a drop in elevation of ~ four feet. Total size of the pond area is 4-5 acres.

The original wetlands were spring-fed, sedge meadow fens. Wetland communities found around the pond site now include shallow marsh (south), sedge meadow fens at mounded peat deposits over springs (north and east), wet meadow, wet prairie and an ephemeral pond in the woods to the north. A complete description of the wetlands, soils and plant communities is contained in the applicant's Wetland Resources Study Report.

Big Spring Creek and Tributaries

Each pond has outlet structures that discharge to stream channels which flow south. The stream emerging from Jensen's Pond, also considered the Big Spring Creek headwater's main channel, averages several meters wide and less than 0.5 meters deep. It has a mostly sand/silt bottom and contains little in-stream vegetation or cover. It runs south approximately 0.5 miles through pasture/cropland, passing through two field road culverts, goes under Golden Avenue and then merges with an unnamed tributary from the west near the intersection of CTH G and Golden Avenue. From there the stream flows east for another 0.4 miles where it enters Big Spring Pond (also called the Mill Pond). Stream flow at the outlet of Jensen's Pond was measured in March, 2000 to be 8.27 cfs (about 3700 gallons per minute). Flow steadily increased moving downstream, reaching 15.79 cfs (7050 gals/min) just before entering Big Spring Pond (see attachment 3). This includes 3.55 cfs from a tributary that joins Big Spring Creek from the west near the CTH G and Golden Avenue intersection. Scattered sedge meadow wetlands are present in and along the stream.

The stream channel emerging from Buckley Springs Pond is ditched, averages 2 meters wide and is ~ 0.2 meters deep. It has a silt bottom and little in-stream vegetation or cover. It also flows south for 0.5 miles through open cropland, passing through one field road culvert. It crosses Golden Avenue via a culvert and

thereupon immediately enters Big Spring Pond. Flow leaving Buckley Pond was measured in March, 2000 to be 0.38 cfs (170 gals/min) and increased to 1.52 cfs (680 gals/min) just before entering Big Spring Pond.

The flows described in the preceding paragraphs represent a single measurement obtained in March of 2000 and are not necessarily an accurate representation of long-term average base flows.

Culverts downstream from both ponds are improperly installed such that the outlet end is set higher than the downstream stream bed elevation, effectively preventing fish from upstream movement.

Big Spring Pond (Mill Pond)

Big Spring Pond is a 7-8 acre millpond on Big Spring Creek created by a 225' long and 18 ' high earthen dam. Atop the dam is a town road named Golden Court. The dam was built prior to 1923 (earliest DNR dam record on file) for milling purposes. The stream and pond between Golden Avenue and Golden Court is surrounded by a handful of homes, mostly on the south and east sides, with the roadway and fallow grassland and woodland to the north.

The dam is owned by Mark Knutson (ownership, and dam maintenance responsibility, have never been formally transferred from the previous owner, who obtained it from a family estate). Mr. Knutson, who has indicated an interest in restoring the dam for hydroelectric generation, has been provided an application for dam transfer. The dam was inspected on April 4, 2000. It is in need of substantial concrete repairs and minor embankment work. The dam has a previously established minimum and maximum water level, between elevations 99.0 and 100.64 local datum. This means that the owner must maintain pond water levels within that operating range. Water levels are maintained by installing stoplogs on the upstream side of three culvert structures. Near the west end of the dam are two large side-by-side culverts, one approximately 4-foot diameter corrugated metal pipe which leads to the former (now decrepit) powerhouse and the second, a large box culvert, which serves as a primary spillway. The culvert outlets reconnect immediately below the dam to again form the main channel of Big Spring Creek. Near the east end of the dam is a second corrugated metal pipe culvert. Water passing through this culvert was formerly used to mechanically operate a water wheel at a gristmill located on the east river bank. Water passing through enters a separate channel that reconnects with the main channel of Big Spring Creek about 300' downstream.

Over the last several years the pond water level has been set in a slightly drawn-down condition and DNR has been working with Mr. Knutson to assure that authorized levels are properly maintained. However, the Department will not authorize the pond level to be raised back up until the necessary repairs have been completed and dam safety requirements are met. Water levels in stream channels below the dam are several feet below water levels above the dam, thus preventing upstream fish migration.

The pond serves as a sediment trap and over the years an estimated 9-12 feet of sediment has accumulated upstream of the dam. Currently most of the pond is very shallow, 1-2 feet deep, and thick with common emergent grasses and other aquatic plants.

On June 1, 2000 a runoff event combined with dam culvert blockage caused the dam to overtop. The dam and road was breached near the primary spillway and sloughing occurred on the downstream face near the east end. Repairs to the dam and road would likely cost several thousands of dollars. No plans for repairs have yet been finalized. Another conceivable option, given the substantial repairs needed even before the June 1 failure, may be that the road is closed and the dam removed. Any repairs or modifications to the dam would require DNR review and approval as per ch. 31, Wis. Stats.

Lower Big Spring Creek

Below the dam Big Spring Creek meanders about 0.5 miles southeasterly through mostly undeveloped wooded lowlands, tag alder swamp and emergent wet meadow wetlands. The stream enters Burns Cove at the upper end of Mason Lake, another dam-formed impoundment of Big Spring Creek. Numerous other

springs and several smaller spring-fed tributaries add to the baseflow of Big Spring Creek between Big Spring Pond and Mason Lake.

Mason Lake

Mason Lake covers 855 acres and is largely surrounded by homesites and campgrounds. The dam was rebuilt in 1993. It is located at the Village of Briggsville in Marquette County. It is owned and operated by the Town of Douglas to control lake water levels, mainly for recreation purposes.

The lake has DNR-established minimum/maximum water levels between elevations 797.01 and 798.61 (DOT datum). Mason Lake is shallow, with a maximum depth of nine feet, has gradual shorelines and many spring seeps. Carp have been a problem in years past. The impoundment now contains a valued warm water fishery, particularly panfish, and is heavily fished year-round. The lake is eutrophic (high in nutrients and biomass) and has a long history of algae blooms and abundant plant growth. A 1993 DNR appraisal reported problems on the lake including nonpoint source pollution (nutrients and sediment), high turbidity, dense aquatic vegetation, impaired water quality and fluctuating water levels. Though conditions would seem to indicate dissolved oxygen (DO) problems could exist, especially in winter, extensive DO monitoring over the last ten years shows no evidence of this and the local fish manager has no knowledge of winter fish kills. There have been past reports of fish die-offs during the fish spawning season (April-June), possibly caused by low oxygen levels in the late night/early morning when respiration is taking place.

In addition to participation in a self-help volunteer program and other efforts to improve the lake for the mutual benefit of property owners and the community, the Mason Lake Improvement Association has acted to address the plant and algae problem. The Lake Association has attempted to control plants (particularly exotic Eurasian water milfoil and curly leaf pondweed) and thereby improve fishery habitat. An example is Lake Association help in obtaining Department approval for several recent winter (pre-ice cover to spring run-off) lake level drawdowns: 1988-90 (4-5 feet); 1990-95 (4 feet) and 1998-2000 (1.5 feet). The drawdowns have had an additional benefit by preventing winter ice damage to shorelines and docks. Numerous past chemical treatments have also been used in an effort to control plants. Through 1995 the drawdowns yielded some promising improvements in fish habitat and growth rates, improved the plant community, reduced algae and improved water quality. All of these improvements have since been reversed when the drawdowns were discontinued after 1995. There is optimism that by resuming the drawdown program again two winters ago improvement trends will return.

The Lake Association is very concerned that the Perrier project may reduce the flow in Big Spring Creek and make it more difficult to restore water levels following winter drawdowns. They are also concerned about possible water quality effects (see section 15).

The Mason Lake subwatershed encompasses a 28 square-mile drainage area. Big Spring Creek is the main stream of water flowing into Mason Lake. A smaller, unnamed tributary enters Mason Lake from the north at Morris Cove. Many springs seep into the lake and along its shoreline, adding an unknown flow contribution. Internal DNR correspondence (Scot Ironside, Fish Manager, 9/1/94) and a 1998 technical report (Changes in the Aquatic Plant Community of Mason Lake, 1988-98, Deb Konkel, 1998) both support continued drawdowns as a management tool. Other recommendations in the Konkel report were: eliminate or change chemical treatments; conduct a plant harvesting program; establish a natural buffer zone of native vegetation along shorelines (to reduce nutrient and other chemical inputs and runoff from lawns); preserve and enhance wetlands around Mason Lake; and cooperate with education efforts to reduce nutrient inputs within the watershed.

Mason Lake drawdowns have not been without controversy. To the south lies Amey Pond, which is connected to Mason Lake by a channel under STH 23. The spring-fed, 56-acre pond is mostly surrounded by nearly 150 acres of land acquired by the DNR in 1984. The pond is cooperatively managed with Ducks Unlimited as a Fish and Wildlife Management Area. Management emphasis is primarily as a waterfowl production and migration resting/feeding area. The pond is also a known northern pike spawning area.

Drawdowns on Mason Lake cause an equal drawdown of Amey Pond, which is also shallow(maximum depth 8 feet). The timing of Mason Lake drawdowns, which partly coincide with fall and spring waterfowl migrations, limits its value as high quality waterfowl feeding/resting habitat. Another wildlife concern is drawdown effects on amphibians and reptiles which may bore into pond shoreline areas to overwinter, only to be exposed to freezing when the pond is drawn down in late fall. A possible remedy may be to install a water control structure at the mouth of Amey Pond to allow maintenance of water levels in the pond while still allowing Mason Lake drawdowns. The structure could also function as a rough fish barrier.

Water Quality

Field studies in March, 2000 indicate the ditched tributary from Buckley Pond is presently incapable of supporting a trout fishery, mainly due to low flows and high water temperatures.

Water quality is good at upper stretches of Big Spring Creek (above and below Jensen's Pond), but gradually declines moving downstream, mostly due to grazing and nonpoint source runoff from surrounding agricultural land uses. Similar results were detected for temperature, with upper reaches capable of supporting a trout fishery, with gradually greater daily temperature swings and conditions unfavorable for trout production, moving downstream. It should be noted that because field work was done in March it does not assess stream temperature during critical times of the year. Additional field work will be completed during this year's critical summer months to assess key parameters, mainly temperature and dissolved oxygen, under summer baseflow conditions.

Waters at both test well sites were found to be of the calcium/bicarbonate type. More detailed water quality data is described in Perrier's Application, Aquatic Resources Study report, notably Table 8 and Figures 9-13 and the Interim Report, Groundwater Study, Figures 22-27 and Appendix C. Also see the discussion in the next section on Fish and Invertebrates.

The Aquatic Resources Study Report contains a work plan calling for additional water quality monitoring in July/August, 2000. The survey would be repeated annually to determine any high capacity well project impacts on water quality and the need for remedial action.

Watershed Plan

Discharge from the Mason Lake dam flows east and is called South Branch Neenah Creek. It joins Neenah Creek and eventually enters the Fox River and Lake Michigan. The Perrier project is not expected to have any impact potential to water resources downstream of Mason Lake.

In cooperation with Adams and Marquette County Land Conservation Departments and other local officials, in 1994 the Department completed a Nonpoint Source Control Plan for the Neenah Creek Priority Watershed Project. For the Mason Lake subwatershed (which includes the Perrier project study area) the report recommended: a) reducing agricultural sediment and nutrient inputs in identified problem areas; b) improving Big Spring Creek coldwater fishery habitat upstream from Mason Lake; c) improving public access; d) considering the removal of the Big Springs Pond dam; e) limiting future stream channelization; and f) converting Mason Lake Improvement Association to a Lake District to improve the group's eligibility for state planning and lake improvement grants.

Wetlands

Wetlands associated with Jensen's and Buckley Ponds were described earlier as having areas that exhibit fen characteristics. These fen areas occur within a mix of wetland types that are dominated by southern sedge meadow communities, with smaller areas of shallow marsh, fresh wet meadow and wet prairie. Most of these wetlands have been disturbed and subsequently invaded by exotic plant species, primarily reed canary grass.

Fens are wetland areas supported by groundwater discharge and flow-through. Of the fen types that occur

in Wisconsin, calcareous fens- those fed by groundwater rich in calcium/magnesium carbonates and that support a unique community of calcium loving plants and animals- are the most rare. While the fen wetland areas on the Buckley and Jensen sites do exhibit some characteristics suggestive of alkaline conditions, they cannot be characterized as true calcareous fens. The list of plant species and communities encountered during an August 24, 2000 site survey conducted by UW Milwaukee, Perrier consultants and DNR staff supports this conclusion. More discussion is provided in section 12, Endangered and Threatened Species and Natural Areas.

Using historical aerial photos, Wisconsin Wetland Inventory Maps and field reconnaissance, consultants delineated wetland boundaries (see attachment 5) and identified major vegetation cover types. Other field observations included identification of any rare species habitat, surface hydrology features, soil characteristics, wildlife and their sign and other features relative to wetland function and ecological health.

All wetlands at the well sites are disturbed due to past physical alterations (ditching, tiling, excavation, impoundment) and grazing. Wetland types present include springs, spring runs, fens, sedge meadows, wet prairie and wet meadow. A complete description of the wetland communities present in the project area is contained in the Wetland Resources Study Report. The report includes a work plan calling for additional wetland surveys in late August, 2000 (results described in section 12 of the EA, Endangered and Threatened Resources and Natural Areas) and repeat surveys in three years to determine if there are any changes caused by Perrier water withdrawals and the need for any operational adjustments to avoid impacts. Perrier also plans to develop and may voluntarily implement a wetland restoration and enhancement plan (see Appendix C work plan, Wetland Resources Study Report).

The potential pipeline route would follow CTH G road right-of-way (ROW). Adjacent land use is mostly pasture and cropland. Several farms, rural residences and scattered woodlands also dot the roadside landscape.

The potential bottling plant site would be located on about 80 acres at the southwest corner of a 304-acre farm parcel. At the southeast corner of the farm property and extending to the east and south is a seasonally saturated wet meadow/shrub/scrub wetland known as Corning-Weeting Lakes and Bog (see section 12). Common grasses, sedges, and cattails with scattered shrubs dominate vegetation on the 27-acre portion of the wetland on the farm property. The wetland is located at least 0.25 and 0.5 miles from the potential access road and plant site respectively. Drainage from land around most of the access road gently slopes southeasterly toward the wetland. Drainage from the potential plant site slopes to the west.

Other Water Resources

In addition to those described above, there are numerous other springs, spring ponds, wetlands and small drainages in the general area. There are also numerous artesian wells, including some located inside private homes and which are being used for water supply.

12. Biological (dominant aquatic and terrestrial plant and animal species and habitats including threatened/endangered species)

Vegetation

Uplands at the well sites consist primarily of agricultural lands, some of which are artificially drained former wetlands now being used for pasture and row crops. Small patches of woodland, dominated by oak, hickory and aspen, are found mostly north of the spring ponds. Vegetation associated with wetland areas is generally described in section 11 and in greater detail in the application.

Wetland vegetation types have been generally described earlier and are specifically described in the Wetland Resources Study Report. Additional surveys will be conducted in late August, 2000 to further define the vegetative community. These surveys would be repeated three years after operations begin to document any changes and the need for any operational adjustments.

The potential plant site is primarily cropland. Wooded lots border the site to the southwest near the northeast corner of Gulch Road and Fourth Avenue and on 50' high mounds to the east. The wood lots would be undisturbed except for about 1 acre at the sanitary wastewater drainfield.

Fish and Invertebrates

Since Big Spring Creek is a class 1 trout stream, it is also classified as an exceptional resource water. Existing habitat conditions and land uses currently prevent it from supporting a high value biological community.

Fish and invertebrate surveys were conducted in Jensen's and Buckley Ponds and Big Spring Creek downstream to Golden Avenue by Perrier consultants and DNR in March, 2000 (survey data is available in Water Resources Study Report). A remnant brook trout population exists in limited areas in Big Spring Creek upstream and downstream from Jensen's Pond. A total catch of 101 trout was less than what was found in a survey by DNR for the same area in 1975, when 250 trout were collected. Non-game species found were creek chub, brook stickleback, mudminnow and mottled sculpin, which dominated the fishery. Most trout were in the 5-7" range, though a few larger fish were found. Evidence of trout natural reproduction was identified only in the spring run entering Jensen's Pond from the north. No trout were collected at or below Buckley Pond. The pond did contain bluegill and largemouth bass, likely from private stocking, and brook stickleback. The ditched stream below Buckley Pond contained stickleback and creek chubs.

Invertebrate production was generally found to be low in both streams, mainly due to lack of hard substrate (boulders, gravel, etc.) which is a preferred habitat for many invertebrate species. In upper stream stretches near Jensen's Pond water quality conditions appear to be capable of supporting diverse invertebrate populations, but poor habitat quality is a limiting factor. Below Jensen's Pond the stream has potential to support a healthy trout fishery and invertebrate population, but existing habitat quality is limited due to lack of cover, solar warming, low dissolved oxygen, few pools/riffles or other substrate, trampled banks and sedimentation, and improper culvert settings. The ditched stream below Buckley Pond does not have sufficient year-round flow, temperature or other water quality conditions that would support a high valued fishery or invertebrate community.

Biotic integrity is defined as "the capability of supporting and maintaining a balanced, integrated, adaptive community of organisms having a species composition, diversity and functional organization comparable to that of the natural habitat of the region" (J.R. Karr and I.J. Schlosser, Water Resources and the Land Water Interface, *Science*, 201:229-234, 1978). Indices were developed for all stream sections in the project area (see Water Resources Study Report). Fish indices of biotic integrity (IBI) were poor to very poor at lower stream stretches below both ponds. The middle stream reach below Jensen's Pond and the upper stretch below Buckley Pond were fair. The upper reach below Jensen's Pond was good and above the pond was excellent.

The Family Biotic Index (FBI) of aquatic macroinvertebrates, a measure of stream health, was also calculated based on sampling data. The FBI was fair to fairly poor in the lower stretches below Jensen's Pond and the entire stream course below Buckley Pond. The FBI was good from the middle stretch below to above Jensen's Pond.

Though Big Spring Creek is not considered a high quality trout stream, it has the potential to be so. Big Spring Creek below Jensen's Pond is currently too wide and shallow, doesn't contain enough in-stream structure/cover and needs more gravel/boulder substrate to be high value trout spawning habitat. Physical improvements, such as narrowing the channel, planting vegetation for shading and installing in-stream structures would also improve invertebrate production, increase the available fish food supply and improve temperature and dissolved oxygen profiles. Other measures could be used to improve the fishery and biological community. In-stream culverts should be reset so as not to impede upstream fish passage. Improved land use practices, such as installation of shoreline vegetation buffers to increase shore cover

and shading, and restricted pasturing to prevent bank erosion, would be helpful. These improvements would greatly improve conditions needed to establish a viable, reproducing brook trout fishery.

Perrier has indicated an interest in stream restoration for the 0.5 mile stream section on property it would acquire (see Application, Tab 5, page 27). Physical stream improvements would be offset, however, if Perrier water withdrawals were not limited to assure maintenance of adequate stream flow to support such a fishery, especially during low flow conditions.

Big Spring Pond is presently drawn-down and is mostly covered with a dense mat of common aquatic plants. Though no recent surveys have been conducted, a similar fishery as upstream is likely and there could be remnant warm water fish species present from days when pond water levels were set higher.

No fish or other resource surveys have been conducted in Big Spring Creek below Big Spring Pond. The local fish manager expects that the stream would support a combination coldwater and warmwater fishery. It would have potential as a viable, quality trout stream, but only if habitat improvements as described above were made and the Big Springs Pond dam was removed. Doing so would improve water temperature profiles and increase trout carrying capacity. If such measures are pursued it may also be appropriate to install some sort of screening structure at the mouth of Big Spring Creek to prevent warmwater predatory and rough fish species (i.e. northern pike, carp) from Mason Lake moving upstream.

As is, the stream is not meeting its fishery potential. If all the above mentioned habitat improvement measures were made the best that could be hoped for is to (re)establish approximately 2 miles of coldwater stream supporting a naturally reproducing brook trout population. Of this, Perrier would have direct control only over those riparian lands it would acquire, roughly the upper 0.5 miles (includes the tributary above Jensen's Pond). Whether or not Perrier would allow unlimited public access to its property, such as for fishing, is up to the company (stream access from existing public ROW, such as a bridge, is a public right). Trout stream enhancements would improve biological diversity and help maintain an isolated, wild brook trout gene pool, which in turn could have increasing future importance in statewide trout management efforts. Of course the other key ingredient to protect or improve fish and other aquatic organisms, aside from physical habitat, is to make sure they have sufficient water. With or without physical habitat improvements, Perrier water withdrawals could reduce stream flow and threaten the streams' biological community. This is discussed in sections 15 and 16.

As per the Aquatic Resources work plan, additional fish survey work is planned by the consultant and DNR for July/August, 2000 and would be repeated annually thereafter to document any changes in the fish community and help determine any associated need for Perrier operational modifications. Continuous stream flow (and pond level) monitors will also be installed to establish stage/discharge rating curves and to be able to determine compliance with any minimum flow requirements that may be imposed if the high capacity well project is approved.

Wildlife

Comprehensive wildlife surveys have not been conducted in the well site area. There has been site screening for endangered and threatened species (see below). As is generally the case in a rural area, extensive wildlife habitat exists for common game and non-game species. According to the local wildlife manager the area's abundant surface waters (Mason Lake, Amey Pond, local streams and many wetlands and private spring and/or excavated ponds), combined with scattered woodlots and croplands, create a mosaic of diverse habitat types suitable for use by many species. There is heavy use by waterfowl as a migration resting stopover and for year-round feeding. Surface waters and croplands also support a good local production area for Canada geese, sandhill crane and numerous other waterfowl and wading bird species. Abundant deer and wild turkey populations exist, particularly in wooded areas near croplands. The general well site area also supports wildlife species typical of rural Adams County, such as common songbirds, raptors, small mammals, furbearers, amphibians, reptiles, etc. A species observance list developed in concert with wetland surveys (see Wetland Resources Study Report) favorably compares to the above general description. Populations are probably higher near the high capacity well project area

than in much of the rest of Adams County due to the comparatively heavier soils and abundant surface water areas present.

Endangered and Threatened Species and Natural Areas

The Department reviewed historical records and habitat types in the well area and possible plant site to determine, based on habitat types and conditions, if endangered (E) or threatened (T) species and natural areas may be present or if there was some potential for impact from Perrier well operations.

A list of species having potential to be present was provided to Perrier consultants for on-site screening surveys. Species were: animals- northern ribbon snake (E), red-shouldered hawk (T), Blanding's turtle (T), barn owl (E); and plants- tufted hairgrass and longstem water-wort (both listed as special concern but not endangered or threatened). DNR also provided a list of other rare plants, insects and invertebrates that may be present in the area based on a combination of habitat types and known species ranges.

Two natural areas were listed in Natural Heritage Inventory (NHI) records. These areas are "Wood Duck Springs" and "Corning-Weeting Lakes and Bog". Wood Duck Springs is listed as a spring pond with high flow and sedge meadow sited at the same location as Jensen's Pond (is presumed to be one and the same). Corning-Weeting Lakes and Bog is listed as a large tract of tamarack swamp, marshes and bogs that supports a number of alkaline fens and acid-loving plants, and is a refuge for many species of animals. It is located in Columbia County, T13N, R7E, sections 3, 4, 9, 10 and 11, though from wetland maps and on-site surveys the legal description should also include section 34, T14N, R7W in Adams County. The wetland that is located at the southeast corner of the potential bottling plant site farm property (but would not be disturbed by construction) is a hydraulically connected part of this wetland complex. Natural areas are typically listed in the NHI due to the occurrence of high quality or rare natural communities, or for having unique or significant natural features. Neither of the above sites are dedicated or designated as a natural area or afforded any special protection by law.

Perrier consultants conducted wetland surveys and observed wildlife in March, April and August, 2000. None of the listed species have been found to date. Several special concern bird species (red-headed woodpecker, eastern meadowlark, black-crowned night heron, great blue heron and bobolink) have been observed at the site. Bobolink and red-headed woodpecker may nest at or near the site.

On June 14, 2000 Department wetland and endangered species experts and Perrier's consultant looked at the well site and the potential bottling plant site for identification and to assess impact potential for reptiles and amphibians. Low densities of American toad, green frog, wood frog, spring peeper, painted turtle, snapping turtle and Eastern garter snake were found. None are listed on Wisconsin or federal endangered, threatened or special concern (state only) species lists. No concerns regarding reptiles or amphibians were identified at the well site. Stormwater runoff impacts to amphibians and reptiles at the potential bottling plant site was a concern that would have to be examined if or when a bottling plant site is proposed and more information regarding expected runoff becomes available.

August 24, 2000 surveys showed some wetland areas upgradient of the Buckley and Jensen spring ponds exhibit fen-like conditions, however these areas cannot be considered true, "high carbonate" calcareous fen communities. While some "fen-generalist" plants that prefer alkaline conditions were found, conservative "fen-specialist" plants indicative of high calcium conditions are not present. Evidence of calcium carbonate precipitation in the spring runs and pools is minimal, and only small numbers of snails were observed. The fen and southern sedge meadow and wet prairie wetlands north of Buckley Pond retain the highest quality plant communities of any of the wetlands examined. The Wetland Resources Study Report (and contained work plan) also calls for repeated surveys after the wells have been operated for three years to determine if biological changes have occurred and to determine the need for any operational adjustments.

Additional endangered and threatened species surveys were also conducted at the well sites by Perrier consultants, UW Milwaukee and DNR specialists on August 24, 2000. Leopard frog was added to the observance list. No state or federal endangered or threatened plant, amphibian or reptile species were

identified.

Public input described common use in the well site area for feeding and roosting by bald eagles (federally threatened, not on Wisconsin state list). The nearest known active nest is more than five miles away.

Eagles commonly over-winter along the Wisconsin River, feeding in open water areas below hydropower dams. Reports of active eagle nesting near Buckley Pond were investigated, but the subject tree had been destroyed in recent times, probably by wind or lightning. There is reported use of the spring ponds and general area for eagle feeding and roosting activities. This use can occur year-round, as during mild winters the spring ponds typically do not freeze over.

Public Use and Conservation

The general surrounding area is heavily hunted, target species primarily being waterfowl, deer and turkeys. Field hunting for geese is common. Most hunting is done on private property with landowner permission, as there are no nearby public hunting areas. There is also some reported trapping done in the area, again restricted by landowner permission.

There are active local sportmens groups, including a local chapter of Ducks Unlimited, that do extensive work in cooperation with DNR and others to improve habitat and promote conservation and stewardship concepts. Partnership acquisition and management of Amey Pond, notably as a waterfowl refuge and production area, is a nearby example of these efforts.

13. Cultural

a. Land use (dominant features and uses including zoning if applicable)

The general area around the well sites is primarily agricultural. According to the Wisconsin Town Land Use Data Book by UW-Extension and personal communication with the local Agricultural Agent, the township has very diversified agriculture and a good mix of livestock and cash crops. The predominant Kewaunee silt loam soil is very productive, is a (USDA) Class 1 soil, and is the closest thing to non-irrigated prime farmland that exists in Adams County. Kewaunee silt loam is a well-drained, alfisol type which is typically formed under forest cover. It is uncommon compared to glacial lakebed sands found in most of the rest of the county.

Town of New Haven farmland makes up 60% of the land use (total 11250 acres), followed by 34% forest (6375 acres) and 6% open water and wetlands (1125 acres). The number of farms in 1997 was 61, which was 16% of the Adams County total. Of 42 dairy farms in Adams County, about one-third are located in the Town of New Haven. Crop yields for corn and forage is 162 bushels/acre and 6 tons/acre respectively. Comparatively, corn crop yields in sandy soils typically found in most of the rest of the county are about 100 bushels/acre. Neither of the above totals considers if irrigation practices occur.

The Town of New Haven does not have an independent zoning program and is therefore regulated under Adams County zoning laws/ordinances. The vast majority of the Township and the Perrier well construction area and potential bottling plant site are zoned A-1, exclusive agriculture. Rural, single family residences also dot the landscape, notably around Big Springs Pond and south and west of the potential bottling plant site along Fourth Avenue and Gulch Road.

Perrier must obtain a zoning change to I-1, Industrial, at the potential bottling plant site. The Adams County Zoning Administrator indicated a zoning change might also be needed at the well sites. The typical process when a zoning change is proposed is that Adams County forwards the proposal to the Town of New Haven for a recommendation. Though not required to do so, the county often follows the township recommendation in reaching a decision.

In February, 2000 the New Haven Town Board, in response to a proposed zoning change to allow

expansion of a mobile home trailer park, adopted a resolution placing a moratorium on any proposed zoning changes until such time as a Land Use Plan for the Township was prepared. The plan is scheduled for completion within one year. The moratorium can be lifted any time at the Boards' discretion. Since Adams County, not the Town of New Haven, is responsible for deciding on zoning changes in the township, the county is not obligated but could elect to abide by the Township's moratorium. Perrier has had preliminary discussions with both Town and Adams County officials regarding zoning changes but to date the matter is unresolved. Regardless, the Department is still obligated to process Perrier's high capacity well application. It is conceivable that the zoning issue could remain unresolved even though a high capacity well approval is granted. Or vice versa.

b. Social/Economic (include ethnic and cultural groups)

The general area is rural in character. A few small businesses are scattered along STH 23 and local roads. Most employed township residents farm/log or commute to jobs in nearby communities (Wisconsin Dells, Portage, Briggsville, and Wisconsin Rapids/Nekoosa). At one time a bustling small community existed in the Big Spring Pond area during the logging era, but it has since quieted to agricultural and a rural residential setting. The township population is stable to gradually declining, and most are long-term residents. Adams County population median age is 40.2 years, compared to a state average age of 32.9 years. In 1990 the township per capita income was $11,732. The county per capita income in 1997 was $14,521, which ranked as one of the lowest of Wisconsin counties compared to the state average of $24,048. Unemployment in the township is higher than the statewide average, whereas the county is generally somewhere in the middle. Census and demographic figures obtained from North Central Wisconsin Regional Planning Commission and Wisconsin Department of Workforce Development show the following:

Town of New Haven Demographics (1990 figures unless otherwise specified)

Population: 543(1970), 522(1980), 511(1990); projected 515(2000), 488(2005), 463(2010) and 429(2015)
Farm population: 137
School(all) enrollment: 91
Primary ancestry: German(37%), Irish(14%), Norwegian(10%) and English(10%)
Labor force(over age 16, not retired and not unable to work): 289 of 430(67%)
Employment status :

Town of New Haven:	employed	240(86%),	unemployed	40(14%)	1990 figures
Adams County:	"	5640(89%),	"	670(11%)	1990
Adams County:	"	6800(95%),	"	400(4.9%)	1996
Adams County:	"	(94.8%),	"	(5.2%)	Feb 2000
Adams County:	"	(95.9%),	"	(4.1%)	Apr 2000(rank 39/72 counties)
Adams County:	"	(96.8%),	"	(3.2%)	May 2000(rank 36/72 counties)
Statewide Average:	"	(96.4%),	"	(3.6%)	"

c. Archaeological/Historical

By memo dated March 9, 2000, DNR Archaeologist Dr. Victoria Dirst indicated, according to State Historical Society (SHS) records, the study area contains four archaeological sites near the well site area: two unnamed burial sites, a cemetery, and an unnamed mound or mound group-sites. None of the sites are located within 1/2 mile of the general location of Perrier's well sites. Locations of these cultural resources are not identified here to protect their value. There are no known historic structures in the area. None of the sites have been formally surveyed, and there may be additional resources/other sites nearby. The well sites are not located where known archeological or historic sites would be disturbed. If archaeological materials are discovered during well construction further disturbance will be halted and additional consultation will immediately be undertaken.

In comments on the draft EA the Ho-Chunk Nation cited several federal acts as authority for protecting and preserving any burial mounds or other archeological/historical sites near the general location of the

proposed high capacity wells. The Department's research reflects that the federal acts establish rights of protection only on federal lands as defined within each act, or on any sites listed on the National Register of Historic Places or the National Register of Historic Landmarks. Further, the proposed Perrier high capacity well project is on privately owned land which is not listed on the National Register of Historic Places, National Register of Historic Landmarks or on any state lists generated under the authority of ch. 44, Wis. Stats. (state Archeological Site Inventory; or state Architectural and Historical Inventory). Consequently the federal acts do not confer a right or interest in the land or the groundwater upon the Ho-Chunk Nation. Having said that, the Department will make every effort to protect any burial mounds or other archeological/historical sites from disturbance.

The first federal act cited is The National Historic Preservation Act (NHPA), found at 16 U.S.C. 470. Enacted in 1966, the NHPA establishes the federal government's interest in preserving the nation's prehistoric and historic resources. The NHPA does not, however, explicitly protect the rights of Indian tribes to possess, preserve or have access to culturally or religiously significant areas or things that are not located on federally owned, administered or controlled lands. Rather, it provides a general statement avowing to promote the preservation of prehistoric and historic resources, for present and future generations, through various programs in accordance with Executive Order No. 11593, 36 Fed. Reg. 8921 (1971), reprinted in 16 U.S.C. 470 (1994). While one specific section of the act, 16 U.S.C. 470a, discusses the policy and programs that are to be installed for the preservation of historic properties and their inclusion on the National Register of Historic Places and/or the National Register of Historic Landmarks, it does not explicitly provide any protection for properties, burial mounds or religiously significant lands or things not listed on the National Register of Historic Places or the National Register of Historic Landmarks. Since the privately owned land upon which the proposed high capacity wells would be placed is not on either national register, it appears that 16 U.S.C. 470a does not confer upon the Ho-Chunk Nation any rights of protection.

The second federal act cited is the Native American Graves Protection and Repatriation Act (NAGPRA), enacted in 1990 and found at 25 U.S.C. 3001. The Ho-Chunk Nation claims a protected right under NAGPRA in the privately owned land upon which the proposed high capacity wells would be placed, due to the presence of burial mounds or burial sites. However, NAGPRA applies to federal and tribal lands only. See 25 U.S.C. 3002 (a). 25 U.S.C. 3001 (5) defines federal lands as any land other than tribal lands that are controlled or owned by the United States. Since the proposed Perrier high capacity well project is on privately owned land, rather than on land owned by the federal government or the Ho-Chunk Nation, the presence or absence of burial mounds, burial sites or funerary objects of Ho-Chunk ancestry does not appear to confer upon the Ho-Chunk Nation a protected right under NAGPRA at the proposed high capacity well sites.

The third federal act cited is the American Indian Religious Freedom Act (AIRFA), found at 42 U.S.C. 1996. Enacted in 1978, AIRFA is designed to protect and preserve for American Indians their inherent right of freedom to believe, express, and exercise the traditional religions. No language was created to protect sacred objects or sacred sites, however, until President Clinton issued an executive order entitled "Indian Sacred Sites" on May 24, 1996. The executive order requires accommodations to be made to provide access to, and use of, Indian sacred sites by Indian religious practitioners, and to protect the physical integrity of such sites. See Executive Order No. 13007, 61 Fed. Reg. 26771, reprinted in 42 U.S.C. 1996, pocket part. Section (1)(a) of the executive order, however, limits the application of the executive order to federal lands. Section (1)(b)(i) of the executive order defines federal lands as any land or interests in land owned by the United States, including leasehold interests held by the United States, except Indian trust lands. Since the land upon which the proposed high capacity wells would be placed is privately owned and not owned by the federal government or the Ho-Chunk Nation, the presence or absence of sacred sites does not appear to confer upon the Ho-Chunk Nation a protected right under AIRFA.

In comments on the draft EA the Ho-Chunk Nation has asserted that the high capacity well project may also impact sacred waters at the high capacity well sites, though it has not identified which waters are considered to be sacred. DNR will welcome any information the Ho-Chunk Nation wishes to offer

regarding the presence of sacred waters. Even in the absence of such information, DNR will be protecting the nearby groundwater, surface waters and wetlands from any significant adverse impacts from any approved high capacity wells.

NHPA, NAGPRA and AIRFA appear to be limited to federal or tribal lands and therefore are inapplicable to the site of the proposed high capacity wells. Nonetheless, DNR shares with the Ho-Chunk Nation the desire to protect and preserve any known (or unknown) burial mounds, burial sites, funerary objects, archeological/historical sites and sacred waters that may be on the site of, and could be impacted by, the proposed high capacity wells. DNR will work with the Ho-Chunk Nation, and any other interested parties, in an effort to protect any such sensitive resources before well construction is allowed.

14. Other Special Resources, Issues, etc.

The well sites are located within the Neenah Creek watershed. In response to identified water quality issues, in 1994 Adams County and others in the watershed adopted a Nonpoint Source Control Plan for the Neenah Creek Watershed. Within the Mason Lake subwatershed, which includes Big Spring Creek, several goals were identified including: reduce agricultural sediment and nutrient inputs; improve fish habitat; consider removing the Big Spring Pond dam; and limit future stream channelization.

The Department has previously approached property owners at Buckley and Jensen's Ponds and along Big Spring Creek in an attempt to acquire conservation easements to reduce grazing and improve stream water quality and habitat. Landowners were not previously interested. One recently contacted staff to discuss such possibilities, but at this time no negotiations are taking place.

If the Perrier high capacity well project moves forward there may be new opportunities to protect/improve stream habitat values (see section 12). Perrier has expressed some interest in supporting such efforts. Removing acquired land from agricultural production would tend to reduce nonpoint source runoff from the site. The application indicates that it is Perrier's goal to restore wetlands to their original condition. Perrier has also indicated in the application it may pursue stream enhancements such as culvert modifications, bank stabilization, upstream fish passage structures, revegetation and installing in-stream habitat structures (see Application, Tab 5, section 3.2.2). Detailed plans have not been prepared. It is presumed that any such improvements would be limited to property Perrier would acquire. It may be possible that Perrier could also work cooperatively with others (i.e. other private property owners, Trout Unlimited, DNR, etc.) to pursue similar stream or wetland improvements off-site as well. Any work done in the stream would require DNR review and permits according to ch. 30, Wis. Stats.

ENVIRONMENTAL CONSEQUENCES (probable adverse and beneficial impacts including indirect and secondary impacts)

15. Physical (include visual if applicable)

Land Use and Aesthetics

Land use and disturbance impacts would mainly consist of (*-includes if one potential site south of STH 23 is utilized for a bottling plant):

-Small amounts of pasture and cropland and underlying soils will be disturbed/displaced with high capacity well installation.
-Subsurface installation of ~ 1.75 miles of 2-4 parallel 4-8" diameter pipeline plowed-in to a depth of 6-7' from well sites across agricultural lands, to CTH G, following CTH G to and across STH 23 and then 0.4 miles along a new access road to the bottling plant. Pipeline installation at stream and road crossings would be bored below stream/road bed level*.
-Clearing of up to 80 acres of existing cropland/farm buildings and construction of a potential bottling

plant, office space, parking areas and access roads, a high capacity well for sanitary and industrial use, a septic system with drainfield, a fueling station, etc*.
-Electrical distribution line improvements to the well and potential plant sites from existing systems along adjacent roads*.
-STH 23 modifications for access development to the potential plant site*.

Of these, only the potential bottling site development would represent a permanent, noticeable change. Though immediately adjacent home and property owners along Fourth Avenue and Gulch Road may consider the potential bottling plant site to represent a dramatic and disruptive threat to their setting, others would likely consider this change to be localized and minor. The size of the potential bottling plant site south of STH 23 would present a substantial change in appearance in an area mostly limited to farms, rural homesites and a few small businesses. Similar, though smaller industrial facilities, are located along STH 23 within five miles east and west of the potential plant site. Development of well sites and installation of the water pipeline would be minor and not create a major change in physical appearance.

Energy

According to Alliant Energy, the company has the capacity to provide electricity to the well sites and possible plant site without having to develop additional power supplies. Line upgrades may be needed on the existing distribution system and new tap lines to the potential plant and well sites would have to be installed. Perrier is considering natural gas, fuel oil or propane for boiler fuel and expects local providers have the capacity to provide service for the possible plant.

Noise

Well installation and any future plant construction would cause short-term, localized noise impacts that may be noticeable to the nearest residents.

Noise would be all but nonexistent from 24-hour per day, year-round operation of submersible pumps at the well site. Possible bottling plant operations and generated truck traffic would increase noise levels, though probably not beyond minor nuisance levels to private residences located nearby. Nighttime truck traffic would probably be the most noticeable change. There are no sensitive noise receptors (hospitals, nursing homes, schools, etc.) near the potential plant site. Lewiston Elementary School is located very close to STH 127 and a school at Briggsville is adjacent to STH 23. The Barrington, an elderly assisted living home, is located on STH 23 east of the intersection with STH 13/16. Local and state transportation officials have indicated if these routes are used it may cause localized noise and safety problems/issues. Perrier has indicated STH 23 would be used as both an east and west bound truck traffic route if a potential plant site south of STH 23 is developed(see section 17b).

Noise generated by the wells and any bottling plant located in Adams County would have to comply with Adams County Special Regulations for Noise, # 5-15.09(B)(5), which contains specific, measured sound pressure limits.

Air

Another potential physical impact would be air emissions caused by potential plant operations. The potential plant site is within an air quality attainment area for criteria pollutants. The potential bottling plant plastic bottle molding line(s), boiler, emergency generator and parking lot (including parked truck diesel fumes) may need permits to comply with applicable regulations to prevent air quality impacts. No plant construction activities at any location would be allowed until all air permits for that location are issued. DNR would conduct separate environmental reviews for any permits needed. If permits were issued Perrier would be required to submit monitoring reports on regulated emissions. If regulated air discharges exceed permit emission limits, enforcement action could be taken to remedy such problems.

Bottling plant construction activities at any location, particularly site grading, would generate dust. Dust

suppression measures could be used if this became a serious problem. Minor increases in dust would also be generated by increased truck traffic along STH 23 or other possible travel routes.

Though not expected, if nuisance odors from any bottling plant become a problem there is an opportunity for neighbors to seek remedy via ch. NR 429, Wis. Adm. Code, and Special Regulations on odors contained in the Adams County Code of Regulations (# 5-15.09(B)(6)).

Water Quantity

There are no municipal water supplies that would be impacted by the proposed high capacity wells. The closest municipal water supply system is at Wisconsin Dells, about 6 to the miles west.

Well operations have the potential to cause adverse impacts to other water resource values. These impacts are hard to predict since the exact movement of water within the aquifer and at discharge points (i.e. springs and streams) is difficult to determine. To help assess these potential impacts Perrier has worked with the Department and others to design and conduct hydrogeologic studies, including development and application of a state-of-the-art hydrology model, to simulate baseline groundwater characteristics and groundwater/surface water interrelationships under wet and dry conditions. The model will be used to predict changes that would occur if the aquifer was exposed to a range of water withdrawals (simulated Perrier wells and pumping rates).

There are two primary water concerns associated with the proposed high capacity wells. First is the risk of substantial reductions in groundwater availability for other uses/users. Nearby property owners are concerned that their own private wells may fail or their artesian springs, wildlife ponds, etc. may partially or totally dry up as a result of Perrier withdrawals. As one of its mandated responsibilities, DNR is concerned that the functional values of wetlands in the springs area are protected.

The second primary water concern is that there would be a decrease in the rate and/or volume of artesian spring water generated at Jensen's and Buckley Ponds and a reduction in flows in the headwaters of Big Spring Creek. This could threaten or diminish stream characteristics that people enjoy or value. This includes such things as the fishery, wetlands, wildlife and habitat value, water quality, aesthetics, water supply, riparian property values and others. If, for instance, Perrier water withdrawals were to cause Jensen's and Buckley Ponds to recede, there would be a loss of fish and wildlife habitat or long-term changes in plant communities. Adjacent wetlands could also be impacted, again resulting in a loss of aquatic habitat and stress to or loss of the animals that use them. If Big Spring Creek (and tributary) flow was greatly reduced, people who fish the stream could lose a recreation opportunity. Residents along the stream (or Big Spring Pond) may lose property value and aesthetic ambiance. If stream flow was reduced there may be less opportunity to conduct drawdowns on Mason Lake for fear that water levels may not be restored in time for successful fish spawning or spring and summer recreation on the lake. Reduced flows to Mason Lake would also proportionately increase water residence time in the lake, in turn potentially causing changes to temperature (increased summer solar warming), increased algae and aquatic plant production and a wider daily range in dissolved oxygen levels. There has been much speculation that these and other impacts could result if the Perrier project is approved.

Technical analysis and studies have been completed and are still underway in an effort to determine the extent that these or other impacts may occur. Available information from studies done to date, which already exceed the degree of analysis typically completed for high capacity well applications, and DNR analysis of study results is presented below.

Groundwater

Perrier suggests in the application that preliminary pump test studies show significant adverse impacts to water levels and stream flow may not occur from two wells if they are separated by at least 2000' and pumping at or less than 200 gallons/minute. While the preliminary studies conducted by Perrier provided information to help characterize some of the aquifer's hydraulic features, they were not designed to fully

evaluate or make conclusions regarding long-term impacts of proposed well operations. Further, a reason for the small amount of drawdown of the Perrier test is because the cone of depression intersects a recharge boundary (one of either Jensen's or Buckley Ponds) that is supplying water to the well(s).

Two test wells and ten observation wells were bored, cased and screened in March, 2000 at selected points adjacent to Jensen's and Buckley Ponds (see attachments 6 and 7). The wells were used to evaluate potential well yield and effects on groundwater levels from water withdrawals ranging between 50 and 212 gallons/minute. Five staff gauges and eight sand point (driven) wells were also installed at various monitoring locations. All wells/gages were located and depth was determined in consultation with DNR. Soil samples were collected at 5-foot intervals in the observation wells. Test wells were set at a depth of 190' at Jensen's Pond and 90' at Buckley Pond, corresponding to expected high yield zones in the underlying aquifer. Observation wells were set at varying depths. Using a submersible pump, incremental "stepped" pumping tests, withdrawing up to ~ 212 gallons/minute, were conducted at both test wells over the course of about 8 hours time as follows:

Buckley Springs, April 3, 2000	Jensen's Pond, April 7, 2000
0-57 minutes-50 gals/min	0-59 minutes-120 gals/min
58-149 minutes -100 gals/min	60-119 minutes-136 gals/min
150-503 minutes-199 gals/min	120-479 minutes-212 gals/min
504 minutes-pumping stopped	480 minutes-pumping stopped

Pumping at each step was continued until groundwater levels in the observation wells stabilized. This provided a measurement of the vertical and horizontal effect on the water table at each pumping rate (i.e. determine the groundwater cone of depression caused by the withdrawal). Withdrawn water was re-routed to downgradient stream sections so as not to bias test results. The cone of depression at each pumping rate at each site was defined (see attachments 8 and 9). Groundwater levels generally recovered quickly after the pumping ended. The maximum horizontal distance from either well site to the outer edge of the cone of depression was less than 150', which occurred at the 212 gallon/minute pumping rate at the Jensen's Pond test well. There were no measured changes to water levels in wetland areas adjacent to either site. The step tests at each test well were not done concurrently, but when the measured cones of depression from the two test wells were compared they did not overlap at any of the pumping rates. A more detailed description of the pump tests is contained in the Interim Report, Groundwater Study.

Perrier has indicated a need for a maximum water bottling supply of 500 gallons/minute. The Department does not consider the initial pump tests to be conclusive in showing the full effect of groundwater responses at Perrier's proposed higher (up to 500 total gals/minute) pumping rates. Initial tests measured responses when only one well at a time was pumping, and at a lesser, 200 gallons/minute pumping rate for each well. Perrier pumping would occur continuously, including potentially during dry (i.e. drought) conditions. The cone of depression at each well may be greater when exposed to long-term pumping than was indicated during the short-term initial pump tests. More information is being collected and will be used to establish operating limits that will prevent significant adverse impacts to groundwater (see below and section 20a).

Additional aquifer tests are planned over the next several months (see Scope of Work, Groundwater Study Report) to further define the cone(s) of depression (physical measurement) and area of influence (direction of flow) at pumping rates up to 1000 gallons/minute. The cone of depression at higher pumping rates is expected to be greater than at the 200 gallon/minute tests. Using results from both tests, along with other information, a groundwater model is being constructed and calibrated to predict effects on groundwater (i.e. cone of depression and area of influence) from a wide range of pumping rates and hydrologic conditions. Model outputs will be used in determining what pumping rates could be allowed without causing significant adverse impacts on groundwater elevations and flows. The model may also indicate that pumping rates could vary, depending on hydrologic conditions, without adverse impacts to groundwater. Therefore, if the high capacity well application were approved before the model is fully developed, the approval would stipulate that specific operating limits would be added when model results are available. Further, if the well project is approved and became operational, monitoring of actual (not model predicted) groundwater responses will be required to

confirm the accuracy of predicted effects. If monitoring indicates model-predicted changes in vertical or horizontal groundwater conditions were underestimated, such that significant adverse impacts were occurring, DNR will retain the authority to further restrict pumping activities to remedy such impact(s). Also see section 20a for additional discussion.

Perrier has indicated in its Application that the wells, with pumping rates up to 500 gallons/minute, will not result in significant adverse impacts to groundwater (see Perrier Application, Section 2, Environmental Assessment, page 20). As described above, DNR does not feel sufficient information is available to make that conclusion. Importantly, Perrier has agreed to conduct additional pump tests to help develop and calibrate the groundwater model. If higher rate pump tests convincingly show no significant adverse impacts to groundwater levels DNR can reasonably consider approving those rates. Perrier has also agreed to do pre- and post start-up groundwater monitoring. Perrier has agreed not to challenge DNR's authority to set or modify any high capacity well approval (i.e. lower approved pumping rates) if model results or monitoring indicate changes are needed to protect groundwater. But, Perrier has reserved the right to challenge the reasonableness of such conditions (more on this in section 20a). Considering all these additional factors, significant adverse effects to groundwater from project development and operations will be prevented.

Having the ability to restrict operations to prevent significant adverse impacts, however, is not the same as identifying how much, if any, impact can or should be allowed. Going back earlier in this section, a primary concern about the water withdrawals was described as "substantial reductions in groundwater availability for other uses/users". Protection of nearby private wells/springs/ponds is also mentioned. Also noted are wetlands in and around Jensen's and Buckley Ponds and which are located in close proximity to the proposed wells. It is not likely that neighboring wells, for instance, would be seriously impacted if the groundwater table were to be reduced a few feet. Submersible well pumps are typically set well below the water table to assure water delivery even during drought conditions. Perrier will be asked to complete a private well inventory within a 1.5 mile radius of the proposed production wells. This will be used, in part, to design the groundwater monitoring program. Nearby private springs or ponds could be affected, depending on the vertical and horizontal changes in groundwater (i.e. cone of depression and area of influence) resulting from Perrier withdrawals, but the farther away from the wells the less likely the effect would be as pronounced or noticeable. Even a small change in groundwater level could show up in Jensen's and Buckley Ponds and adjacent wetlands. Attachment L of Perriers' Application contains a letter from Dr. Quentin Carpenter, a recognized state expert on wetlands. Dr. Carpenter concludes, at page 3, that fen communities are sensitive to drawdowns. Dr. Carpenter goes on to suggest that "it is difficult to maintain typical fen vegetation where the water table drops by more than one-half meter for any length of time during the growing season". To protect other wetland values a lower allowable drawdown may be needed. The model will accurately predict groundwater changes throughout a range of potential Perrier pumping rates. If the cone of depression at a 500 gallon/minute pumping rate, during wet, normal or dry hydrologic conditions, extends to wetland boundaries, a pumping rate restriction may be needed to assure all wetland values are protected.

As a sidenote, it may be worth noting that the groundwater model would be a useful tool for predicting effects from unexpected contingencies, such as if one well had a breakdown and Perrier wanted to use the other to meet full production goals. It would also be useful if, at some future point in time, Perrier was interested in expanding its production at this site.

As a remediation measure, Perrier has said that, in the event that anyone's well experiences a demonstrable adverse impact as a result of its operations, Perrier will fully reimburse their losses (March 17, 2000, Perrier public informational meeting). DNR is not aware of any formal or binding agreements or other documents requiring this.

Surface Water

As noted in section 11, Big Spring Creek flow was measured on March 21-22, 2000 (additional measurements are ongoing, coincident with additional pumping tests). Just before entering Big Spring Pond, total flow (from streams emerging from both ponds) was 17.31cfs (~ 7730 gallons/minute). Perrier has proposed maximum water withdrawals of 500 gallons/minute for bottling. In its environmental assessment (page 21) Perrier

indicates, based on aquifer testing, there would be minimal reductions in Jensen's and Buckley Pond levels and in flows in Big Spring Creek and that "adverse impacts to aquatic resources are not anticipated". Pond levels were monitored during April, 2000 step tests and showed no appreciable change. No stream flow measurements were taken to document changes in stream flow from withdrawals up to 200 gallons/minute. Accordingly, there is no technical basis from which to conclude that Big Spring Creek flow would not be impacted.

For simplified analysis purposes, assume groundwater withdrawals had a direct, 1:1 correlation ratio to reduced flow in Big Spring Creek. Using the above numbers, the maximum stream flow reduction in this case would be about 6.5% (500 divided by 7730) at entry into Big Springs Pond (increasingly more moving upstream to Jensen's and Buckley Ponds). But, what if average stream flows in August were typically only half that of March? Or what if there was a drought? If spring-delivered stream flow was only 5 cfs and Perrier pumped at 500 gallons/minute, there would be a more sizable 22.4% reduction in downstream flow. Would fish and other aquatic life survive? Knowing that water temperatures in lower sections of the stream, as measured in March, 2000, indicated marginal conditions for trout, might Perrier withdrawals trigger temperatures that cause fish stress or death? The above simple analysis represents only a snapshot of possible flow reduction during two days in March, 2000. What about other times? There are no long-term stream flow records at the Big Springs site to say that flow is always, sometimes or rarely at least 17.31 cfs. Coinciding with additional pump tests noted earlier and as a continuing effort, pond levels and stream flows will be monitored by Perrier to help establish baseline conditions over the long-term. Once flow data is available, reductions in stream flow and pond level and impact potential from Perrier withdrawals can be more accurately predicted. If proposed withdrawals would cause such a loss of stream flow that may jeopardize aquatic life, DNR would restrict withdrawals to less than that amount.

Similar to the use of a model to assess groundwater impacts as described above, there are at least four methods, ranging from simple to more complex, that are available for assessing potential surface water impacts. Any or a combination of these methods could be required studies and/or be used to help determine operating conditions to incorporate into DNR's high capacity well approval.

One method would be to simply place a minimum water level requirement at both Jensen's and Buckley Ponds. Pond levels and adjacent wetlands have a direct association with groundwater levels. Maintaining minimum water levels would protect aquatic resources in the ponds and adjacent wetlands. Both ponds have gravity discharge outlets such that surface water discharges are directly associated with pond levels. Establishing minimum pond water levels would thus also help assure maintenance of stream flow in downstream channels. This method may be overly simplistic, however, considering Big Springs Creek appears to gain considerable additional groundwater contributions downstream of both ponds. As attachment 3 shows, the total March 21-22, 2000 measured flow just downstream of the ponds was 8.65 cfs. The total flow at Big Springs Pond dam was 25.07 cfs. Subtracting the west tributary inflow of 3.55 cfs, and subtracting a 1.0 cfs contribution from a small drainage east of Buckley Pond and Third Avenue, would still indicate a groundwater recharge to the stream of 11.87 cfs (25.07 minus 8.65 equals 16.42, minus another 4.55 equals 11.87cfs). This shows that flow more than doubles over the <1.0 mile distance between the ponds and Big Spring Pond dam. Thus, assuring maintenance of Jensen's and Buckley Pond levels may not automatically assure maintenance of all contributions in Big Spring Creek stream flow. Planned additional studies proposed by Perrier include attempting to quantify flow contributions to surface waters beyond those at the two ponds and measuring any reductions in stream flow coinciding with planned additional aquifer tests.

Perrier proposes the concept of minimum pond levels in its Application (Tab 5, section 3.2.2) and DNR agrees. But, to date specific minimum water levels have not been suggested by either. Ongoing monitoring would help establish "normal conditions" from which appropriate minimums could be determined.

A second method would be to set constant minimum stream flows in the ditched channel below Buckley Pond and in Big Spring Creek above and below Jensen's Pond. The minimum flow would be set based on best professional judgment as to what is needed to protect aquatic resources. Both Perrier and DNR essentially agree with this concept for the stream channel below Buckley Pond. As described earlier, the stream does not now possess high-valued coldwater resources and has little potential for improvement due to low flows, high

temperatures, low water quality, stream channelization and other limitations. Due to these constraints, selecting a minimum flow in this channel may not need to be as complicated as in Big Spring Creek.

Perrier proposes an "initial" minimum flow in Big Spring Creek below Jensen's pond of at least 60% of the mean annual flow (to be defined by ongoing and future stream flow monitoring). Following Perrier's proposal, this flow would be re-evaluated at some later time as described in the "fourth method" discussed below. The 60% number is derived using what's called the "Tenant Method", one of several available analytical methodologies commonly used in the United States to identify minimum flows in streams for regulatory purposes. Department personnel experienced with the use of Tenant and other minimum-flow-setting methodologies believe it may not be the best method for application here. DNR believes that while the Tenant method yields a very protective flow recommendation for large rivers in low flow months, it may be less protective on smaller streams. Given the small size of Big Spring Creek, the Department does not agree that 60% of the mean annual flow is a minimum flow that would necessarily provide reasonable long-term protection to fish or other in-stream values. An alternate minimum flow may be 8.27 cfs, which was the measured flow on March 21-22, 2000. Absent long-term flow statistics, this is a known flow delivered by the system. It is probably a conservative minimum flow that would assure protection of instream resources. Perrier has not proposed a minimum flow in the tributary above Jensen's Pond. This is the only stream section that had evidence of brook trout reproduction. Flow was measured in March to be 0.45 cfs. Using the above reasoning, DNR expects this would be a conservative, "safe" minimum flow to require until Perrier can show that lower minimums would provide effective resource protection.

A third method would be to restrict Perrier operations so that stream flows were not substantially reduced as compared to another nearby and similar "reference" stream that would not be influenced by Perrier withdrawals. Before pumping begins, monitoring would be done to establish a statistical flow relationship between Big Spring Creek and the reference stream (groundwater levels at wells outside the influence of Perrier withdrawals could also be used). Perrier would be required to maintain flows in Big Spring Creek to equal or exceed a correlated previous day flow from the reference stream. This would essentially allow the required Perrier "minimum" stream flow to change according to normal hydrologic variations that would be expected without the influence of Perrier withdrawals.

A fourth method for protecting surface water resources would be to conduct an Instream Flow Incremental Methodology (IFIM) study. The IFIM study method, developed by U.S. Fish and Wildlife Service about 20 years ago, has been used successfully by state and federal water regulators to protect stream resources from proposed permanent or temporary water diversions. IFIM has commonly been applied to proposed irrigation projects in the west and store-and-release (i.e. peaking) hydropower (re)licensing projects throughout the country, including several Wisconsin projects. IFIM studies are conducted to determine the minimum (and, if applicable, the limited maximum) stream flow needed to protect environmental and social values. In this case brook trout in Big Spring Creek would be the logical, representative high value water resource to protect. It can be assumed that flows that conservatively protect brook trout would also protect other aquatic species. The study assembles established habitat suitability indices (graphed curves) for selected species (i.e. brook trout, others). At a measured flow instream substrate (% silt, sand, gravel, etc.), cover (logs, boulders, shade, etc.), water depth and velocity measurements would be made at several representative stream transects, in this case probably above and below Jensen's Pond. Given the sensitivity of trout to water temperature, this parameter could be added as a part of the IFIM analysis. Using computer models, other flows would be simulated and the associated changes in physical features (i.e. depth, substrate, etc.) at each simulated flow would be calculated. All measured and calculated data would then be used to rank the quality of available brook trout habitat at alternative stream flows. A minimum flow could be selected that at least maintains acceptable, if not optimal, stream flow for brook trout.

However, the IFIM technique should not be used to establish a minimum flow under current conditions. As described earlier, the stream does not currently provide good habitat conditions due to grazing, erosion, lack of structure and cover, etc. And, Perrier has indicated an interest in voluntary stream habitat improvements. Both suitable flow and quality habitat are needed to maintain, let alone enhance, a quality brook trout fishery. It would not be appropriate to try to apply the IFIM methodology until some or all of the habitat improvements were made and the stream's physical characteristics had stabilized. Even though the instream physical

measurements would be taken after channel improvements, the IFIM model would use pre-project stream flow as the baseline condition, not the flow that would be delivered in the stream after Perrier withdrawals have been initiated.

Perrier has proposed using the IFIM methodology to help re-evaluate the suitability of an initially set minimum flow (Tenant method 60% of mean annual flow) in Big Spring Creek, after the (anticipated but not required) stream improvements are completed. A more conservative "initial" minimum flow would be those that were measured on March 21-22, 2000, both above and below Jensen's Pond. Before setting any lower minimum flows, study results would have to convincingly demonstrate that no serious impacts would occur. The IFIM technology is the best method available for doing this. Given the uncertainty of and lack of set schedule for voluntary stream improvements by Perrier, this methodology may never be used. DNR has no authority to require stream improvements. Though it could require an IFIM study be done as part of its high capacity well approval, doing so without stream improvements in place could easily bias the study results. Findings could show, no matter how much minimum flow is delivered, the stream would never support a high quality trout fishery because habitat, not flow, is the limiting factor.

For these reasons it makes sense, in this case, for DNR to consider setting initial and subsequent final minimum flows if it approves the high capacity wells. It would further make sense, in this case, for DNR and Perrier, and possibly others, to work cooperatively to proceed with stream improvements and subsequently conduct the IFIM analysis after the channel has stabilized. Failing that, the Department would have to use the other methods for determining minimum flow and, absent better information, perhaps be overly conservative in doing so. And, it may do little good for the resource anyway because adequate flows, without quality habitat, would accomplish little. Nonetheless, DNR would still set flows believed appropriate based on what the stream system could support if habitat was improved. Based on existing information, the above described March 21-22, 2000 flows, perhaps in combination with the "reference stream" method, would be expected to provide reasonable protection of aquatic resources. If hydrologic conditions fell below those that existed in March, 2000, some sort of drought contingency restrictions (see below) may also be appropriate. Changes in the initial minimum flows could be considered if and when ongoing or planned studies show lower flows would still protect aquatic resources .

In considering minimum flows there may be times when special protection higher minimum flows may be appropriate. For example, in setting minimum flows, impacts on Mason Lake should be considered, particularly in restoring water levels after winter drawdowns. Absent long-term Big Spring Creek flow statistics, it is not possible to estimate what a typical refill time might be for a given drawdown depth (note: the permit authorizing a 1.5' drawdown on Mason Lake expired on May 1, 2000, but a new application to extend the drawdowns another five years has been submitted and is being reviewed). There have been years past, during larger drawdowns, when refill time was delayed due to low flow conditions such that fish spawning success was threatened. Further, until a minimum flow is established and compared with the "normal" flow, any change in refill time due to Perrier withdrawals cannot be accurately predicted. This issue can be addressed, however, if a condition is placed within the approval to temporarily restrict withdrawals if needed in order to protect Mason Lake resource values. Additional discussion on Mason Lake water quality effects is provided in the next section under Water Quality.

In addition to higher minimum flows to expedite Mason Lake refills, another example might be during trout spawning periods. A third example would be to have a drought contingency plan. Perrier proposes such a plan, consisting of two elements: an early warning system and an action plan (see Application, Tab 6, section 5.0). The early warning system would be an indicator of approaching lower than normal hydrologic conditions warranting accelerated monitoring. The action level would warrant an active response before drought conditions exist. If routine monitoring indicates a reduced water level/flow trend (trigger level yet to be determined), DNR would be notified and monitoring frequency would be increased. If the trend continued and reached another pre-set trigger point, pumping rates would be reduced before drought conditions occur. This would help prevent Perrier pumping from exacerbating drought conditions.

Operating restrictions will be identified and incorporated into any DNR high capacity well approval to protect surface waters. Perrier has agreed to conduct additional studies and monitoring that will help determine such

restrictions. The studies and monitoring would also be incorporated as required conditions of DNR approval. Retaining authority to revise operating conditions as new information becomes available will further allow DNR, using defensible scientific information, to remedy any unforeseen problems and avoid significant adverse impacts. Also see section 20a.

Water Quality

Contaminated Sites

Water withdrawal may affect water quality, particularly if there would be increased risk of expanding the extent of contaminated areas. The Department reviewed known environmental repair fund sites, spill sites, landfills, underground storage tank sites and Department of Agriculture, Trade and Consumer Protection (DATCP) pesticide contamination sites within near proximity of the proposed well location. The nearest known contaminated landfill is about 2.7 miles west of Jensen's Pond. The nearest pesticide prohibition site (atrazine, a corn herbicide) is about 3 miles north. From 1989-99 DATCP tested 56 private wells in the Town of New Haven for triazine (a screening chemical for atrazine). Sixteen detects were found, averaging 0.2 micrograms/liter (mg/l), well below the 3.0 mg/l enforcement standard for safe drinking water. Four samples taken in section 22, near the proposed Perrier wells, had 0.0 mg/l detection.

Since 1994 there have been five reported spills within 5 miles of Jensen's Pond. Three, the closest which was about 3 miles away, involved small amounts or low contamination levels of petroleum product which have been cleaned up or cases closed due to minor environmental risk. There is an ongoing petroleum release investigation/clean-up at the Hanson site, near the intersection of CTH G and Golden Court across from the Big Springs church and more than one-half mile from Jensen's Pond. In 1997 three underground storage tanks (UST) and 1391 tons of contaminated soil were removed. Small amounts of free product have twice been found in an adjacent monitoring well, the latest in February, 2000. Groundwater monitoring at the site is still ongoing. Just to the north another site, the former Mark's Power and Equipment, is also under investigation. In 1989 two USTs were removed, two soil samples were taken and in 1990 a notice of contamination letter was sent to the owner. Despite two follow-up letters, the latest in 1996, there has been no further action taken by the responsible party to quantify the extent of contamination or initiate clean-up efforts. Additional examination of the case file is underway. DNR personnel that handle these cases have no file records registering complaints or concerns with nearby water supplies that could have been caused by these spills. Staff expect that given the elapsed time and separation distance to the Perrier well sites, there is little risk that Perrier water withdrawals would expand or otherwise influence zones of contamination from any of these sites.

A second water quality concern is the potential that Perrier wells and water withdrawals could increase the rate at which water moves or percolates down from the land surface and through the underlying aquifer, thereby increasing the concentration of nitrates or other pollutants in groundwater and creating added health risks.

Nitrate (NO3-N) is a molecule formed when nitrogen from ammonia combines with oxygenated water. Common sources of nitrate contamination, which has a health standard of 10 milligrams/liter (mg/l), include exposure to fertilizers, animal wastes, and septic tanks. High nitrate levels pose a blood oxygen level health risk to infants called methemoglobinemia and other possible health problems. Fifty-six private well samples from 1989-99 in the Town of New Haven taken by DATCP had 43 detects for NO3-N averaging 3.9 mg/l. Six samples in section 22 ranged from 0.9-4.7 mg/l, and two taken at Buckley Pond measured 0.9 and 1.7 mg/l. Properly constructed wells and thoughtful land use (i.e. no animal pasturing, separation from septic systems, etc.) in the well head area would minimize the risk of groundwater contamination, including from nitrates. To protect its product, Perrier would take caution, including the above measures, to assure potential contamination sources would not be present in the well head area. Of note, the Perrier project is not the same as an irrigation well system where groundwater is brought back up to the land surface and then re-exposed to potential contaminants. Nonetheless, Perrier withdrawals would create a cone of depression that could expand the area from which water is supplied to the aquifer. This could expose the aquifer to new sources of contamination. But, as noted above, impacts to known contaminated areas are not expected.

Mason Lake

Changes in land use along the streams and ponds associated with well construction would include reduced grazing, possible drain tile removal, etc., which could reduce nutrient loading to Big Spring Pond and Mason Lake.

If water withdrawals reduced streamflow in Big Spring Creek, there could be indirect water quality impacts to Mason Lake. Reduction of stream flow could increase water residence time in the lake. In addition to temperature changes (warmer in summer, colder in winter), this could also increase the time nutrients are available for uptake by aquatic plants and algae, potentially aggravating the plant growth problem and, in turn, reducing fish habitat quality. Refill time after Mason Lake drawdowns could be extended, especially during dry years, possibly limiting spring spawning success for fish. Groundwater inputs to Big Spring Creek and Mason Lake may also help dilute overland runoff that carries nutrients to the lake. A significant reduction in groundwater inputs could result in the lake filling with water that has a higher concentration of nutrients. Carp have dominated the lake in years past and are on the verge of doing so again. Anything that reduces water quality will favor carp becoming dominant over other fish species. As noted earlier, as a condition of approval, Perrier could be required to temporarily restrict pumping if needed to prevent the above adverse impacts.

Stormwater, Spills

The physical disturbance at the potential Perrier bottling plant site would require submittal of an application, including an erosion control plan, for a Department stormwater permit. The Department would review the application to assure that best management practices are used to prevent any serious stormwater impacts from the site. Common permit requirements include such things as stormwater retention basins, silt fencing, ditch checks, etc. Possible truck and employee parking lots, even with oil/water separators, may generate oil, grease, salt and other similar discharges to surface waters or groundwater. If a properly designed stormwater treatment system is employed, the risk of serious impacts would be low. If issued, the stormwater permit would be conditioned such that potential direct and indirect impacts to wetlands are avoided or minimized to the maximum extent possible

Operation of a possible truck fueling station would create a new risk of spills. As per applicable rules, a containment pad and other safety measures would be required to minimize this risk. Any pipeline failures would discharge water somewhere along the possible pipeline route and potentially cause a temporary erosion problem.

At the potential bottling plant site, increased truck and employee traffic would increase the risk of accidents and associated spills, potentially causing discharges of fuel, oil or other pollutants. If this site were developed, the traffic routes can accommodate expected traffic increases without substantial jeopardy to traffic safety or "level of service" (also see section 17b discussion on traffic impacts). Traffic increases would not likely result in changes in winter road de-icing practices or cause substantial increases in chronic discharges of oil and grease (either of which could cause water quality impacts).

As described earlier, long-term water quality monitoring would be done in groundwater and surface waters near the well sites to detect any changes and help determine the need for any operational adjustments or other remediation. Such monitoring could also be required near or around any bottling plant site high capacity well.

16. Biological (include impacts to threatened/endangered species)

For simplification, much of the previous (Physical Consequences) section also described the associated and expected biological effects, particularly project operational effects, on aquatic resources. Additional information is presented below.

Fish and Other Aquatic Species

Under a worst-case scenario Perrier could withdraw an unlimited supply of water regardless of the biological effects. The water table could be drawn down such that existing flows to Big Spring Creek would be greatly reduced or even eliminated within the well's area of influence. Spring ponds and adjacent wetlands could be partly or totally drained. Aquatic resources that depend on these areas would be stressed if not eliminated. Mobile species may be able to survive if they find alternate habitats that are not already at the carrying capacity for that species. Though controlled water levels in Mason Lake, Amey Pond and Big Spring Pond would not be effected, reduced flows could increase water residence time in these flowages, possibly having negative impacts on water quality or adding to aquatic plant growth problems. The ability to restore water levels in Mason Lake and Amey Pond after winter drawdowns could be delayed. Even now, during low spring run-off years, water levels may not be fully restored when fish spawning activity begins, thus threatening those years' reproduction yields.

Perrier has indicated that initial pump tests showed no measurable losses in discharge to Big Springs Creek from either Jensen's or Buckley Ponds at pumping rates up to 200 gallons per minute. Using March, 2000 flow data, section 15 describes a simplified analysis that indicates a maximum flow reduction in Big Spring Creek flow entering Big Spring Pond of 6.5%. Though this reduction is relatively small, there may be some impact to fish, invertebrates and other aquatic resources. And, as noted in section 15, the initial pump tests were not designed to simulate potential impacts to stream flow. Further, during extreme drought conditions, a 500 gallons/minute reduction in stream flow by Perrier water withdrawals could represent a considerably higher % reduction of stream flow. The adverse impact could be much greater. Section 15 also describes the need for a drought contingency plan to prevent flow reductions during extreme dry conditions. Such a plan would also help protect biological communities.

The best way to protect biological resources in the spring ponds, adjacent wetlands and in Big Spring Creek is to assure aquatic habitats are not diminished. The simplest way to do this would be to prevent the cone of depression or area of influence from any well from extending to these areas. Ongoing additional tests and modeling will be used to determine if this is possible. The vertical and horizontal limits of the cone of depression will be estimated under a range of withdrawal rates and hydrologic conditions. After start-up, continued monitoring would measure the actual cone of depression or area of influence over a longer (continuous) time period and for the full range of hydrologic variability (seasonal changes, etc.). DNR approval would be crafted so that, if need be, Perrier operations could be modified (i.e. curtailed) to prevent significant lowering of wetland water levels and stream flows, thus effectively avoiding significant adverse impacts to biological communities. Even with such monitoring it may be difficult to establish changes attributable to groundwater withdrawals by Perrier versus other causes (i.e. precipitation patterns, natural variability, etc.). Applying the "reference" stream concept described in section 15 would be a way to discern natural events versus those caused by Perrier operations.

From a purely biological perspective, the preferred voluntary action would be that the entire two-mile length of stream channel is restored (includes < 1.0 miles along property Perrier would acquire). Big Spring Pond dam removal and land use changes would be employed to enhance Big Spring Creek's potential to support a quality trout fishery. Further, there would be no changes in groundwater or surface water hydrology, such as may result from the proposed water withdrawals. Left as is the stream will not support a sustainable, high quality trout fishery. Perrier has indicated it may make habitat improvements along the stream on that portion of the property it would acquire. If water withdrawals are limited such that only minor reductions in stream flows and groundwater levels occur, this impact would likely be more than offset if Perrier follows through on its proposed, voluntary plan for habitat improvements. On balance, there would be no net negative biological effect resulting from the project. Further, proposed monitoring will document any negative biological changes that may occur due to high capacity well project operations. Department approval would be written so that modifications in operations can be required if determined necessary to protect biological communities. Weighing all these factors, no significant impacts would be expected.

Though not related to water withdrawals, the biological community near the potential bottling plant site could be impacted. A large wet meadow wetland complex that provides notable wildlife habitat and natural features

is located about 1/2 mile south and east of the potential plant site. Noise generated would not be expected at levels that would impact wildlife use in the wetland. Habitat value in the wetland could be degraded if the possible impermeable building and paved parking area surfaces generate increased stormwater containing oil, grease, salt, sediment or similar pollutants. Perrier would be required to prepare stormwater management and erosion control plans to prevent/minimize potential impacts. A stormwater permit would be required and issued if the plan adequately incorporates best management practices contained in the Wisconsin Construction Site Handbook.

Upland Wildlife and Habitat

The well site and possible bottling plant site are already disturbed by agricultural practices. Wildlife habitat disturbance from well installation would be minor. No noise would be generated by well pumping to cause disturbance to wildlife. Possible buried pipelines would mostly be located within mowed portions of existing road right-of-way. Wildlife use disturbance would only be temporary during construction. One potential bottling plant site is mostly located on cropland, with lesser amounts of woodland and farm buildings. If this site were to be developed, there would be a direct loss of up to 80 acres of mostly cropland. Its value as wildlife habitat is considered minor given the rural nature of the area.

There may be an increase in car-killed animals on roadways as a result of increased traffic, with or without a nearby bottling plant, particularly considering that Perrier truck traffic levels will be as constant at night, when many wildlife species are most active, as during daytime. Increased noise from traffic may also alter wildlife movement patterns for some species, though this impact would not likely have serious effects on population levels or use patterns.

Several hundred feet of new power lines could add new flight hazards for birds, particularly the large concentrations of waterfowl that frequent the wellhead area during spring and fall migrations. Line markers could be added if problems develop

17. Cultural

a. Land Use (include indirect and secondary impacts)

If a bottling plant were developed it would add industry to the township or county (depending on location). The township is almost exclusively zoned as agriculture (only one other industrial area is zoned, about 2 miles northwest of Jensen's Pond). The potential plant site would be changed from mostly cropland to a bottling factory, internal roads and parking, etc. The potential plant site would convert 80 acres of agricultural land to industrial use, representing a 0.1% loss of farmland in the township. Improved access off from STH 23 would be needed. Land use changes from well and possible pipeline installation would be minor. A visual impact to residents near the potential plant site may result. The possible plant would become a destination point for workers and vendors, whereas now most of the highway traffic is passing through the area or is locally oriented. The potential plant site would be an active business center, compared to a much more passive farming operation.

Secondary development, including homesites and services (gas station, convenience store, etc.) may occur if plant workers are hired from outside the local labor force and decide to reside in the area. If, in the unlikely event, all possible plant workers (initially 45, up to 250 at full development) are hired from outlying areas and decide to relocate in the Town of New Haven or adjoining Columbia and Marquette counties, there could be an increased demand for homesites in the area. Town of New Haven officials indicate there is not much housing currently available in the township and new development would likely take place at nearby cities such as Wisconsin Dells and Portage.

One potential plant site was selected because of its near proximity to the water source. It is unlikely that Perrier plant development would by itself prompt a dramatic secondary increase in other new businesses or industry to the area.

b. Social/Economic (include ethnic and cultural groups, and zoning if applicable)

The prospect of Perrier developing wells and a possible bottling plant in the Town of New Haven has caused substantial local controversy and polarized neighbors. A concern common to all is protection of groundwater and surface water levels. Residents are concerned the project could impact their private water supplies, private ponds and area wetlands and streams. Section 15 of the EA addresses these issues. Even if water resources are protected, a majority of residents don't want to see the development in their community because of other concerns. These concerns range from impacts to traffic, noise, and property values, and to more subjective "quality of life" impacts.

Plant development, at any location, would have a substantial impact on the area economy. Construction would add temporary benefits to the local economy if workers and materials come from local sources. If the local labor force fills created bottling plant jobs, it could reduce the local unemployment in an area that is typically above the state unemployment average. The projected pay scale, $10-18/hour, would tend to improve the average per capita wages of town and county residents, moving them closer to statewide averages. Perrier typically uses a non-union labor force. Typical benefit packages at other Perrier plants in the US include health, dental and vision insurance, paid vacation time, and 401k investment and profit-sharing programs. Work schedules at plants operating seven days/week are typically four, ten-hour days followed by four days off. At plants operating five days a week, work schedules are the normal five-day, eight-hour/day, 40-hour work week.

According to the Adams Co. Rural and Industrial Development Commission (personal communication, John Hay, 3/20/00), the Adams County tax rate is within the highest five counties in Wisconsin. With an estimated $35 million added to the tax base, including a possible bottling plant, at phase 1 development (up to $80 million at full development), there could be a very positive influence on local property taxes. Further, Mr. Hay expects no major increases in the demand and costs for local services (police, fire, schools, roads etc.) associated with a possible bottling plant.

Contacts were made in March, 2000 with the Adams County Sheriff, local volunteer fire fighting units (shared fire coverage between Wisconsin Dells and Briggsville), school district (Wisconsin Dells), and the chairman of the town board. None expect a dramatic increased demand for services if a bottling plant is developed. The Sheriff is concerned about traffic increases, safety and emergency response time along STH 23 if the plant is to be developed there. The school district indicates there is no available school space capacity now, and if new residents were to move in it may escalate the need and time frame for new school facilities.

The Town of New Haven tax assessor was contacted in March, 2000 and indicated that he expects local property values near any bottling plant would not be devalued. He also believes any plant would be beneficial, by adding to the local tax base and creating jobs. He suggested contacting the Village of Oxford, about ten miles northeast into Marquette County, where Neenah Springs, Inc. has operated a water bottling plant for over ten years.

The Neenah Springs operation is not directly comparable to the Perrier well project for several reasons. The pumping rate is 30,000 gallons/day, compared with up to 720,000 gallons/day proposed by Perrier (not counting the well at the potential plant site). The Neenah Springs wells are deeper and set in bedrock, meaning they are drawing water from a different aquifer than would Perrier. Nonetheless, the Oxford Village president was contacted in March, 2000 and indicated there have been no big problems with the Neenah Springs operation. At the Neenah Springs bottling plant there has been an increased need for local road maintenance and some minor "spikes" in sewerage discharge to the municipal wastewater treatment plant from backflushing. Depending on location and other factors, Perrier may have an independent wastewater treatment system or haul to an existing treatment plant. The village president indicated there were no complaints that he's heard of regarding noise, odors or adjacent landowner wells going dry, losing pressure or having other problems. The Village of Oxford tax assessor also was contacted and indicated there has been no change in property taxes near the Neenah Springs plant, he

was not aware of any land use or other conflicts and that the plant provides about 10% of the Village tax base. The tax assessor expects, if Perrier were to develop a bottling plant in the Town of New Haven, there may be an increase in local property values if there is an increased demand for new local housing.

The Adams County Land Conservation Department (LCD) was contacted in March and May, 2000. Concerns were expressed regarding stormwater generated at the potential plant site and localized dewatering of wetlands and private wildlife ponds. Stormwater issues, regardless of plant location, would be addressed via a required stormwater permit. The permit would be designed to minimize discharge of pollutants to surface waters by stipulating use of erosion control, infiltration and other such practices. LCD staff described a private wildlife pond in the Town of Colburn that may be drawn down when a nearby high capacity well (pivot irrigation) is pumping. LCD is not aware of any attempt to establish a relationship at that site between well pumping frequency/rate and pond water levels.

The Adams County Parks Director was contacted in March, 2000. He expects no impacts to tourism and recreation facilities (Lake Mason Park, boat landing and area campgrounds/resorts) provided groundwater and surface water levels are not impacted by high capacity well operations.

The president of the Mason Lake Improvement Association was contacted in April, 2000. The Association's nearly 100 members are concerned that water withdrawals may impact water levels and water quality, thereby threatening their past and ongoing efforts to improve Mason Lake. A particular concern is that Perrier water withdrawals may reduce the flow in Big Spring Creek and thus limit the ability to refill Mason Lake after winter drawdown. Big Spring Creek is the primary source of surface water to Mason Lake. The drawdown is a permitted management tool used by the Association in recent years in an attempt to improve the fishery and its habitat, control exotic aquatic plants, prevent ice damage to shorelines and allow riparian residents to clean up their shoreline. The Association is concerned that delays in lake refilling during the spring may threaten the recreation and economic benefits the lake provides to residents and the community. These issues are discussed in sections 15 and 16.

Contacts regarding traffic levels from a possible bottling plant along STH 23 were discussed in March, 2000 with the Adams and Columbia County Highway Commissioners and DOT staff at Districts 1 and 4, in Madison and Wisconsin Rapids respectively. Perrier consultants prepared a traffic impact analysis (see Application Design Report, Appendix E), based on development of one potential plant site south of STH 23. Perrier would generate an average daily two-way (outbound and inbound) truck traffic level of 200-300/day and a maximum daily truck traffic level of up to about 400 semi-trailer trucks at full bottling plant production levels. Up to 250 plant workers plus service vehicles would also converge on the potential plant site off STH 23 on a daily basis. An estimated maximum rate of inbound and outbound traffic is 500 trips/day. Worker traffic would be distributed unevenly, with the heaviest loads occurring over one-half hour during worker shift changes. Truck traffic would be more evenly distributed around the clock. Estimated peak-use-time truck, employee and all other traffic combined is 925 trips per day and 195 trips in the peak hour. A public comment noted that peak traffic from Perrier, such as during work shifts, could occur at the same time of day as when school buses operate, thereby adding a safety threat.

Perrier has indicated 85% of its truck traffic from the potential plant site would use a route west on STH 23 to STH 16, southeast on STH 16 to I-39 at Portage, then south on I-39 to I-90/94. Two other routes with lesser volumes would also be used. First, 10% of the trucks would follow STH 23 west, north at STH 13, and then west on STH 82 to I-90/94 at Mauston. During non-peak hours this traffic may stay on STH 23 west through Wisconsin Dells to STH 12, then north to I-90/94. Second, 5% of the trucks may go east on STH 23 to I-39 at Endeavor, then north. Return traffic would use these same potential routes.

STH 23, a designated Class II truck route, recently had maintenance work done near the potential plant site (repaving, paved shoulders, turning lanes and culvert/bridge replacements). DOT indicates the highway could handle the projected traffic increases without a loss in level of service. The 1998 traffic level was 2040 average daily traffic (ADT) and the road capacity is designed to handle up to 7000 ADT. Current truck traffic is 135 per day. DOT predicts that level of service on STH 23 during the highest traffic period would be at "B' level (stable flow) with or without Perrier traffic. Perrier consultants expect a fall

from 'B' to 'C' level (a lower range of stable flow) with the increased Perrier truck traffic. Traffic levels on STH 16 are about 3060 ADT and consultants project a 'C' level of service in 2020, with or without Perrier traffic. For safety, Perrier consultants recommended the location of the possible bottling plant access off STH 23, and that it be designed as a type 'A' interchange with turn lanes coming from both directions, a street light and appropriate signage.

Perrier would need DOT approval for a new driveway access to STH 23 and pipeline ROW access and may have to pay for part or all of any improvements if the potential plant site is developed.

According to state and local transportation officials, if CTH XX/STH 127 or CTH AA/STH 127 is used as a truck route there would likely be a need for major improvements in the near future to roadway sections. The responsibility for increased road maintenance would fall to DOT on STH 23 and 127, the counties for CTH 'G', 'AA' and 'XX' and the townships for local roads. DOT has indicated it would not recommend Perrier use country trunk roads in combination with STH 127 as a truck route. Perrier has indicated some willingness to fund any needed local road improvements.

Concern has been raised by the public about noise and diesel fumes from parked trucks at the possible plant. DOT did a comparison of the possible plant parking lot and level of use compared to a nearby I-90/94 truck stop (Flying J at CTH V). DOT estimated the use/traffic level at any possible plant would be about 1/5 of that at the truck stop.

Aside from common industrial cleaners, lubricants and sanitizers, no hazardous materials/waste would be stored, used or generated at any possible bottling plant or other Perrier facilities. Perrier estimates it would generate up to 3000 cubic yards of solid waste material monthly and would achieve an approximate 80% diversion or recycling rate. Non-recyclables would be picked up by one of several companies who service the area and be disposed of at privately owned approved landfills located out of the county. The Adams County landfill, which has capacity for 20-25 years of use, is available for use by county residents only.

"Quality of life" impacts are hard to characterize because everyone has a different perspective of what it is that makes life good. Most people who live in a rural area like the Town of New Haven probably do so because it's a quiet, peaceful setting. Once there, either for many years or just a few, most residents probably prefer to see little new development. It may threaten the very values that attracted them there in the first place, due to more noise and traffic, new buildings in place of scenic wood lots, reduced privacy, unknowns regarding the "intruders", more pollution, reduced property values and so on. The threat of change in the community, like a major change in any setting or situation, can be disturbing. To most residents, change by Perrier moving into the area is a threat they don't need. They are comfortable and accept the way things are because they are used to it. They are worried what other new developments and associated land use changes may come next. Others see it differently. As long as water resources aren't adversely impacted, they see little harm and some potential good from the high capacity well project. They see a "clean" industry with new and well-paying jobs that are badly needed by some residents in the area. They see potential for eased tax burdens, with little apparent increase in costs of public services. The farther away they live from any plant site plant and the commotion that goes with it, the less likely they are concerned about it. If the wells or a bottling plant were to be developed across the street from them they might not feel the same way.

Based on input received at the Department's March 16 public meeting and impromptu visits with residents near the project, it's clear that local residents want assurances that water resources will be protected. On June 13, 2000 advisory referendums were held in the Town of New Haven and its neighbor to the south, the Town of Newport in Columbia County (traffic routes may go through the Town of Newport). Both communities voted against the project by wide margins (New Haven 74%; Newport 81%). Seventy-seven percent of the Town of Newport voters also opposed development of a bottling plant in an industrial park. On June 29, 2000 the Newport Town Board passed a resolution "opposing any extraction of water by high impact drilling for commercial purposes where the water is taken from the community", and "opposes a water bottling plant in an industrial park". On July 3, 2000 two of three board members of the Town of New

Haven similarly voted to approve a resolution to oppose any rezoning for water wells or a water bottling or trucking facility. Neither township has any direct authority to regulate the wells or any bottling plant (i.e. such as through zoning). Regardless of the Department's findings on water issues or whether or not it approves the high capacity wells, local decisions may still decide if either the wells or a possible bottling plant moves forward. A bottling plant at the conceptual location identified by Perrier would require a land use zoning change. The township(s) can provide input to that decision, such as by their referendum(s). Adams County has the authority and responsibility to decide on any Perrier rezoning petition. Some of the information contained in this EA may be useful to Adams County as it considers the zoning issue.

c. Archaeological/Historical

No impacts are expected to archeological or historical resources. No known archaeological resources exist in the footprint at the well sites, at the possible Perrier bottling plant or other facilities. If such resources are discovered during construction, work will be halted and additional consultation immediately initiated. Also see section 13c.

18. Other Special Resources

None.

19. Summary of Adverse Impacts That Cannot Be Avoided (more fully discussed in 15 through 18)

Potential adverse impacts may occur to local groundwater and surface water resources and associated biological communities. Limited available information indicates significant adverse impacts can be avoided by requiring such things as minimum stream flows, minimum pond or wetland water levels, placing limits on pumping rates or requiring minimum separation distances from surface waters and adjacent property boundaries. Continuing studies, modeling and monitoring, which will be required as part of DNR approval, would improve the understanding of impact potential and be used to set operating restrictions (see section 20a). DNR will reserve authority to modify its approval and may do so if pre- and post-operation monitoring show significant adverse impacts may be occurring.

Minor impacts to wildlife habitat and use patterns are expected from development and operation of the wells. If the possible bottling plant was developed minor impacts to wildlife would occur, mainly associated with conversion of cropland and from increased truck and workforce traffic.

If the possible plant were built there would be a substantial boost to the local economy by job creation, increased tax base, construction activities and indirect effects to the local economy via wage earner expenditures. These benefits may be offset by increased demand for local services (police, fire, etc.) and facilities (schools, road improvements and maintenance). There could be truck traffic generated safety, maintenance and noise issues along truck routes, particularly near schools, The Barrington (an elderly assisted living home), homes or other sensitive receptors along STH 23.

There would be minor losses of productive agricultural lands being converted to the well sites and the potential bottling plant site.

The wells would not result in substantial increased human use/business activity. If the potential bottling site is developed there would be considerable human activity in a predominantly less intensive, agricultural area.

Depending on where a bottling plant might be located, there would be an unknown potential for nearby secondary human development such as homes and small businesses, with resulting changes in land development and use patterns.

There is substantial controversy and polarized feelings between residents in the Big Springs community and the Town of New Haven and neighboring areas concerning this project. Most residents are opposed to any development, whether for the wells or for a possible bottling plant.

ALTERNATIVES (no action - enlarge - reduce - modify - other locations and/or methods)

20. Identify, describe and discuss feasible alternatives to the proposed action and their impacts. Give particular attention to alternatives which might avoid some or all adverse environmental effects.

    a. Proposed high capacity well project

    Perrier would develop and operate the high capacity wells according to DNR prescribed conditions designed to protect groundwater and surface water resources and other public interest values. Construction and operation of the wells will not adversely impact the availability of water to any public utility furnishing water to the public. DNR will require such conditions as minimum stream flows, minimum pond or wetland water levels, a drought contingency plan, and limits on well(s) such as location, depth, pumping capacity or rate, or others. These conditions will be determined based on ongoing studies and monitoring (that DNR will require), in order to prevent significant adverse impacts. Perrier would not be allowed to operate until the conditions are set by DNR. After start-up and as long-term monitoring data becomes available, DNR will determine if revised operating conditions are warranted.

    DNR will set restrictions such that any flow reductions in Big Spring Creek attributable to Perrier groundwater withdrawals will still maintain the stream's physical, biological, social, economic or any other public interest values. The stream has the potential but does not currently support a high quality fishery or other aquatic biological community. Wetlands associated with Jensen's and Buckley Ponds and downstream channels also currently have reduced habitat value, primarily the result of physical disturbance or intensive agricultural use practices. Minimum stream flows and minimum pond and/or wetland water levels will help prevent Perrier withdrawals from causing further damage to these resources. Studies and monitoring, which will be stipulated requirements of DNR approval, are ongoing to help further define aquifer and surface water (i.e. stream) flow characteristics and help predict, using modeling, monitoring and other techniques, groundwater and surface water responses to various (higher) pumping rates. Results should be available by May, 2001. As information becomes available DNR will amend the approval by incorporating specific operating limits to protect water resources. Even with such studies/modeling information, groundwater and surface water responses to withdrawals would not fully be known until after actual withdrawals were initiated and monitored. After a reasonable period of monitoring and data collection and determination by DNR, if adverse impacts were taking place, approved operating conditions would again be reviewed and, if necessary, revised as needed to protect resource values.

    Perrier has verbally agreed to the above process. A draft Agreement (see Attachment 13) has been developed that would become a legally-binding, formal document, signed by Perrier and DNR, that would be incorporated into the high capacity well approval. The Agreement will commit Perrier to conduct DNR-approved studies/surveys/pump tests and do short- and long-term monitoring. The Agreement stipulates that project operations, under all climatic conditions but especially during drought, shall have no significant adverse impacts to any nearby groundwater, surface waters or wetlands. The studies/monitoring will be used by DNR to develop (or subsequently revise) operating terms and conditions in any high capacity well approval to prevent any such impacts. Perrier may challenge the reasonableness of the condition(s), but not the authority to impose them. The Agreement recognizes that the "reasonable use standard" (see sections 3 and 22) shall apply with respect to groundwater withdrawal, use and sale. If the Department determines there is a significant adverse impact to any nearby groundwater, surface water or wetland, it may unilaterally amend its approval to impose (additional) conditions to eliminate the impact. Perrier would not be allowed to begin operations until after DNR sets the operating restrictions. The Agreement also notes, in addition to the high capacity well approval, other permits will be required for the possible pipeline and bottling plant or for any stream or wetland restoration activities.

    Perrier may voluntarily undertake protection or enhancement measures to Big Spring Creek to improve

the trout fishery or other habitat enhancements to surface waters/wetlands. Such restoration measures will not be required as a condition of the high capacity well approval.

b. No action.

The wells would not be developed at the proposed site. Perrier would have to find an alternate location to meet its water needs. This action would avoid potential impacts to water resources in and surrounding the water withdrawal site, including downstream portions of Big Spring Creek. Unless the current landowners undertake improved conservation practices, the biological community found in the stream and associated wetlands would remain below their potential. Disturbance to the potential bottling plant site and an associated pipeline route would be avoided, maintaining existing agricultural use. Potential benefits to the local/regional economy, including increased tax base and new jobs, would not be realized. Land use issues in the Town of New Haven (and its neighbor, the Town of Newport) associated with the Perrier high capacity well project would disappear.

c. Other locations.

Prior to proposing wells at the Big Springs site, Perrier proposed a similar operation about 30 miles northeast on state land at the headwaters of the Mecan River (Mecan Springs State Fishery Area) near Coloma in Waushara County. Substantial local controversy and concerns about potential impacts to sensitive springs habitat, the downstream trout fishery and inappropriate use of state lands all ultimately led Perrier to look elsewhere.

Perrier has reported that other unidentified sites will be examined if the Big Springs site is not developed. There appears to be a market advantage for bottled water companies developing at spring sites as opposed to deep wells. The public apparently has a perception that spring water has a higher quality and better taste. This is reflected in federal labeling rules. The Food and Drug Administration requires that bottled water labeled as spring water must be taken from the same underground stratum as the spring and have the same physical properties, composition and quality as water that flows naturally to the land surface. The rules do not specify the required method of extraction (i.e. water collection from borehole wells vs. at the land surface). Since other candidate Perrier sites are not known no comparison can be made regarding the environmental, social or economic impacts of alternate sites compared to the Big Springs site.

Another alternative would be for Perrier to change its product label by deleting "spring" as the water source. This would allow Perrier to seek non-spring sites for its bottled water product. This option may reduce the value of the project to Perrier.

d. Proposed project, without Perrier acceptance of DNR broad authority to limit operations

This is an alternative that Perrier could pursue if it decided that DNR-approved operating conditions are so constraining that it would not be feasible for Perrier to develop the well site. Since there are no existing public water supplies that would be affected, under s. 281.17, Wis. Stats., and ch. NR 812, Wis. Adm. Code, DNR would be compelled to approve the high capacity wells. Perrier has consented in the Agreement to DNR using its broad authority under sections 31.02, 227.44(5), 281.11 and 281.12, Wis. Stats., to protect the groundwater and nearby surface waters and wetlands (see sections 3 and 22). Absent such consent, use of this authority is subject to challenge. Under any circumstances, if Perrier initiates operations that adversely impact private water supplies, impacted property owners can still seek relief, if necessary through civil action (see section 22).

e. Reduce, enlarge or modify the scope of the project.

Perrier has proposed a high capacity well production rate presumably based on its estimates of spring water yield and what production it believes is necessary to justify its capital investment. Perrier has proposed a maximum bottled water withdrawal rate of 500 gallons per minute. Should the Jensen and

Buckley spring sites not generate enough water to supply 500 gallons/minute, other nearby spring sites could be targeted for development. This could require that water from such sites be trucked to a bottling plant regardless of its location. It is also conceivable that Perrier may seek to expand the withdrawal volume/rate at some future time. To the extent that regulatory jurisdiction allows, the Department would consider such requests. Ongoing and proposed studies, modeling and monitoring would provide useful information in considering any such requests. If it is determined pumping rates could be increased without risk of environmental or social impacts the Department may approve such an increase.

While not part of the high capacity well project, another option, with respect to the potential bottling plant, would be to build a bottling plant at a further off-site location. Tanker trucks or pipelines could be used to transport water from the proposed well(s) to an alternate bottling plant site. This option may reduce some of the traffic in the project area along STH 23, but that could be at least somewhat offset if tanker trucks are used along the same route. Depending on the plant location, traffic and associated impacts would occur elsewhere, possibly in a non-rural area with better access to distribution routes. This option may avoid Perrier needing to get county zoning changes (i.e. agricultural to industrial). It would also mean that most tax base and jobs creation impacts would be shifted to any alternate bottling plant location.

f. Legislative change clarifying and expanding state regulatory authority.

While not really a project alternative, changes in laws/rules governing high capacity wells is a parallel issue being considered by others.

Several new legislative proposals have been drafted to clarify and expand state regulatory authority for responding to high capacity well applications. The legislature is not scheduled to meet again until this fall. Even if a special session is called and new authority is passed, it may be that the Perrier application would still have to be considered under rules that existed at the time the application was submitted. It is not possible to predict if or when the legislature will consider changes in authority/responsibility or the changes that may be prescribed. The Department has expressed its support of expanded DNR authority to require studies and to impose operating conditions to protect environmental resources beyond municipal water supplies. Perrier's voluntary studies and acceptance of broad DNR authority for this project is consistent with the intent of DNR supported legislative changes.

EVALUATION OF PROJECT SIGNIFICANCE (Complete each item)

21. Significance of Environmental Effects

a. Would the proposed project or related activities substantially change the quality of the environment? Explain.

Physical impacts to surface water and groundwater resources in the area will result, such as a lowered water table and reduced flows downstream. Depending on the extent that such reductions occur, compared to natural conditions, nearby private wells could be impacted. The functional values of nearby wetlands could be lost or changed. Fish and wildlife that use the ponds, Big Spring Creek and other surface waters may be adversely impacted if their existence is dependent on suitable water levels/flows. Any DNR approval of high capacity wells would require continued studies and monitoring to help further define the relationships between water withdrawals and groundwater and surface waters. This information will be used to identify well operational restrictions that will be incorporated into any high capacity well approval as needed to prevent significant adverse impacts.

Land use at the potential bottling plant site would change from agricultural to industrial if local zoning changes were obtained. Requirements of a stormwater permit would minimize potential risk of off-site water quality impacts from construction and run-off events. Air emissions and wastewater generated from plant operations, regardless of location, would be regulated so as not to adversely impact air or water

quality. Traffic levels would increase at the potential plant location and along any main travel routes, but would not appear to present serious problems according to highway officials. The local economy would experience a substantial boost in tax base but this may be somewhat offset by a need for increased public services. If the plant is developed jobs would be created that could be filled by the local workforce and construction could provide a substantial but short-lived boost to the local or regional construction industry and building suppliers. The surrounding area may also experience land use changes. If workers move to the area new secondary developments, such as housing, schools, etc., may be needed to accommodate the increased demand.

b. Discuss the significance of short-term and long-term environmental effects of the proposed project including secondary effects; particularly to geographically scarce resources such as historic or cultural resources, scenic and recreational resources, prime agricultural lands, threatened or endangered species or ecologically sensitive areas.

Well construction and water extraction is a reversible action in that pumping can be halted and the wells can be removed. Well bore-holes can be properly abandoned to prevent pollution risks to groundwater and disturbed areas can be restored to agricultural use.

The physical changes to the land and water resources will mostly be localized. No impacts to endangered and threatened species or historic and cultural resources are expected. Losses in agricultural lands will be minor. There are many springheads in the Big Springs and surrounding area, though the targeted two spring pond areas are comparatively large and surrounding wetland communities diverse. The fact that Big Spring Creek is the main surface water source feeding Mason Lake, directly impacting its biological and recreation value, also adds to its importance, particularly considering the established use of Mason Lake drawdowns as a lake management tool. Any DNR approval of high capacity wells will incorporate measures to avoid short and long-term adverse impacts to local and regional groundwater and surface water resources and associated values such as fish and wildlife habitat and recreation.

22. Significance of Cumulative Effects.

Some parties have expressed concern that the project is inconsistent with some of the most basic state laws and policies regarding water "diversion" and could lead to serious cumulative impacts on in-state and possibly even international boundary waters (i.e. Great Lakes). Issues raised include the concern that the bottling of water and its transport out of the watershed could ultimately deplete water resources. Further, if this type of high capacity well project is allowed at other sites, Wisconsin's' "buried treasure" heritage for clean and abundant water could be at risk. Some would argue that it is not appropriate for private industry, like Perrier, to profit from the "mining" and "exportation" of what they consider to be a local and state water resource.

There are currently over 50 bottling plants (includes breweries) operating and widely dispersed in Wisconsin, including one within ten miles of the proposed well sites. Some have their own water wells and others get their water from a municipal system. There are no state regulations prohibiting the bottling of water and its removal from the basin where it comes from. Bottling operations where the "water loss" is less than 2 million gallons/day for any 30 consecutive days are not regulated as "diversions" within the context of the law, even though the water that is bottled may ultimately be shipped to an out-of-basin location (see s. 281.35, Wis. Stats.). There are also no state laws/rules which prevent companies from bottling water (or manufacturing beer) and selling it for profit.

Though not all relevant in this case, there are two Wisconsin laws/policies regarding water diversions, and a third which applies to water rights.

Section 30.18(2), Wis. Stats., requires that no person may divert water from a stream for purposes of maintaining or restoring the normal level of a navigable lake or the normal flow of a navigable stream, or for agricultural or irrigation purposes, without a Department permit. This law does not apply to the Perrier high capacity well project because water would not be diverted from surface water and would not be used for restoring water levels or for agricultural/irrigation purposes.

The Great Lakes Charter (see s. 281.35, Wis. Stats.), approved by the governors and Canadian provincial premiers of the Great Lakes in 1985, is designed in part to limit the diversion of water from the Great Lakes area/basins. It was developed mainly to address direct large-scale water withdrawals and diversions, such as via pipelines, outside the Great Lakes basin. The law requires that any proposed out-of-basin water withdrawal averaging more than 100,000 gallons per day in any 30-day period must be registered by the Department. Any withdrawal that will result in a water loss averaging more than 2 million gallons per day in any 30-day period must be approved by the Department. If the proposed withdrawal exceeds an average of more than 5 million gallons per day for any 30 day period, the Department must consult with the other Great Lakes states and provinces before approving the proposal.

Water withdrawals subject to the Great Lakes Charter can only be approved if the project: 1) does not adversely impact public water rights; 2) does not conflict with any plans for future water use and protection; 3) incorporates reasonable conservation practices; 4) does not have a significant adverse effect on the environment; and 5) is consistent with the protection of public health, safety and welfare; and other criteria. The Charter not only allows the Department to consider cumulative impacts from proposed large diversions, it also requires, before an approval is granted, a finding that the diversions would not result in serious adverse impacts. There are currently no water withdrawals in Wisconsin that fall within the scope of Great Lakes Charter regulations. The Great Lakes Charter does not apply to Perrier except that a high capacity well approval meets the registration requirement under the law.

That is not to say that the Perrier and other similar withdrawals, particularly within a small geographic area, might not have cumulative impacts. Based on site-specific or regional variables, there could be a limit on how much water can be taken before the local /regional water budget could be adversely impacted. Unlike high capacity irrigation wells, Perrier extracted water would not be returned to partially replenish the underlying aquifer. It might be reasonable to expect that potential high quantity water users would not develop in the same area to avoid competing for a limited resource. If other projects were proposed, the Department would consider each project based on its own merits and impact potential and would consider cumulative effects from those projects along with the Perrier project. To the extent provided by existing authority, any approvals would be conditioned to prevent cumulative adverse effects.

While the Department has not actively reviewed all high capacity well applications to determine if there has been or will be an adverse environmental impact resulting from their operation, several cases have been brought to its attention over the years. "Aquifer levels in places have dropped substantially (Fox Valley, Milwaukee, Green Bay, Madison), surface water(s) have or will be harmed (Bonduel, Wisconsin Rapids, Little Plover River) and potential links have been shown between groundwater extraction and the incidence of arsenic in wells" (George Kraft, written comments on draft EA, August 2, 2000). The Department has no authority to deny or condition a high capacity well application based on impacts to the environment. However, in a few cases, the Department has successfully negotiated some modifications to the operation of high capacity wells.

The Department has approved about 9,500 high capacity well applications (over 400 in Adams County) over the last fifty years (see section 24 and Attachment 10, DNR Summary of Wisconsin's High Capacity Well Program). Even so, it can be expected that there will be an increasing future demand on available water resources. This will also increase the chance of future conflicts over water use. To properly and fully address and prevent serious water resource or use problems in the future, the Department believes changes are needed to clarify and expand the Department's regulatory authority. Whereas Perrier has voluntarily agreed to accept the Department's exercise of broad authority to protect water resources, that may not be the case for future proposals from others.

As described in section 3, aside from potential impacts to municipal water supply systems, there are no specific laws that require or allow the Department to consider what the impacts, including cumulative impacts, may be from high capacity wells. In this instance Perrier has consented to DNR using broad authority under sections 31.02, 227.44(5), 281.11 and 281.12, Wis. Stats., to protect the groundwater and nearby surface waters and wetlands. Absent such consent, DNR would have been limited to using its specific authority in

section 281.17, Wis. Stats., and ch. NR 812, Wis. Adm. Code. In addition, there is groundwater withdrawal case law, based on the Wisconsin Supreme Court decision in State vs. Michels Pipeline Construction, Inc., 63 Wis. 2d 278, (1974), that is commonly referred to as the "reasonable use standard". The case law allows a landowner or his grantee to withdraw, use and sell groundwater in any amount without liability to another, so long as the withdrawal does not cause unreasonable harm to others.

Use of the above broad authority to protect nearby surface waters or wetlands is subject to legal challenge, since the specific provisions of section 281.17, Wis. Stats., and chapter 812, Wis. Adm. Code, supersede that broad authority.

As may be evident from the above discussion, there is a lack of clarity regarding DNR's authority to regulate high capacity wells. The controversy associated with the Perrier project, first at Mecan Springs and now at Big Springs, has brought this to light. It would seem appropriate to clarify and expand the language in s. 281.17, Wis. Stats., and ch. NR 812, Wis. Admin. Code. By doing so, DNR review of applications for high capacity wells could more effectively be focused on public concerns and environmental issues, rather than on legal and jurisdictional questions. There are several legislative proposals that have been proposed to do just that. The Department supports efforts to clarify its authority.

The Department's current response when operations of a high capacity well cause an impact to a neighbor or his property is to encourage the operator to cooperatively remedy the damages it created, such as by reducing its pumping rate or replacing the neighbor's failed private well or water supply. Perrier has gone on record saying it will remedy any such losses associated with this high capacity well project. In at least one case DNR is aware of, Perrier argued that it was not responsible for failure of two private wells near Perrier wells. A disagreement like this may particularly come up when dry or drought conditions exist or when there are other new water users within close proximity. The Department is not responsible for such damages, even if it has approved the well(s) and water withdrawal rate(s). Failing a cooperative resolution, the only other relief the neighbor could seek would be through civil suit. If Perrier wells were to be approved and become operational, the Department can provide technical assistance to help explain how neighbors can document potential impacts, such as changes in their private flowing and non-flowing wells (see Attachments 11 and 12). While neighbors may prefer to avoid the possible expense and burden of showing damage, that may be the only recourse available under existing laws. DNR has used a similar cooperative approach when high capacity wells are found to adversely impact surface waters (see Attachment 10).

23. Significance of Risk

    a. Explain the significance of any unknowns that create substantial uncertainty in predicting effects on the quality of the environment. What additional studies or analyses would eliminate or reduce these unknowns? Explain why these studies were not done.

       Though Perrier claims pumping rates up to 200 gallons/minute will not substantially impact water resources, the exact effects of Perrier water withdrawals up to 500 gallons/minute are not yet known. Ongoing monitoring and technical studies over the next year, notably the groundwater modeling effort, will substantially expand the information available to predict impact potential at the proposed higher pumping rate.

       Along with other conditions, pumping rate(s) may be restricted below the maximum proposed by Perrier. Increases may be allowed if monitoring and modeling shows no significant adverse impacts would result. In order to see if the model predictions are accurate, the responses in the aquifer and surface waters after start-up would be monitored to verify the accuracy of model predictions and document any physical and biological changes which may occur. If the model-predicted environmental responses are underestimated, the Department could lower pumping rates. Similarly, if impacts are overestimated, pumping rates could be increased. Continued monitoring would also be important to see that environmental effects are avoided under a prolonged range of hydrologic conditions over the years. Additional pumping rate modifications may be necessary as wet, dry or normal hydrologic conditions warrant. Given latitude to adjust withdrawal rates as needed to prevent significant adverse impacts, the environmental risk is minimized.

The ongoing studies could be completed earlier than next year, but doing so would compromise the accuracy of the predicted environmental responses. USGS, UW-Stevens Point, DNR and Perrier experts have agreed that the modeling effort should continue to capture at least one full year of baseline hydrologic information to maximize the accuracy of the model predictions. Even a full year of data collection and monitoring will not "guarantee" a complete projection and understanding of the environmental effects of simulated Perrier water withdrawals.

The fact that DNR will have the discretion to set and later modify approved operating conditions as modeling/monitoring information becomes available would seem to present some risk to Perrier. The company would be investing millions of dollars in bottling plant construction at some location, without knowing with long-term certainty how much water withdrawal DNR may allow.

One other unknown is what constitutes a significant adverse impact, since this is what the public seems most focused on. Chapter NR 150, Wis. Adm. Code, generally defines "significant effect" as "considerable or important impacts of major state actions on the quality of the human environment". In Attachment 13 (Page 6, #10) a more detailed description (as pertains to this project) is provided: "A significant adverse impact to surface waters or wetlands would occur when the quantity or quality (e.g. temperature, dissolved oxygen, suspended solids, etc.) of the waters available to any affected surface water or wetland is reduced or affected such that its physical, biological, social, economic or any other public interest value cannot be maintained.

Not so clear, and left to the discretion of DNR, is what conditions must be placed on a high capacity well approval to ensure no significant impact (for further clarification, see DNR EA Public Comment Summary, response to comment # 55). For instance, must a zero reduction in flow in Big Springs Creek be considered necessary to prevent significant adverse impact? Would a 10% reduction in flow be reasonable as long as the Department felt it would 1) not materially impact fish, other aquatic life or recreation use downstream and 2) not critically reduce the available make-up water to restore normal Mason Lake water levels after winter drawdowns? What impact to groundwater levels might be considered acceptable before DNR should cut back approved Perrier pumping rates? Would it be unacceptable if 1) water levels drop in a nearby wetland, even if functional values are not seriously compromised or 2) the local aquifer or water table drops two feet or more?

DNR has attempted to gather science-based information to help reduce the uncertainty in predicting project impacts and in identifying development/operating restrictions which would protect resources that could be at risk (see section 20a). Information gathered to date far exceeds that typically done for high capacity well projects. More information is coming in. Using this information to develop operating terms and conditions the Department expects no significant adverse impacts to water resources to occur. This is a reasonably informed prediction. If Perrier believes that less restrictive measures will not cause environmental problems, it can try to use the new information to show, by prediction, this is so. No matter how much information is collected, high capacity well project effects on water resources will not be fully known until operations begin. Then, required monitoring data will be used to determine the need for any potential remedial measures.

b. Explain the environmental significance of reasonably anticipated operating problems such as malfunctions, spills, fires, or other hazards (particularly those relating to health or safety). Consider reasonable detection and emergency response, and discuss the potential for these hazards.

Any increased traffic on STH 23 from possible plant development will increase the risk of traffic accidents and associated spill potential. The rural location of the potential site may be a challenge for police, fire, emergency response, etc. to provide prompt and effective service if needed. Possible bottling plant development and operations should not pose any special pollution, health or safety risks provided all the necessary permits are obtained and restrictions are followed. There will be no hazardous waste generated at the possible plant. Risk of fire at the possible plant would be no greater than at other similar industrial facilities. If a water supply pipeline is installed it should not present serious problems if a failure occurs.

24. Significance of Precedent

a. Would a decision on this proposal influence future decisions or foreclose options that may additionally affect the quality of the environment? Explain the significance.

A decision on this project would not commit the Department in making future decisions for similar projects at other locations. Any such proposals would be considered on their own merits and issues according to applicable regulatory rules/processes.

The Department has never before prepared an EA or requested such extensive environmental studies for a high capacity well application. Preparation of this EA and associated studies to collect applicable information greatly exceeds the normal review process. Some may see this effort to be a reasonable process to follow for any high capacity well application at any location. There is a discretionary provision in s. NR 150.20(1)(a), Wis. Adm. Code, to allow such additional regulatory review steps if critical resources may be impacted or if there may be substantial risk to human life, health or safety. As described in this EA, these criteria are not met for this project. In this instance DNR decided to prepare an EA for two reasons: 1) because of significant public interest and concern over the proposed high capacity wells; and 2) Perrier decided not to challenge the Department's lack of authority to prepare the EA.

The Department annually receives about 200 high capacity well applications. Since approvals were first required for high capacity wells in the 1940s, approximately 9,500 approvals have been issued statewide, including about 400 in Adams County. Most are either for agricultural pivot irrigation systems (4,175) or for temporary dewatering of construction areas, but approvals have also been issued for 1700 municipal wells (public water supply) and 1128 industrial wells. On this basis it would not seem reasonable, and it is not feasible given available staff resources, for the Department to conduct such detailed reviews for every high capacity well application. But, it is reasonable to continue to have the discretion to conduct such reviews when specific site or high capacity well project conditions warrant.

b. Describe any conflicts the proposal has with plans or policy of local, state or federal agencies that provide for the protection of the environment. Explain the significance.

Perrier's well site and the potential bottling plant site are both currently zoned A-1 Agricultural. A zoning change to I-1 Industrial would be needed. In February, 2000 the New Haven Town Board adopted a resolution establishing a moratorium on any zoning changes pending completion of a land use study and adoption of zoning recommendations. On July 3, 2000 the New Haven Town Board passed by 2/3 majority a resolution opposing any zoning changes for wells used to remove water from the Town or for locating a water processing, bottling or transfer facility. To the south in Columbia County, the Town of Newport Board passed a similar resolution on June 29, 2000. Adams County can consider but is not controlled by these town resolutions when the county makes zoning decisions.

In March, 2000 the New Haven Town Board adopted a resolution opposing any large scale extraction of water for bottling at or near Big Springs or any other water that originates in or enters the Town of New Haven without a full Environmental Impact Statement(EIS). The resolution also asked for a hydrogeological study that "guarantees" that such a well will have no negative impact on the water flow or water quality. The Department has required unprecedented studies and prepared this EA and, as part of the EA review process, has made a determination that an EIS is not required (see section 30).

In 1994 the Department, in cooperation with county land conservation departments and others, completed a nonpoint source water pollution control plan for Neenah Creek watershed. Though Perrier's proposed project wasn't considered, there is no indication that the project would conflict with the goals and proposed actions in the watershed plan.

Ongoing cooperative efforts with the Mason Lake Improvement Association to protect and enhance lake values could be at risk if the Perrier project reduces the quantity or quality of water which normally enters Mason Lake. Big Spring Creek represents a large proportion of the make-up water used to restore lake

water level after winter drawdowns, a commonly used lake management tool. To avoid conflicts with these efforts, withdrawals will be limited either to not substantially impact normal stream flow or to assure time effective lake refills. This would be done as a condition of any DNR high capacity well approval. There may also be some benefits, such as reduced nutrient loads from Big Spring Creek watershed, if Perrier were to reduce grazing and other current intensive land use practices on property it would acquire.

25. Discuss the effects on the quality of the environment, including socio-economic effects, that are (or are likely to be) highly controversial, and summarize the controversy.

This project has created a high level of controversy and strongly polarized feelings within the Big Springs area and within the township and adjacent communities.

Some local residents want to have a guarantee that groundwater and surface water resources will not be depleted. Some neighbors feel the high capacity well project, and also related activities such as a bottling plant, presents a great threat to their own water supplies, would reduce their property value, create traffic or noise problems, disrupt the local rural character or seriously degrade their overall quality of life. Others feel, provided water resources are not impacted, that the project could be good for the community, could reduce property taxes, provide needed jobs and be a low-impact, clean industry that would not alter or disrupt community values. No matter what the Perrier project outcome, it may take a long time for the controversy within the community to subside.

Considerable public input has been received regarding Perrier's (or sister companies) environmental track record at its operations in other U.S. locations. Allegations include aquifer depletion under a state park in Maine, closing public access to a recreation area in Florida, exceeding water withdrawal rates in Pennsylvania and failure to remedy a dried-up private well caused by water withdrawals in Texas. To address these allegations, Perrier was asked to provide a description of its other U.S. operations and the name and phone number of regulatory contacts.

Contacts with regulating agencies were made (see section 28, list of agency contacts). They reported that projects were often controversial and neighbors were sometimes opposed to new development or expansion proposals. There have been some complaints of problems since start-up. The agencies have found no substance to these complaints and have largely found Perrier to be cooperative and environmentally responsible.

Maine- Water bottling began 100 years ago at Poland Springs, Maine. Perrier operates the original plant site and within the last two years added two wells with ~200 gallons/minute pumping capacity on adjacent Range State Park lands under agreement with the Maine Department of Conservation. The Maine State Geologist reports that the agreement has been mutually beneficial, and that Perrier is a good neighbor and has a very strong environmental ethic. There have been some complaints that the water withdrawals have or are impacting private wells, but regulators indicate these allegations are "totally unfounded". The Maine Department of Environmental Protection extensively monitors the aquifer, and the data indicates there is no impact to the aquifer and no validity to anecdotal complaints.

Texas- Perrier has operated three shallow (50-80' deep) wells, ~50 gallons/minute for about 8 years in Henderson County. Water is pumped to storage tanks and subsequently trucked to Fort Worth for bottling. The nearest private residence is ~1/2 mile away. Regulators indicated the wells/storage plant is well operated. The Texas Natural Resources Conservation Commission's manager for the site reported there have been 3-4 complaints over the last three years that operations are impacting private wells, but there is no documented evidence that there is a problem.

Pennsylvania- In 1999 Perrier installed a shallow bore hole well to replace a bulk surface water collection system previously operated by former owners in Schuylkill County. The project was approved by the Susquehanna River Basin Commission with maximum pumping limits (0.288 million gallons/day), minimum stream flow maintenance (20% of inflow) and a maximum allowable groundwater drawdown of one foot. There was considerable local controversy during project review, including concern that the

project would adversely impact a nearby municipal water supply well. Opposition also was registered by adjacent landowners and some complaints have been received since operations began. Agency staff report Perrier has been environmentally responsive during project development and in operations monitoring. No violations or compliance problems have occurred through March, 2000.

Delaware River Basin (New Jersey and Delaware)- According to the Susquehanna River Basin Commission there are several Perrier or subsidiary operations in the basin that are operating without problems. Perrier has shown good cooperation with regulators and goes the extra mile to address environmental issues. There have been local complaints from neighbors, mostly concerning truck traffic.

Florida- Perrier operates a bottling plant in Zephyrhills near Tampa. The plant has two bottling lines, one from the City municipal waterworks and the other a surface water spring-pond diversion. The City Supervisor reports that the plant has never been a problem over some 25 years of operations and has been a strong and positive neighbor in the community. The bottling plant is in a mixed-use neighborhood, including high- value home sites. Little noise is generated. Local traffic from new developments, when combined with bottling plant truck traffic, has become a recent issue but is being addressed by road improvements. The property owner closed the spring site to public use (swimming hole) and that has caused local criticism/controversy. The plant recently sought an increased production level but was denied by the SW Florida Water Management District to protect downstream uses (the spring empties into the Hillsboro River, which is used as a water supply for downstream municipalities).

During the draft EA public comment period, additional claims of Perrier environmental problems were reported. The Department asked for any information indicating this. More than 100 e-mail pages of news articles, photos and general correspondence were provided and reviewed. Of note, Perrier is a growing company and often seeks expansion once established, even if there is controversy over water availability. At the above-described Texas plant, two landowners filed action in Texas Supreme Court against Perrier for damage to their private wells. Perrier denied responsibility. The court felt Perrier was responsible, but ruled that there were no state laws providing legal remedy to the landowners. Like Wisconsin, some other states have limited authority to regulate production from high capacity wells. Perrier has had a handful of OSHA worker safety violations and paid fines for its Maine bottling plant. In Maryland, a monthly average minimum stream flow requirement was not being met for two weeks in the fall of 1998.

Several people commented at DNR's March 16, 2000 public meeting (see section 27) that DNR should prepare an environmental impact statement (EIS) for this project. Subsequent written comments echo the request for an EIS or express outright opposition to the project.

Similar concerns were also demonstrated at DNR's annual Conservation Congress spring hearings. On April 10, 2000, resolutions were proposed from the floor at twelve county hearings. The resolutions recommended DNR introduce a ch. NR 150, Wis. Adm. Code, rule change to the legislature such that all high capacity well applications for water extraction, bottling and exportation are made a Type 1 action requiring preparation of an EIS. The resolution passed by a total recorded vote of 1090 for and 16 against (at least one county only took a show of hands and the resolution was passed with no objections). At its subsequent annual convention, the full Conservation Congress referred the issue to its Environmental Practices Committee.

Two citizen groups, Savin' New Haven and Waterkeepers of Wisconsin, actively oppose the project. The Department received many e-mails and letters from project opponents from March-June, 2000. Correspondence received almost always criticized the project. Commenters often reiterated that an EIS was needed because the EA, though it had not yet been prepared, would not cover all issues associated with the project. Advisory referendums held in June, 2000 in the Town of New Haven and the Town of Newport showed substantial opposition to the high capacity well project.

Some interested parties apparently have already made up their minds and opposed the project before DNR had an opportunity to conduct its environmental review. This suggests that, despite many requests that DNR conduct a more detailed EIS for the project, some people really just want to make the review process as cumbersome as possible in an effort to slow down or stop the project.

Section 3 of the EA notes that approval of high capacity wells and other Department authorities associated with this project are type IV actions that do not typically require the Department to prepare an EIS or EA. It also describes the difference between an EIS and EA. A primary purpose of the EA is to determine if a DNR decision to approve/deny the high capacity well application would be a major action resulting in significant impacts to the quality of the human environment. Based on information contained in this EA, a decision has been made that the Perrier high capacity well project is not a major action that would result in significant impacts. Therefore, an EIS is not warranted.

26. Explain other factors that should be considered in determining the significance of the proposal.

None.

SUMMARY OF ISSUE IDENTIFICATION ACTIVITIES

27. Summarize citizen and agency involvement activities (completed and proposed).

On March 16, 2000, 6-11 p.m., the Department held a two-part public information meeting (open house and forum) at Wisconsin Dells High School to answer questions and listen to public concerns regarding this project. About 250 people attended and 22 gave verbal testimony. The public was also invited to provide written questions, comments or concerns through April 10, 2000 (the comment period was never closed). Ninety-five written comments were received. Most of the input expressed caution if not outright opposition to the project. Input received was used to help identify issues to address in the EA. Below is a summary listing of all issues raised. A complete record of public meeting and written comments received is available from David A. Weitz, Public Affairs Manager, DNR West Central Region Service Center, 1300 West Clairemont Ave., Eau Claire, WI 54702.

Perrier held a public information meeting on April 17, 7-11 p.m., at Wisconsin Dells High School. About 250 people attended. About 20 gave verbal comments, mostly in opposition to the project. Before and outside the meeting several sign-carrying demonstrators expressed opposition to the project. Information was handed out, including a prepared form letter addressed to Governor Tommy Thompson asking that he require DNR to prepare an EIS for the project. Several DNR administrators also received a number of these form letters. Responses were provided, when appropriate, to many such letters received.

The Town of New Haven in Adams County and the Town of Newport in Columbia County both held advisory referendums on June 13, 2000. The result in both cases was strong opposition to the project.

The draft EA was released for public comment on July 25, 2000. The deadline for comments, originally set for August 11, 2000, was extended to August 25, 2000. DNR held a public information meeting on August 1, 2000 at the Wisconsin Dells High School to explain review procedures, timetables and draft EA content and to receive public comments. Approximately 300 people attended, 92 gave oral testimony or provided written appearance slips often with written comments. Other than at the public information meeting, DNR received 121 comments (many were duplicates or had similar content). In addition, on August 22, 2000, a public hearing was held by the Wisconsin State Senate's Agriculture, Environmental Resources and Campaign Finance Reform Committee. About 50 people gave verbal testimony and roughly another 100 attended. Most of the comments received by DNR and at the Senate Committee hearing either opposed Perrier's application or criticized DNR for not preparing an environmental impact statement (EIS). A summary of all comments received (including those from the Senate hearing) and DNR responses has been prepared and will be sent to all parties that commented, along with a notification of DNR's decision not to prepare an EIS. These documents will be a part of the final EA and the record of decision. The final EA and comment summary are available at DNR's web site: http://www.dnr.state.wi.us/org/water/dwg/ index.htm or by calling (715) 839-3747.

Issues raised at DNR's March 16, 2000 public information meeting and in follow-up written comments

A number denotes the main EA section(s) where each issue is addressed, or a direct response is provided.

Need information on what's proposed, how many wells, where, volume of water- sections 1, 2, 7 and 8
Perrier corporation environmental record at other locations- section 25
Bottled water market area- Midwest United States
Jobs information, wage scale, union, perks, work schedule, source of prospective employees- section 17b
Proposed stream/waterway improvements- section 14
Proposed utilities, who pays for them- Who pays is up to local utility; also section 7
Why isn't an EIS required- section 25
Water quality impacts, increased potential for atrazine, nitrates or other pollutants to become more concentrated or expand contamination plumes, and any associated health impacts- section 15
Precedent of diverting, "mining" and exporting water- sections 22 and 24a
Concern about stormwater impacts from roads and parking areas- sections 8, 15 and 17b
Impacts to agriculture, prime agricultural lands- sections 13a and 17a
Impacts to groundwater, surface water, private ponds/springs, local water budget and wetlands in low, normal and wet years, need map of water resources- section 15; absent a better understanding of what is wanted and its value for this analysis, DNR has not developed a "water resources map"
Need to protect water resources for future generations, monitor changes- sections 15 and 22
Impact to township "quality of life", livelihood- sections 17b and 25
DNR should not compromise protection of water resources for economic health- sections 15 and 23a
Perrier should not go back on promise not to consider Mecan Springs site- Not relevant to this project.
Traffic impacts, road improvements/maintenance needs and who pays for this- section 17b
Impacts to private wells, if my well goes dry is Perrier going to replace it, how can we monitor changes- sections 15 and 22
Independent studies, not Perrier's, needed- sections 11and 15
Concern about general growth impacts to the area, land use changes, need to preserve nature and wildlife- DNR response: The direct and indirect impacts of the Perrier project are described in sections 15-18. Local units of government, through applicable zoning programs, decide local development patterns. DNR agrees with the concept of incorporating environmental protection into local land use planning and zoning decisions.
Impacts to fish and wildlife and endangered and threatened species- sections 15 and 16
Impacts to air quality- sections 11, 15 and 17b
Impacts on taxes, property values, recreation and tourism, campgrounds/resorts- section 17b
Is Perrier interested in other area sites for water- Aside from the Mecan Springs site looked at earlier, DNR is not aware of other Wisconsin sites Perrier may be interested in.
Impacts to Mason Lake- sections 15, 16 and 17b
Perrier, DNR and Adams County should follow the Town of New Haven moratorium against development until an EIS and hydrogeological studies are completed- sections 17b and 25
Opposed to Perrier financial exploitation of our natural resources- section 22
Need to monitor possible long-term changes to surface waters and groundwater levels to avoid depletion exceeding recharge- section 15
Water is a finite resource, check Dr. George Kraft Portage County studies, and why send water out of state when we may need it for our own residents- section 15. Dr. Kraft reported study findings that water flow in the Plover River is reduced ~ 10% due to high capacity municipal wells in the Stevens Point/Whiting/Plover area. He also found that high capacity pivot irrigation wells similarly reduce flows in the Little Plover River by ~ 10%, but that flows could be reduced in the lower 3-4 miles of the river up to 50% in the future if two permitted high capacity municipal wells are pumped at maximum capacity. This is at least in part due to the water withdrawal being from the Little Plover River and municipal wastewater (i.e. return water) being discharged to the Plover River.
Who is responsible if water levels are impacted, need for legislation to protect waters of the state- sections 3, 22 and 24a
How does the review process work, timetable, studies, monitoring, etc.- Studies, monitoring and the review process are described in several sections of the EA. The review timetable (past and present) generally

includes the following (future dates estimated):

Perrier proposes scope of studies to assess water impacts to DNR- March, 2000

DNR approved studies were initiated by Perrier in March, 2000 and will continue for ~ 1 year to allow consideration of potential project impacts under a range of pumping rates and covering one year of seasonal changes in local hydrology. DNR, USGS and others will monitor field studies to assure they are done as agreed, review Perrier data analysis for accuracy and consider findings in making decision on application

Perrier submits high capacity well application and associated materials, initial study results, work plans, conceptual bottling plant preliminary design, etc.- June, 2000

DNR decides if additional application information is needed, obtains from Perrier, prepares draft EA, puts out news release that draft EA is available for public review, holds public meeting- July, 2000

Public review period- two week period near end of July, 2000 or later (subsequently changed to one month period ending August 25, 2000)

DNR reviews public comments, decides if additional environmental review (such as an EIS) is needed, certifies compliance with environmental review requirements- early September, 2000 or later

DNR makes decision to approve/deny application- September, 2000

28. List agencies, groups and individuals contacted regarding the project (include DNR personnel and title).

Date	Contact	Comment Summary
March 2000 and ongoing	Perrier officials, representatives and consultants	Project proposal, technical studies, application materials, etc.
March and May, 2000	Dennis Leong, Curt Konkel and Ron Becker, DOT District 1 and 4 representatives	Roads, traffic levels, safety, improvements, etc.
March, 2000	Andrew Faust, North Central Wisconsin Regional Planning Commission	Demographic, population, labor, etc. information
March 20, 2000	Ed Coon, Chairman, Town of New Haven	Zoning, land use planning, local issues
March 20, 2000	Adams County Sheriff	Impacts to police coverage/service
March 20, 2000	Wisconsin Dells and Briggsville Volunteer Fire Departments	Impacts to fire response service
March 20, 2000	Wisconsin Dells School District	Impacts to school capacity
March 20, 2000	Adams Co. Rural & Industrial Development Commission	Impacts to local economic conditions
March 21, 2000	Town of New Haven Tax Assessor	Tax base, property value impacts
March 21, 2000	President, Village of Oxford, Marquette County	Impacts of Neenah Springs Bottling plant
March 21, 2000	Village of Oxford Tax Assessor	Tax base, property value, other impacts of Neenah Springs plant

March 22, 2000	Adams County Parks Director	Impacts to public recreation facilities and use
March 22, 2000	Adams County Land Conservation Department	Land and water resource issues
March 22, 2000	Adams County Highway Commissioner	Impacts to county/local roads
March 22, 2000	Columbia County Highway Commissioner	Impacts to county/local roads
March-April, 2000	UW Extension Agricultural Agent, Adams Co.	Prime Ag lands, other agricultural issues
March 31, 2000	Marty Koelper, President, Mason Lake Improvement Association	Impacts to Mason Lake
March, 2000 and ongoing	Jim Krohelski, U.S. Geological Survey	Information on hydrology, geology, groundwater, groundwater flow models, etc.
March, 2000 and ongoing	Dr. George Kraft, Groundwater Center, UW-Stevens Point	Info on hydrology, models, etc.; Plover and Little Plover River studies
April 4, 2000 and ongoing	Kathy Heady, Wis. Department of Commerce	Information on economic impacts, potential state business development/jobs creation grants
April 4, 2000	Orpha Reifteck, Clerk, Town of New Haven	Information on Town moratorium
April 5, 2000	Matt Laak, Department of Agricultural, Trade, and Consumer Protection	Information on pesticide contamination in project area
April 6, 2000 April 11, 2000	Chuck Spargo, Adams/Marquette Electric Cooperative Cyndi Stanisch, Alliant Energy Bruce Kepner, Alliant Energy	Electrical service systems, improvements that may be needed " "
April 10, 2000	Dave Swimm, Department of Commerce	Leaking underground storage tank site, clean-up status
April 17, 2000	Mike Collard, Corporation Counsel, Adams Co.	County zoning issues, EIS vs. EA resolutions, WEPA process, etc.
April 20, 2000	Herb Theisen, Chairman, Adams County Conservation Congress	Wildlife and hunting issues/impacts

April 27, 2000	Stephan Crank, Texas Nat. Res. Conservation Commission David Thorkildsen, Texas Water Development Board	Perrier operations in Henderson County, Texas "
May 1, 2000 May 2, 2000	Bob Marvinany, State Geologist, Geological Survey, Maine Department of Conservation John Hopek, Maine Department of Environmental Protection	Perrier(Poland Springs) operations in and adjacent to Range State Park, Anderoscoggin County, Maine "
May 12, 2000	Peter Nauth, Wis. Dept. of Agriculture, Trade and Consumer Protection	No agricultural impact statement(AIS) by DATCP required
May 25, 2000	Paula B. Ballaron, Susquehanna River Basin Commission	Perrier operations in Pennsylvania, state regulations
May 25, 2000	Tom Brand, Delaware River Basin Commission	Perrier operations in Delaware and New Jersey
May 31, 2000	Steve Spina, City Supervisor, Zephyrhills, FL	Perrier operations in the commmunity
June 26, 2000	Phil McLaughlin, Adams Co. Planning & Zoning	County zoning regulations, rezoning petition review process, county noise ordinance
August 7, 2000	Mary Jane Schmudlach, concerned citizen	Perrier environmental track record
August 14, 2000	Caryl Terrell, Sierra Club	Wetland regulations
September 5, 2000 and ongoing	Samantha House, Ho-Chunk Nation	Ho-Chunk Nation cultural resource concerns

The following Department of Natural Resources staff has participated in the coordination, review and EA development for this project:

Wisconsin Rapids
Joe Behlen, Wastewater; Brent Binder, Dams and Floodplain; Eric Brach, Wells and Drinking Water; Denese Helgeland, Air Management; Tom Jerow; Water Team Leader, Project Manger; Rhonda Kenyon, Water Regulation and Wetlands; Jack Zimmerman, Water Sub-Team Leader and Fisheries; Dale Kufalk, Fisheries

Wausau
Mark Hazuga, Water Resources; Brad Johnson, Stormwater; Terence Kafka, Nonpoint Source Pollution

Friendship
Scot Ironside, Fisheries; Rebecca Isenring, Endangered Resources; Jim Keir, Wildlife

Wautoma
Linda Hyatt, Mason Lake dam

Eau Claire
Scott Humrickhouse, Administration; Art Bernhardt, Water Leader; Jim Boettcher, Hydrogeology; Tom Lovejoy, Environmental Analysis; Dave Weitz, Public Affairs; Deb Konkel, Aquatic Plants; Bill Evans and Doug Joseph, Remediation and Redevelopment (nearby contaminated sites, impacts); Rob Strand, Environmental Analysis and Endangered Resources

La Crosse
Patricia Manthey, Endangered Resources

Madison
Franc Fennessy, Administration; Bill Furbish, Drinking Water/Groundwater and High Capacity Wells; Rick Prosise, Mike Lutz and Edwina Kavanaugh, Legal Services; Pat Trochell and Tom Bernthal, Fisheries and Habitat; Cindy Koepke, Environmental Repair sites; George Osipoff, Wastewater, South Central Region; George Albright, Integrated Science Services; Cathy Bleser, Kelly Kearns, Emmet Judziewicz and Randy Hoffman, Endangered Resources

and
Dr. Victoria Dirst, DNR Archaeologist, Sturgeon Bay; David Paynter, Liaison with Upper Fox Basin Water Team, Montello; and others

Project Name: Perrier High Capacity Wells County: Adams

EIS DECISION (This decision is not final until certified by the appropriate authority)

In accordance with s. 1.11, Stats., and Ch. NR 150, Wis. Adm. Code, the Department is authorized and required to determine whether it has complied with s. 1.11, Stats., and Ch. NR 150, Wis. Adm. Code.

30. Complete either A or B below.

A. EIS Process Not Required . . . . . [X]

Analysis of the expected impacts of this proposal is of sufficient scope and detail to conclude that this is not a major action which would significantly affect the quality of the human environment. In my opinion therefore, an environmental impact statement is not required prior to final action by the Department on this project.

B. Major Action Requiring the Full EIS Process. . . . . [ ]

The proposal is of such magnitude and complexity with such considerable and important impacts on the quality of the human environment that it constitutes a major action significantly affecting the quality of the human environment.

Thomas J. Jerow 9/14/2000

Signature of Evaluator Date Signed

Copy of news release or other notice attached? [ ] Yes [X*] No

Number of responses to public notice: 213, plus hearing record from a Senate Oversight hearing

Public response log attached? [ ] Yes [X*] No

*-Copies of the news release and response log can be obtained by calling (715) 839-3747.

CERTIFIED TO BE IN COMPLIANCE WITH WEPA

Scott Hausmann 9/18/00

Regional Director or Director of BISS (or designee) Date signed

NOTICE OF APPEAL RIGHTS

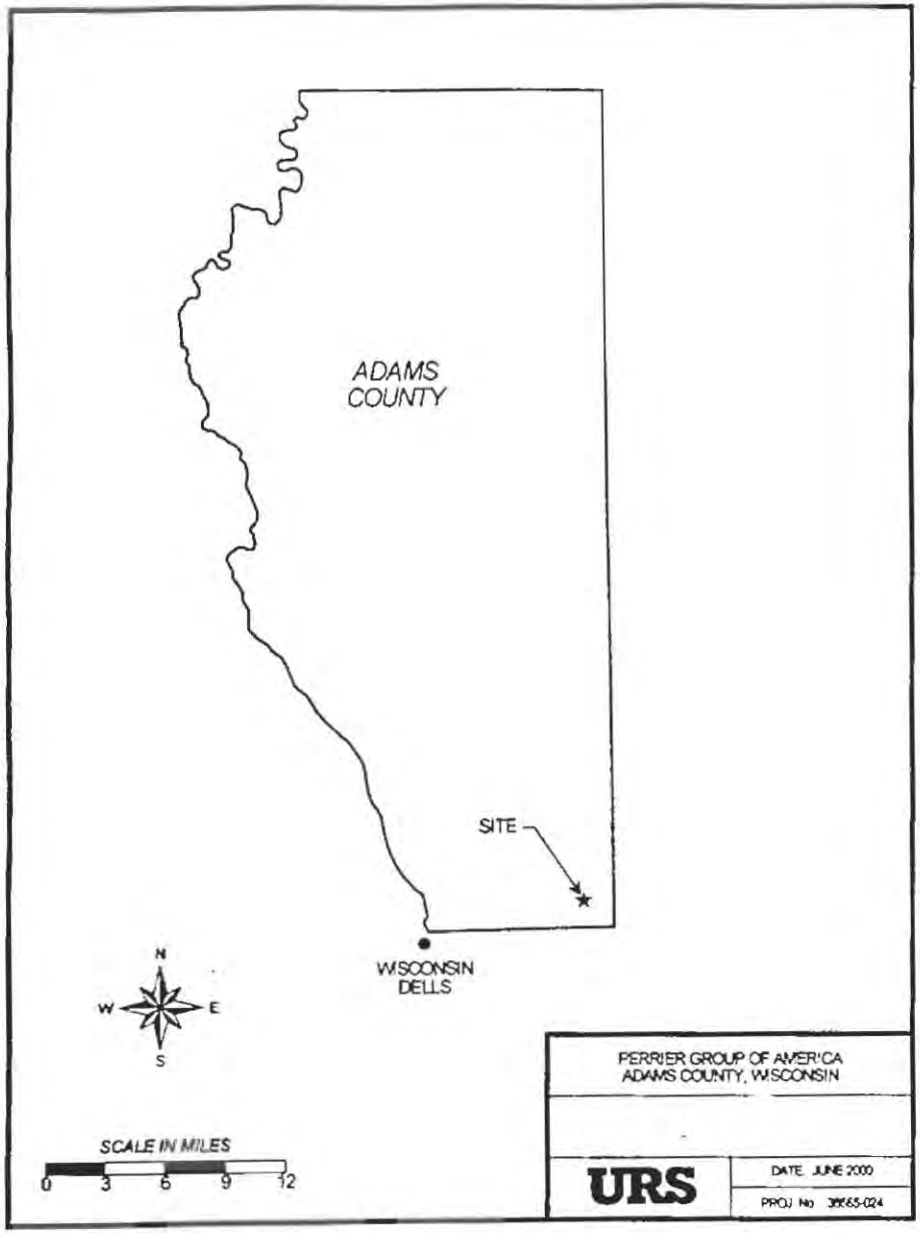
If you believe that you have a right to challenge this decision, you should know that Wisconsin statutes and administrative rules establish time periods within which requests to review Department decisions must be filed.

For judicial review of a decision pursuant to sections 227.52 and 227.53, Stats., 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 shall name the Department of Natural Resources as the respondent.

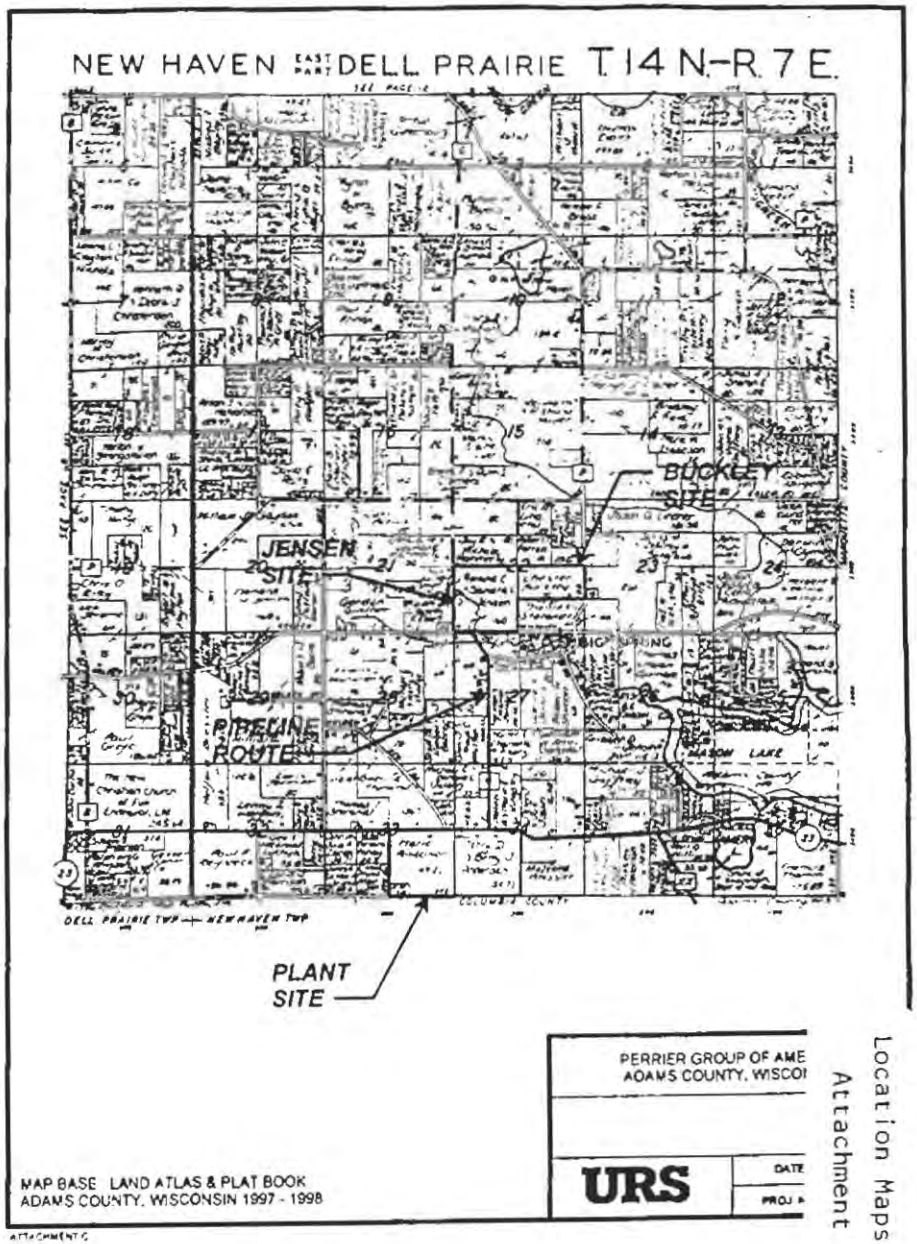
To request a contested case hearing pursuant to section 227.42, Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to serve a petition for hearing on the Secretary of the Department of Natural Resources. The filing of a request for a contested case hearing is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

Note: Not all Department decisions respecting environmental impact, such as those involving solid waste or hazardous waste facilities under sections 144.43 to 144.47 and 144.60 to 144.74, Stats., are subject to the contested case hearing provisions of section 227.42, Stats.

This notice is provided pursuant to section 227.48(2), Stats.



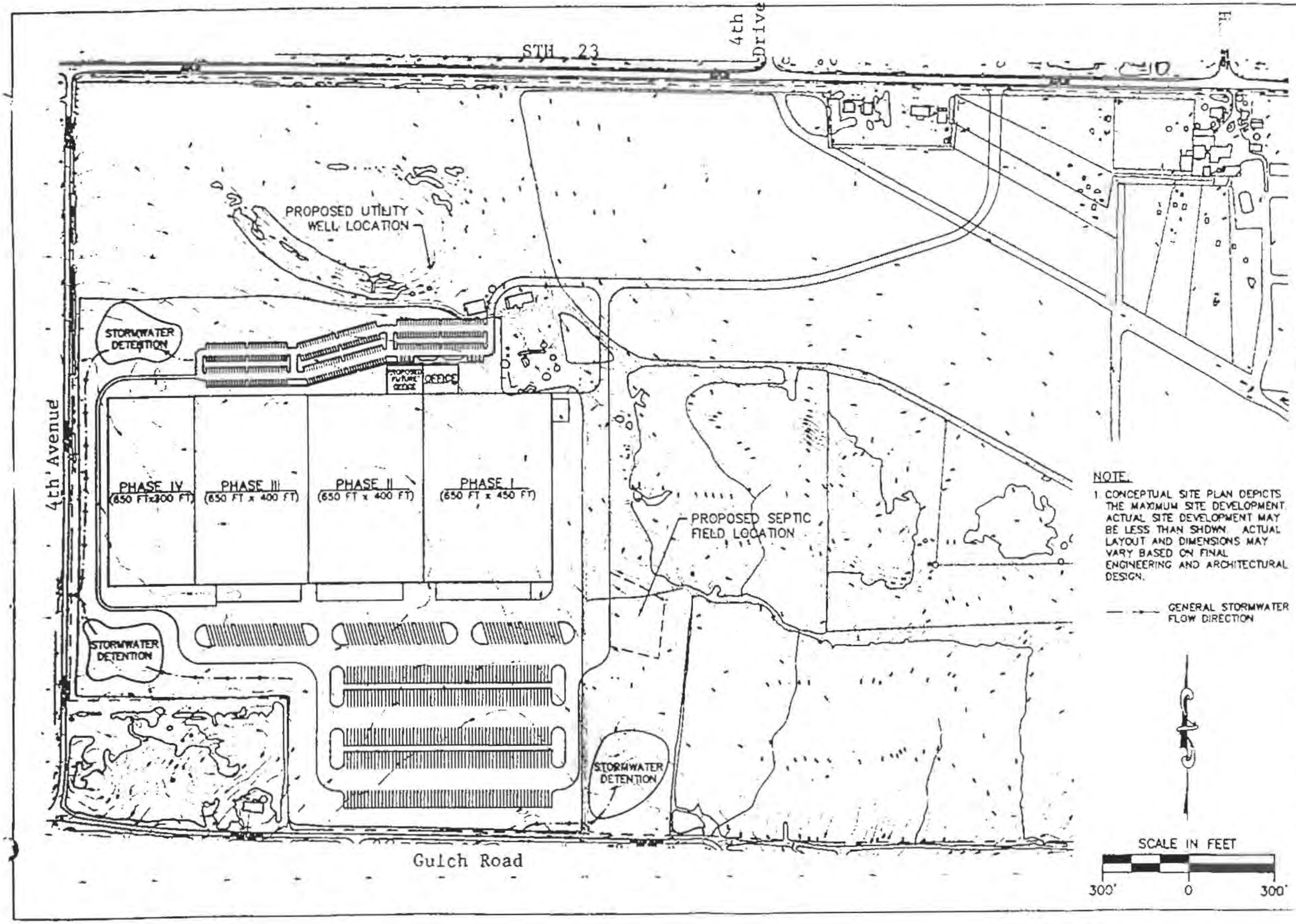
BUCKLEY WATER



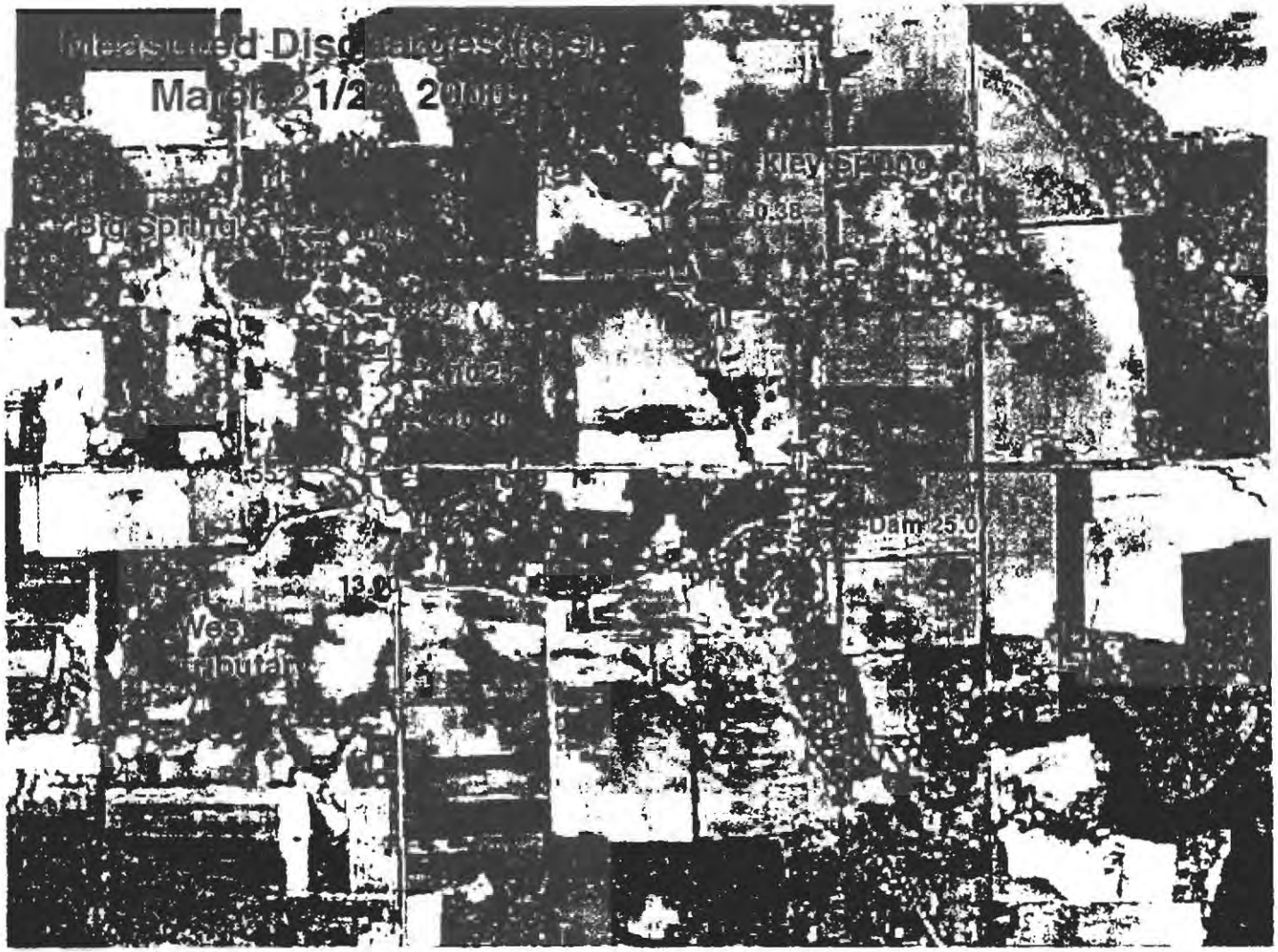
MAP BASE LAND ATLAS & PLAT BOOK
ADAMS COUNTY, WISCONSIN 1997 - 1998

ATTACHMENT C

Location Maps
Attachment 1



Bottling Plant Plan
Attachment 2



PERRIER GROUP OF AMERICA
ADAMS COUNTY, WISCONSIN

FIGURE 1
AQUATIC SURVEY STATIONS
AND STREAM FLOW MEASUREMENTS

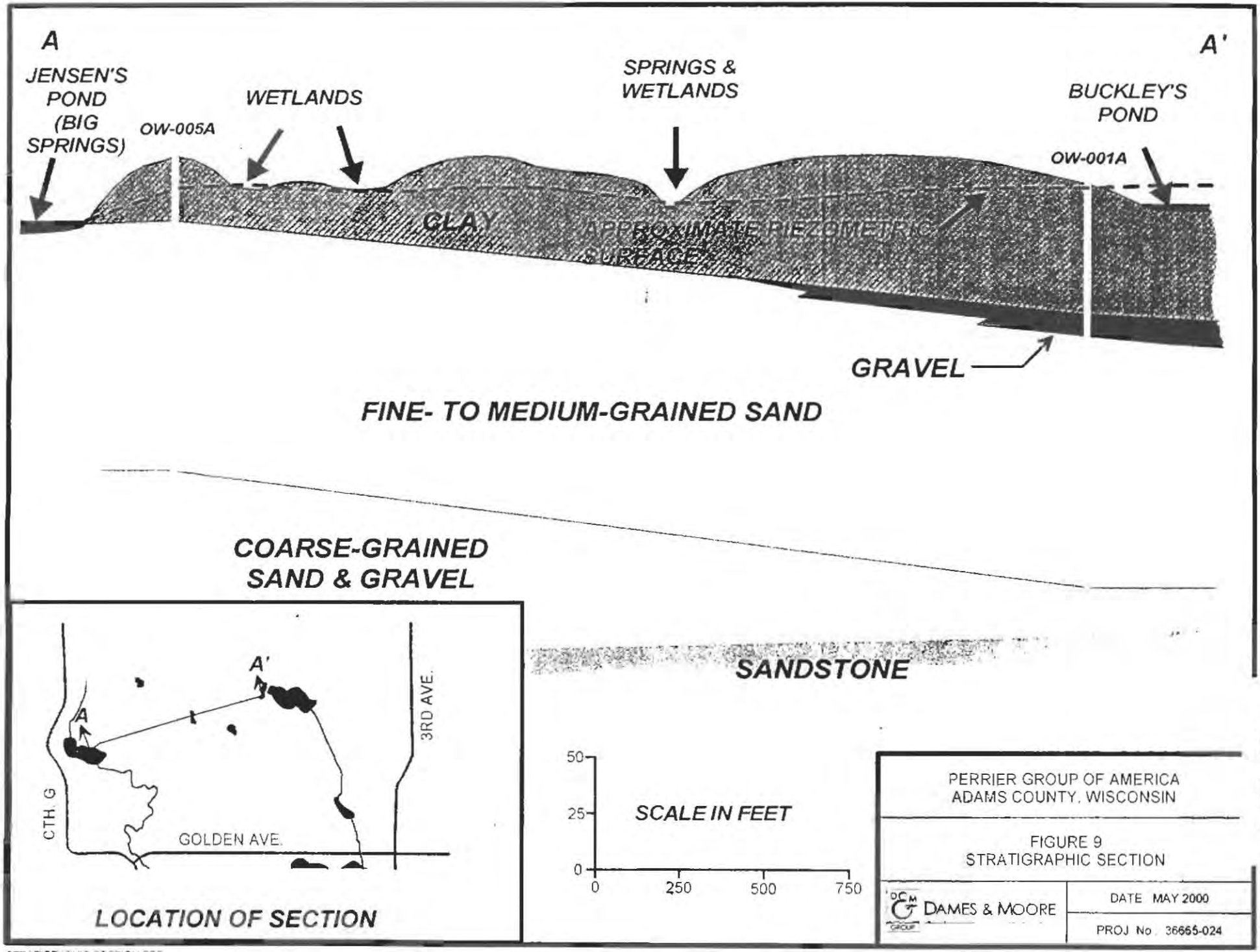
DAMES & MOORE

DATE: MAY 2000

PROJ. No.: 36665-024

AQUATIC SURVEY STATIONS

Attachment 3



PERRIER GROUP OF AMERICA
ADAMS COUNTY, WISCONSIN

FIGURE 9
STRATIGRAPHIC SECTION

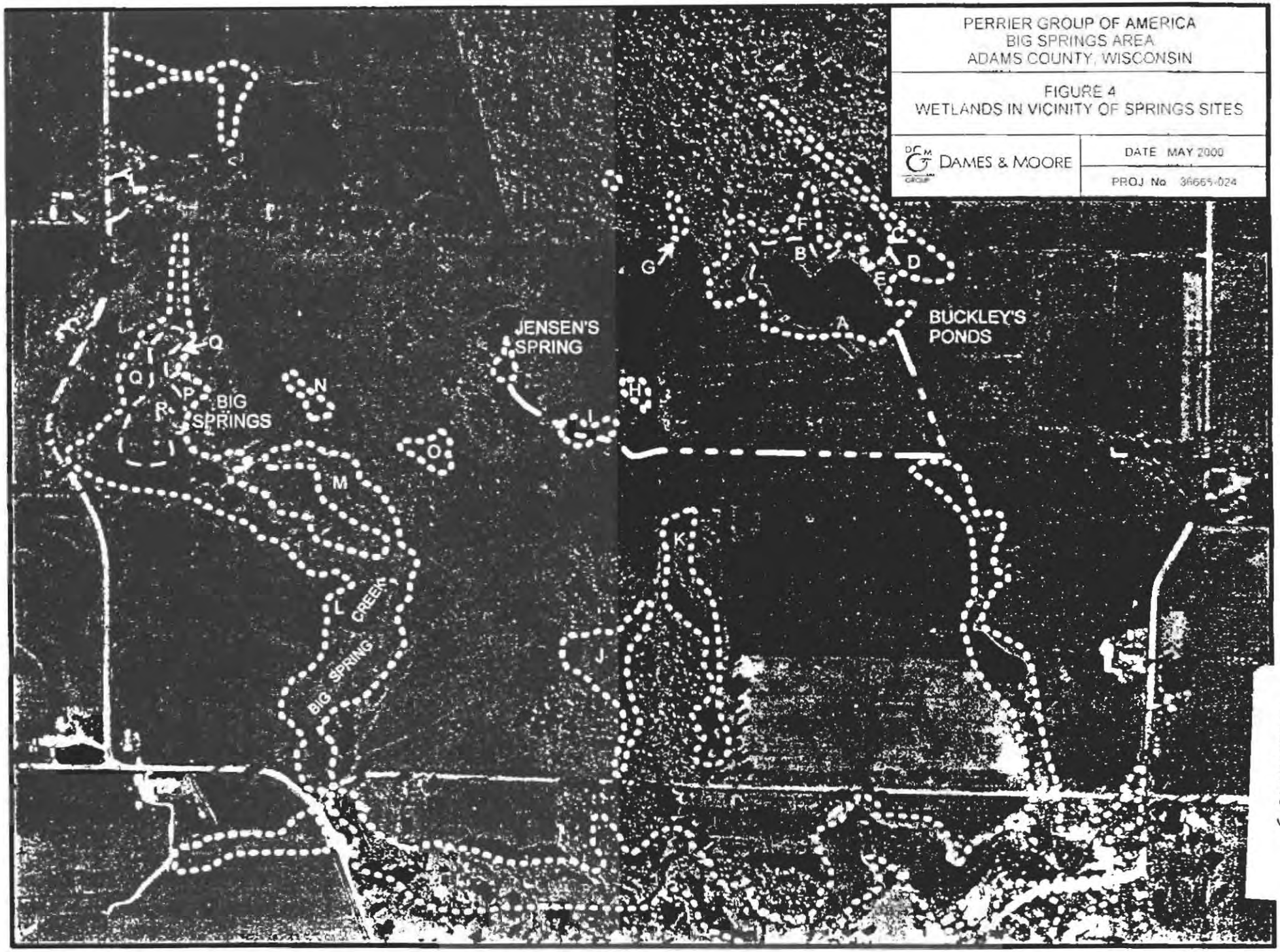
DAMES & MOORE

DATE MAY 2000

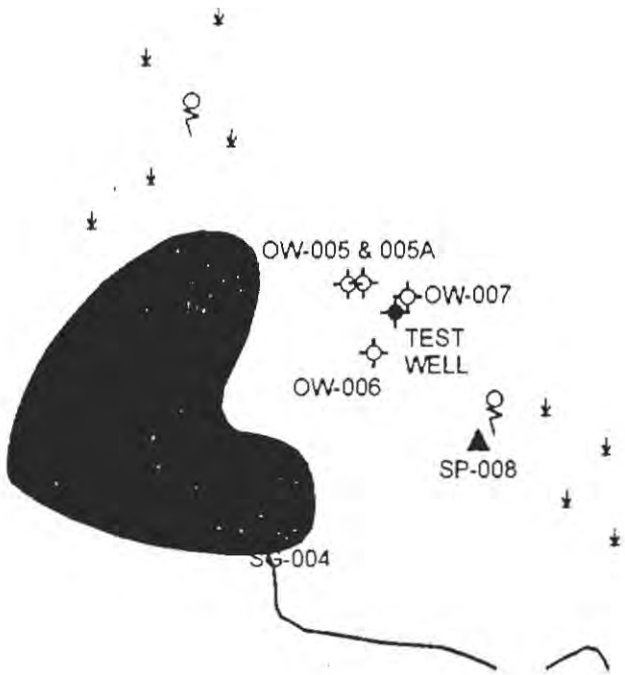
PROJ No. 36665-024

STRATIGRAPHIC SECTION.SRF

Attachment 4



Attachment 5



LEGEND:

- OBSERVATION WELL
- TEST WELL
- SAND POINT
- STAFF GAUGE
- SPRING AREA
- WETLANDS

NORTH

SCALE IN FEET

0 150 300 450 600

PERRIER GROUP OF AMERICA
ADAMS COUNTY, WISCONSIN

Monitoring wells
JENSEN'S POND SITE

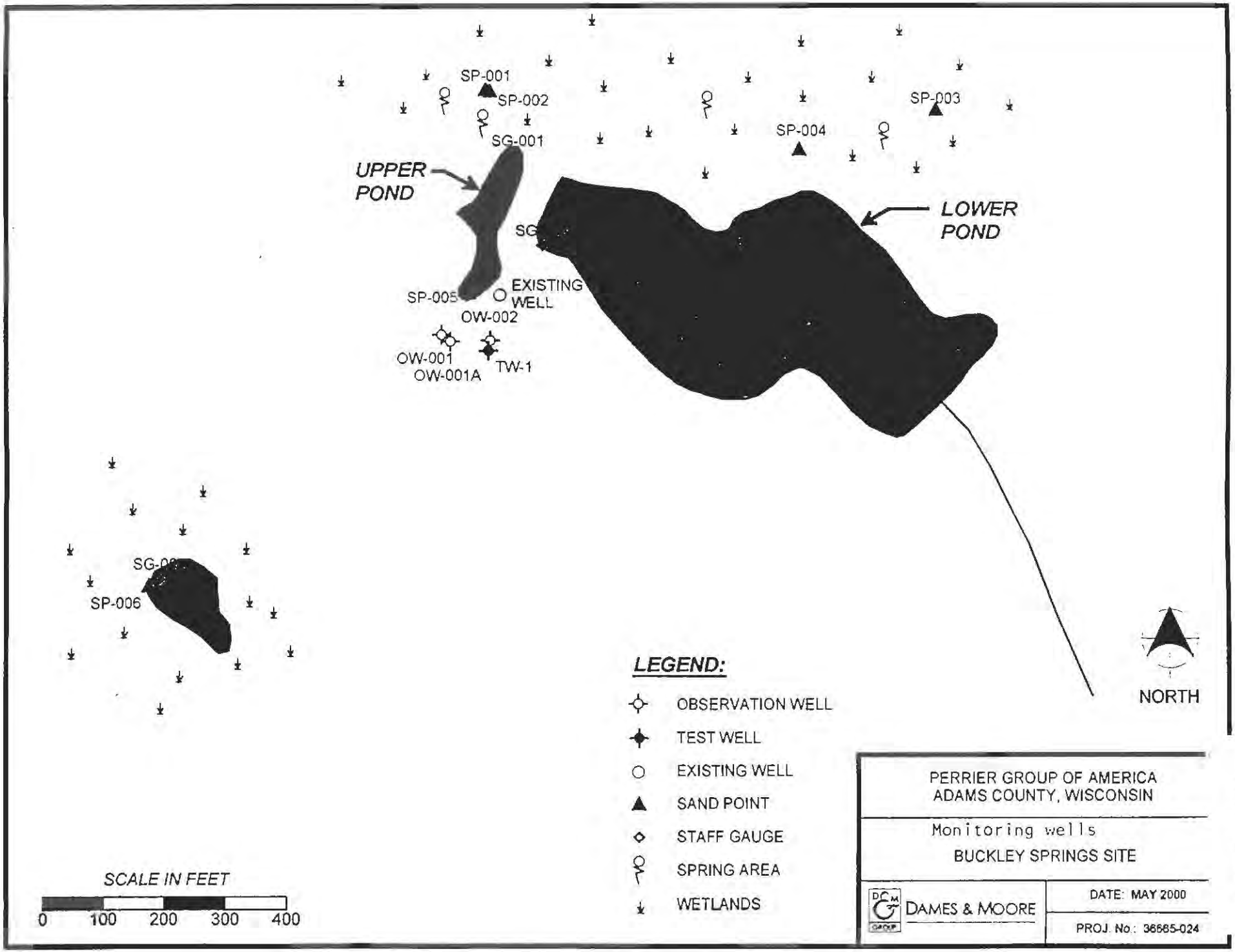
DAMES & MOORE

DATE: MAY 2000

PROJ. No.: 38885-024

JENSEN SITE SRF

Attachment 6



PERRIER GROUP OF AMERICA
ADAMS COUNTY, WISCONSIN

Monitoring wells
BUCKLEY SPRINGS SITE

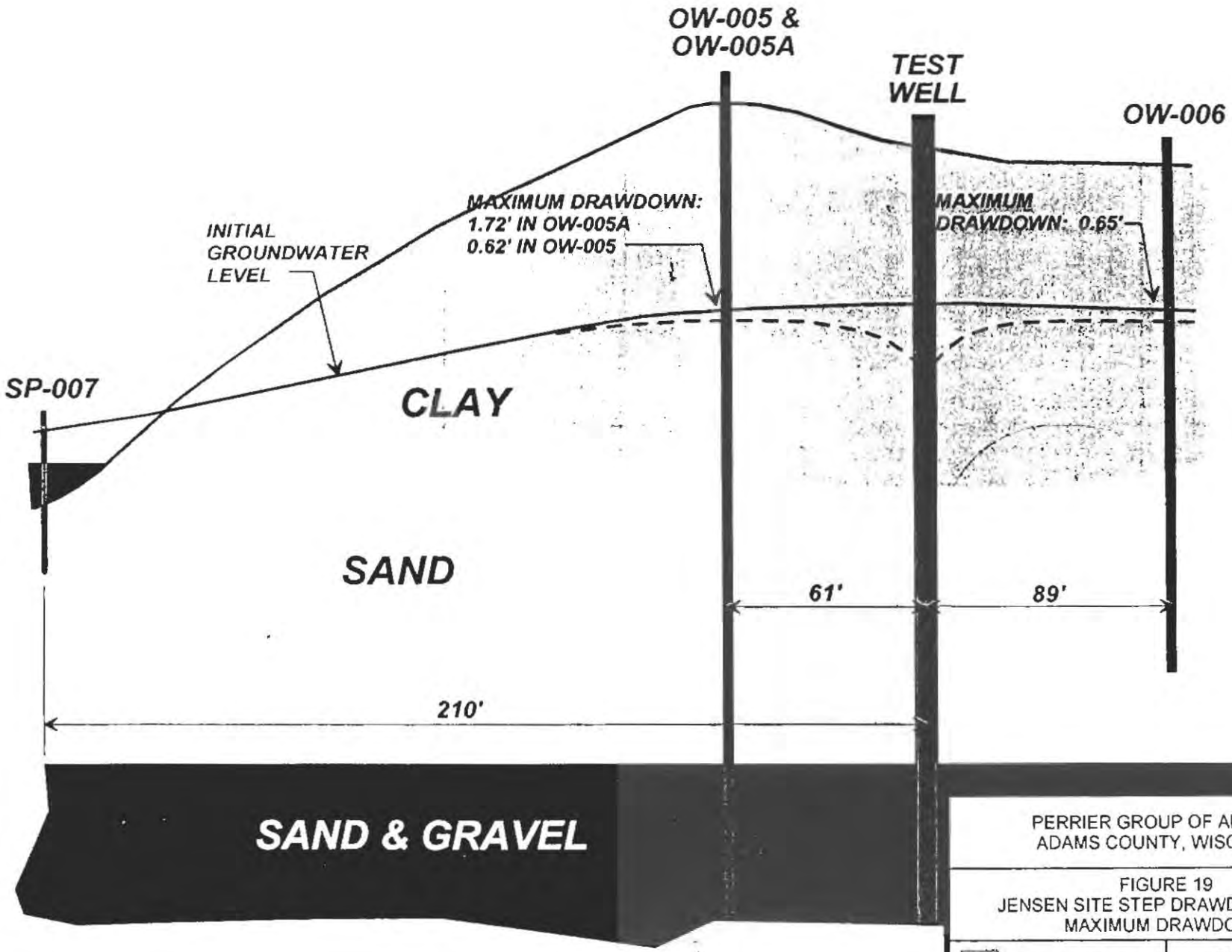
DAMES & MOORE

DATE: MAY 2000

PROJ. No.: 36685-024

BUCKLEY SITE SRF

Attachment 7



PERRIER GROUP OF AMERICA
ADAMS COUNTY, WISCONSIN

FIGURE 19
JENSEN SITE STEP DRAWDOWN TEST
MAXIMUM DRAWDOWN

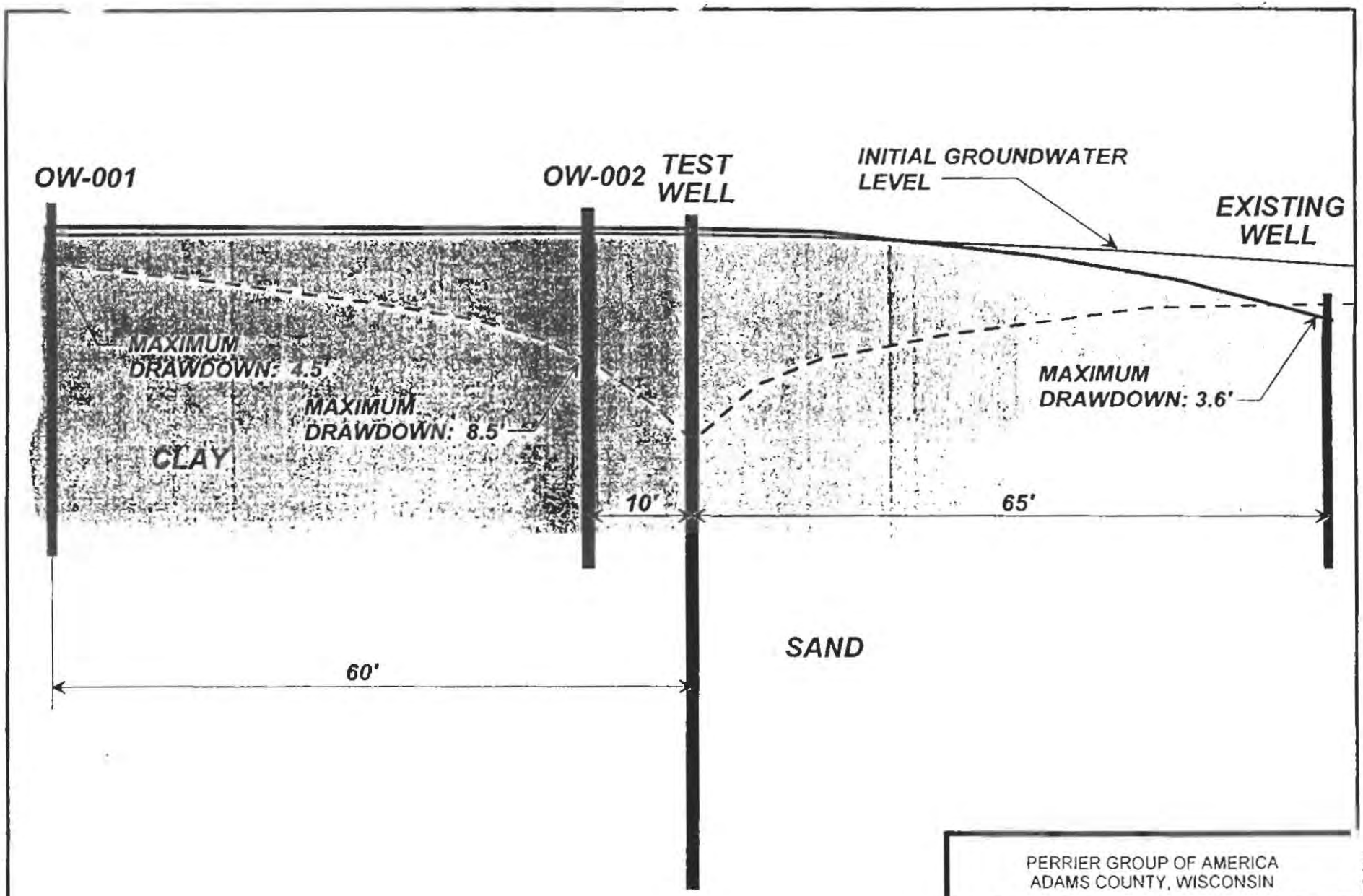
DAMES & MOORE

DATE: MAY 2000

PROJ. No.: 36665-024

BIG SPRING DRAWDOWN

Attachment 8



PERRIER GROUP OF AMERICA
ADAMS COUNTY, WISCONSIN

BUCKLEY SPRINGS STEP DRAWDOWN TEST
MAXIMUM DRAWDOWN

URS

DATE: MAY 2000

PROJ. No.: 36665-024

Attachment 9

BUCKLEY DRAWDOWN SRF

WDNR, Bureau of Drinking Water and Groundwater
March, 2000

Wisconsin's High Capacity Well Program

This information was developed in response to the growing concerns over recent applications for high capacity wells that could potentially affect Wisconsin's water resources and associated ecosystems. The purpose of this information is to educate Department staff about the high capacity well program and promote an open dialogue with other DNR programs that may be affected by this program.

Understanding the High Capacity Well Program
In Wisconsin, approximately 200 applications for high capacity wells are submitted to the DNR each year. As of February 2000, a total of 9,400 high capacity well permits were on record, including: 1,700 municipal; 1128 industrial; 4175 irrigation; and 1322 miscellaneous wells.

A well is considered "high capacity" when it is constructed on a property where the combined total pumping or flowing capacity of all wells, drillholes, or mine shafts, is 70 or more gallons per minute.

With the exception of single family wells, many groundwater water users are covered by the high capacity well law. The following table illustrates typical users and a range of typical well pumping capacities.

High Capacity Clients	*Pumping of Typical Single Wells (Gallons Per Minute GPM)*
≥ 4 Single Family Homes	5 – 20 each
Hotels or Restaurants	50 – 120
Dairy Farm - Multiple Wells	20 – 200
Dairy or Food Processing	200 – 500
Golf Course Irrigation	200 – 1,000
Bottling Plant	20 – 1,500
Center Pivot Irrigation	500 – 1,500
Dewatering (for sewer/treatment plants)	200 – 2,000
Manufacturing	100 – 3,000
Municipality	20 – 4,000

Wisconsin Statutes Summary (S.281.17(1))
If the DNR determines that the proposed high capacity well withdrawal will adversely affect or reduce the availability of water to any public utility that provides water to citizens, it shall either withhold its approval or grant a limited approval with conditions (location, depth, pumping capacity, flow rates and use) so that public water supplies will not be impaired. The department may issue general or special orders to ensure prompt and effective administration of this law. If review shows that operation of a high capacity well may cause potential environmental impacts, the Environmental Assessment (EA) process can be triggered. The EA process defers the decision on well approval and creates a record of potential impacts to ecosystems in the vicinity. However, documentation of potential adverse impacts in the EA process does not imply that a high capacity well approval will be withheld.

Plan Review Process

Applicants learn about high capacity approval requirements from: engineering consultants, design firms, contractors, well drillers, pump installers, and agency staff. An application must be submitted to the DNR's Bureau of Drinking Water and Groundwater. The Department is required to finish its review of a complete application within 65 business days of receipt.

Once the high capacity well application is received at the DNR, it is date stamped, logged, and assigned to a review engineer. Applications are checked for completeness and reviewed for code compliance regarding well location and construction standards. Incomplete applications are returned to applicants. During the review process, the plan review staff make contact with the proposed well owner to discuss potential impacts to wetlands and surface waters if applicable.

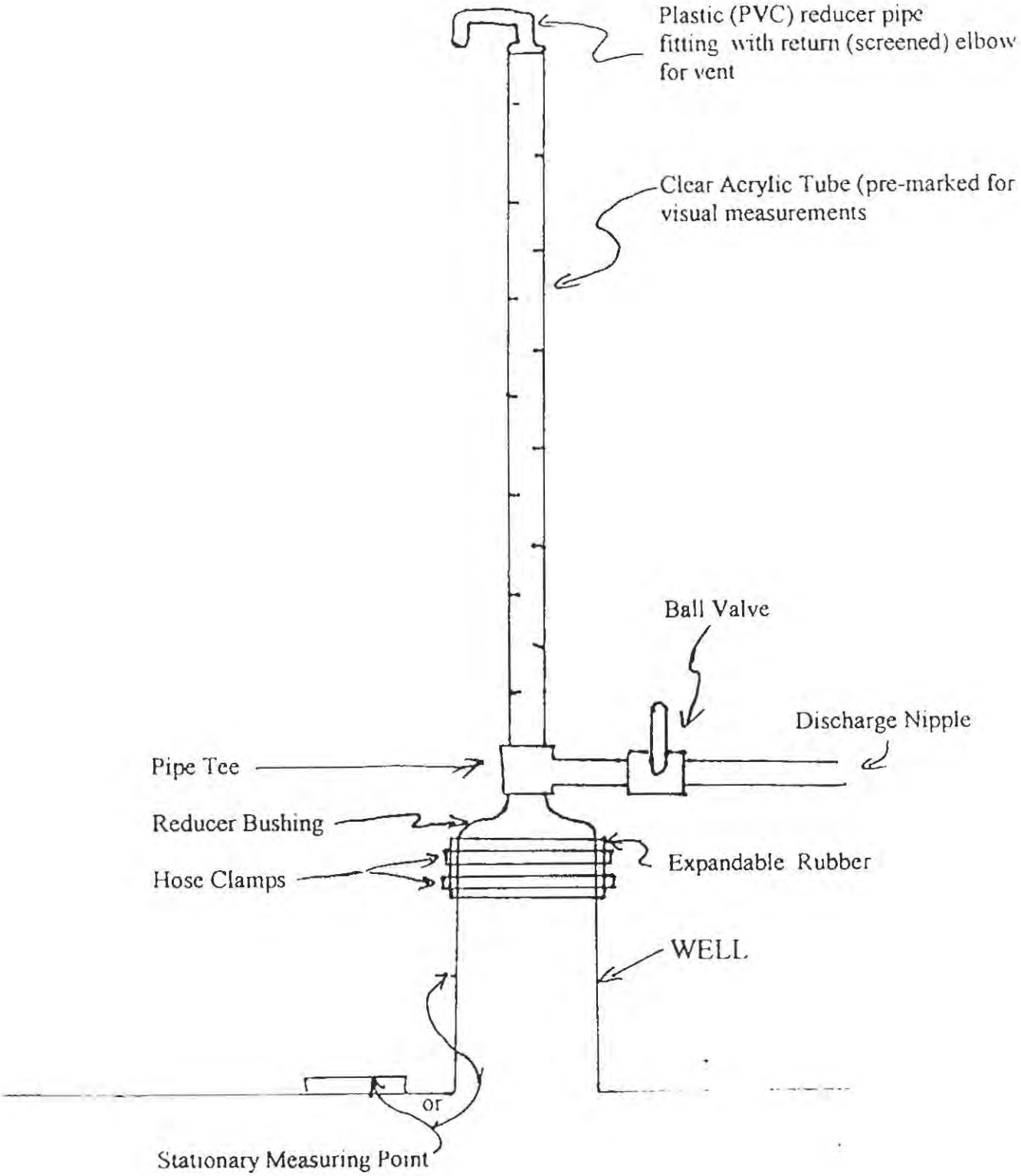
If necessary, a basic computer drawdown model is run to determine if there will be possible decrease in the water elevation in the nearest public utility well. If the calculation shows that the operation of the high capacity well will likely cause a decrease of 10 feet or more in the water elevation in the nearest public utility well, the application for approval is denied, or, pumpage from the proposed well is limited. If the model results show less than 10 feet of drawdown in the nearest public utility well, the proposal is approved. An approval/denial letter is prepared by the review engineer, signed, and sent to the applicant.

Issues

In the last few years, a few high capacity well proposals have created concern. Below is a description of recent cases, the issues that arose, and the DNR management of the application. Mitigation in each case was voluntary.

Application	Issues	DNR Management Strategy
Farm irrigation	Concerns about potential private well water drawdown	DNR staff encourage neighbors to solve issue by dialogue and measure the well water levels pre and post irrigation.
Fitchburg public utility well	City well was drawing down artesian flow affecting water supply for DNR Fish Hatchery	Plan review staff worked with region and the City to delay final well approval until after UW researchers could better assess potential impacts.
Mukwonago city well siting	Concerns of impacts on Vernon Marsh's calcareous fen, a rare ecotype.	Plan review staff, Lands staff, and Mukwonago established a method to better define potential marsh impacts and agreed to strive to minimize impacts concurrent with approval of the well construction.
City of Wisconsin Rapids public utility well	Bloody Run Creek trout stream affected by drawdown caused by public well.	Plan review staff worked with PSC on environmental assessment. Also required detailed hydrogeological study by consultant. City is now testing stream flow augmentation.
Bonduel Wastewater Treatment Plant	Dewatering activity during treatment plant construction dewatered the headwaters area of trout stream (the spawning area). Dewatering discharge helped the mainstream. Trout behavior, habitat, and stream levels were affected.	Local fish manager worked with the treatment plant to slowly reduce dewatering to allow headwater springs to recharge yet maintain sufficient water in the mainstream to support trout.
Perrier well siting	Concerns about water well siting within Mecan Springs State Natural Area, a state property, on private properties, and possible drawdown of springs at headwaters of popular trout stream.	DNR announced it would take 12-months to study proposal. Secretary Meyer raised concerns about an operation on private lands because of the few legal restrictions on high capacity wells. DNR drafted new legislative language to address adverse effects of wells to surface water or wetlands.

How to Measure Water Level in a Flowing Well



Water Level and Flow Measurement
In a Flowing Well

In addition to measuring the water level in the flowing well, a well owner can measure the volume of flow by recording the time that it takes the well to fill a five-gallon pail.

The well owner should maintain a log of the following information:

1. The head (water level elevation)
2. Date
3. Time of Day
4. Weather
5. Barometric pressure at the well site if available
6. Discharge Nipple length and diameter

Tips:

1. Measure and mark pail to indicate exactly five gallons.
2. Leave ball valve open to allow well to flow except when measuring head. (Discharge from well must be at least 8 feet from well)
3. Disinfect well with HTH tablets with no additives after modifying well for head measurement.

How to Measure Water Level In a Non-Flowing Well

Turn off electric power to the pump before taking water level measurements. This is for personal safety as well as to protect the pump from damage as equipment is lowered into the well.

Disinfection procedures for equipment

1. Disinfect all equipment before and after placing it into the well to prevent the introduction of coliform bacteria, iron bacteria, or any other source of contamination.

2. Rinse all equipment parts inside and out that will enter the well (e.g., steel tape, water level indicator, weighted magnet, etc.,). Rinse with a dilute chlorine solution, about 50 ppm, i.e., about 2 capfuls of liquid chlorine bleach to 1 gallon of water. The liquid chlorine bleach must not contain any additives such as "fresh scent." You may also use dry calcium hypochlorite granules to make the chlorine solution.

3. If there are no inside parts that may become contaminated, you may use a clean cloth or paper towels soaked in a dilute chlorine solution to sterilize your equipment. Do not reuse the towels.

4. Place disinfected equipment on a clean cloth or on plastic, not on bare ground.

Measuring Water Level

Note: Refer to page 4 when using an electric water level indicator, popper or coated tape to measure the static water level in a well.

1. Take a series of water level measurements to determine if the well is still recovering. If at least three consecutive readings separated by a minute or more are within ± 0.01 foot, then use this as your reading. Record the reading and method used to collect this measurement. Disinfect the equipment.

2. If you are taking water level measurements to determine groundwater elevations, mark the side of the casing where the water level is measured to provide a marking point for surveying.

Measuring Total Well Depth

1. Measure the total well depth with a weighted synthetic tape or cord (*not* cotton or cloth) calibrated and marked to tenths of a foot. Any tape or cord used must have very little or no stretch under tension.

2. Lower the disinfected weighted tape or cord through the water column until it becomes slack. Slowly pull the tape or cord until it just becomes taut.

3. Read the tape against the top of the well casing to the nearest 0.1 foot and record the measurement. Disinfect the equipment and store properly.

Disinfection of Well after Measurements

Properly disinfect the well after taking any measurements. While there are no formal standards for proper concentrations of the chlorine disinfection solution, a 50 ppm chlorine solution should be adequate for chlorinating wells as a preventive assurance method.

After Water Level Measurements

1. Pour one cup of full-strength liquid chlorine bleach or drop three to five HTH tablets down the well to disinfect 20 feet of standing water in a 6-inch diameter well. Re-seal the well.

2. Allow the solution to remain in the well at least 30 minutes, although at least 8 hours is recommended.

3. Tell the well owner/user to run all taps until the chlorine odor and taste disappear (usually less than one hour).

Note: The above method of disinfection is only for water level measurement. If more intrusive activities such as pulling a pump or measurement of total well depth are done, a more thorough disinfection is required. See DNR publication GP4/97 Bacteriological Contamination of Drinking Water for instructions on how to chlorinate a well and household plumbing system.

Sampling of a well for bacteria is required any time that a well is entered to remove, repair or replace equipment located within the well.

Discharge of Chlorinated Water

Unfortunately, there really is no good place to discharge the chlorine solution that comes out of the well and faucets. Do not discharge the solution directly to a lake, stream, wetland, lawn, garden, sanitary or storm sewer. Large quantities of chlorine may disrupt a septic system. Discharge the pumped water to an area that will not harm fish or sensitive plants.

Probably the best place to discharge the chlorine solution is onto a driveway or other paved area, preferably on a hot, sunny day so the solution can evaporate. Discharging the chlorinated solution to a ditch may also be appropriate.

Post Disinfection Coliform Bacteria Testing Procedures

After the system is ***completely*** free of any chlorine smell and taste, and after waiting several days to a week, collect a second coliform bacteria sample (refer to Page 2) from the same tap as the first sample. Properly-trained well owners, WDNR staff, local health staff or special consultants may collect the sample. When collecting post-disinfection coliform samples, you may need to use a thiosulfate sample bottle since a chlorine residual may remain in the well.

If either the initial coliform test or the post disinfection coliform test is ***positive*** for bacteria, ***immediately*** contact a WDNR drinking water specialist/investigator for further instructions.

Water Level Measuring Devices

Electronic Water Level Indicator

1. Lower the decontaminated probe or electrode into the well until the instrument indicates that you've reached the water column.

2. Slowly raise and lower the probe or electrode in and out of the water column until you are satisfied that the instrument is providing a reliable water level reading. If necessary, adjust the instrument's sensitivity according to the manufacturer's instructions.

3. Read the measurement on the cable or tape to the nearest 0.01 foot against the top of casing or reference elevation on the well. Record this measurement as "depth to water."

Popper

1. Lower the decontaminated popper and tape into the well until you hear a "pop," indicating that you've reached the water column.

2. Raise and lower the popper, listening for a repeating "pop" sound. Continue doing this until you are satisfied that you have a reliable reading.

3. Read the measurement on the tape to the nearest 0.01 foot against the top of casing or reference elevation on the well. Record this measurement as "depth to water."

4. You can also use the popper to measure the ***well depth*** by lowering the popper and tape through the water column until the tape becomes slack. Slowly pull the tape up until it just becomes taut again. Read the tape against the top of casing or reference elevation on the well and record this measurement as "depth to well bottom."

> *Caution!* Deep wells, water table wells, high noise areas and floating products in wells may make it difficult to hear the "pop" and collect a reliable "depth to water" reading. Some individuals can "feel" the water surface without hearing a pop; however, if you are not confident you are collecting a reliable reading, use another measuring method.

Indicator Substance

Important Note: If you use a tape coated with an indicator substance, you ***must ensure*** that the indicator substance will not contaminate the well or subsequent samples collected from that well. If you have any doubt, choose another water level measurement method.

1. Coat at least 2 feet of the end of the tape

2. Lower the coated tape into the well until you hear or feel the tape reach the water column. Lower the tape a few inches into the water and wait at least five seconds

3. Without moving the tape, read and record the tape measurement to the nearest 0.01 foot against the top of casing or reference elevation on the well.

4. Withdraw the tape from the well and record the measurement where the wetted and dry portions of the tape intersect.

5. Subtract the measurements (Step 3 minus Step 4). Record this measurement as "depth to water."

Alternative Methods

Alternative water level measuring devices or methods are acceptable if they (1) are consistently accurate to ±0.01 foot; (2) do not affect the integrity and chemistry of groundwater samples; (3) do not affect the groundwater geochemistry or well materials; and (4) can be thoroughly decontaminated between wells. Document the type of alternative device or alternative method used. Include this information in the sampling plan and groundwater data reports generated for the site or project. Follow the manufacturer's instructions for the instrument's use and its limitations.

Refer to the *Groundwater Sampling Desk Reference* regarding procedures for using transducers, air-line or bubble tubes, float methods or ultrasonic methods for measuring depth to water in a well.

AGREEMENT (DRAFT)

This Agreement is entered into this _____ day of _____, 2000 between Great Spring Waters of America, Inc. (GSWA), a subsidiary of the Perrier Group of America, Inc. a Delaware corporation, having a place of business at 777 West Putnam Avenue, Greenwich, CT 06830; the Buckley Springs Trust, by Brian T. Buckley, Trustee, residing at 704 Evergreen Circle, Las Vegas, NV 89107; Roland C. and Sandra L. Jensen, residing at 398 Golden Avenue, Wisconsin Dells, WI 53965-8629; and the Wisconsin Department of Natural Resources (DNR), located at 101 South Webster Street, P.O. Box 7921, Madison, WI 53707-7921.

WHEREAS, pursuant to section 281.17, Stats., GSWA, the Buckley Springs Trust, and Roland C. and Sandra L. Jensen (collectively the Applicants) have applied to DNR for the approval of (a) high capacity well system(s) in Adams County;

WHEREAS, it is the intention of the Applicants and DNR (collectively the Parties) that this Agreement and the tasks outlined herein be valid and enforceable obligations of the Parties and be incorporated by reference into any conditional approval of such (a) high-capacity well system(s);

WHEREAS, each of the Parties represents and warrants that it has all requisite authority and capacity to enter into this Agreement, that this Agreement has been duly authorized, executed and delivered and constitutes the valid and enforceable obligation of that Party, and that it is not subject to any agreement, law, regulation, restriction or other legal requirement that would prevent it from entering into and fulfilling its obligations under this Agreement;

NOW THEREFORE, in consideration of the mutual covenants and conditions contained herein, the Parties agree as follows:

1. As part of the application for (a) high capacity well system(s) in Adams County, GSWA has voluntarily undertaken environmental studies and has submitted the following interim documents to DNR:

a. a **groundwater study**, prepared by URS - Dames & Moore, in the Big Springs area of Adams County, Wisconsin. The study area is located in Section 22, Town 14 North, Range 7 East of the Town of New Haven. The field work was completed on two properties: the Buckley property, located in the NW1/4 of the SE1/4 of Section 22, and the Jensen property, located in the NW1/4 of the SW1/4 of Section 22. The scope of work for the groundwater study had several phases:

a data search of hydrogeologic information available from the DNR, Wisconsin Geological and Natural History Survey (WGNHS), the Department of Agriculture, Trade and Consumer Protection (DATCP),and the United States Geological Survey (USGS), which was collected and reviewed;

field studies which involved the installation of groundwater observation wells, test wells and several surface water and shallow groundwater level monitoring points, as well as two short - term aquifer performance tests;

results of the site-specific studies were independently analyzed; and

a data analysis was completed which compares the data obtained from the field study with the data found in the literature search.

The purpose of the groundwater study was to describe the general physical characterization of the spring aquifer; determine the relationship between the aquifer and the springs; evaluate the groundwater flow conditions; complete a

preliminary evaluation of the potential impacts of high capacity groundwater extraction on existing groundwater users, surface waters and wetlands; and identify baseline conditions for long-term monitoring.

b. **an aquatic resources study**, prepared by URS - Dames & Moore, in the Big Springs area of Adams County, Wisconsin. The study locations included Big Spring Creek from its spring - fed origin to its discharge point into Big Spring Pond, and two tributaries to Big Spring Creek: an unnamed tributary that flows into Big Spring Creek from the west, just south of Golden Avenue; and the unnamed tributary which flows from ponds on the Buckley property and enters Big Spring Creek at the lower end of Big Spring Pond. The aquatic resources assessment was conducted by staff from the University of Wisconsin - Milwaukee and URS - Dames & Moore. DNR staff also observed and provided assistance. The objectives of the aquatic resources study were to describe the fish community composition of the surface waters in the study area and to assess the quality of those surface waters based on habitat features and other chemical and biotic indicators.

c. **a wetland resources study**, prepared by URS - Dames & Moore, in the Big Springs area of Adams County, Wisconsin. The purpose of the wetland resources study was to inventory, delineate, describe and assess wetlands in the vicinity of the high capacity well project; identify potential threatened and endangered (T/E) species and habitats and natural areas; evaluate potential effects of high capacity groundwater collection on these resources; and initiate an inventory of wetland plants and animals.

Initial wetland investigations focused on the two wetland systems that are contiguous with Big Spring (on the Jensen property) and the Buckley property, as well as isolated wetlands located in close proximity to these systems. The area was later expanded to include a potential pipeline route from the two spring properties to one potential site for the bottling plant. The total area investigated includes approximately 300 acres surrounding the springs, lands immediately adjacent to CTH G, between Golden Avenue and STH 23, and one potential plant site, located in the SW1/4 of Section 34 and the SE1/4 of Section 33, Township 14 North, Range 7 East. In addition, an area of approximately 12 square miles centered on the study area was searched for T/E species and natural areas by DNR staff using the Natural Heritage Inventory (NHI) database, at the request of URS - Dames & Moore.

In addition to the information generated by the three studies identified above, GSWA has submitted the following information regarding one potential bottling plant site: conceptual site plan; conceptual building floor plan and phasing plan; preliminary design report; and preliminary pipeline design report.

2. GSWA has voluntarily committed to do additional groundwater, aquatic and wetland resource evaluations and monitoring, with DNR oversight. The additional studies are summarized below. The exact nature of the additional studies shall be in accordance with a work plan prepared by URS - Dames & Moore and approved and/or modified by DNR.

a. **a future groundwater study** shall be completed to more fully characterize the hydrogeology of the area, and to evaluate the impacts of high capacity groundwater withdrawals on wetlands, surface waters and aquatic life, and existing groundwater uses/users.

The scope of work for the groundwater study shall consist of six primary tasks: a well inventory; a groundwater model; a long-term aquifer test; the development of high capacity pumping scenarios and contingency plans; the design, construction and implementation of long-term monitoring; and a summary report.

The primary tasks are described in detail in the work plan. The well inventory shall be an accurate inventory of all water supply wells in Section 22 and the eight surrounding sections.

The groundwater model shall simulate the hydrogeologic system in the study

area and, to the extent possible, evaluate the impacts to wetlands and aquatic life caused by withdrawals from the groundwater system. By simulating the impacts of high capacity extraction on groundwater and surface water resources in the area, including private wells, the groundwater model will help DNR determine an extraction rate which will prevent significant adverse impact to the environment.

The long-term aquifer test shall be used to refine the model for the evaluation of the effect of the proposed high capacity wells on water levels and provide additional data on the nature of the aquifer for use in the groundwater model.

The development of high capacity well pumping scenarios and contingency plans shall be based upon the groundwater model's evaluation of the impacts of variations in climatic conditions (e.g., drought conditions) on the overall hydrologic system. The purpose of the contingency plan shall be to protect the resources in times of extreme conditions, by identifying features which are vulnerable to the combined impacts of extreme climatic conditions and the proposed high capacity pumping, and by identifying modifications to the operation of the system which can be implemented to reduce, eliminate or mitigate those impacts.

The design, construction and implementation of long-term monitoring shall include a network of observation points for the long-term monitoring of water levels in the spring aquifer, wetlands and surface waters. This effort shall, as appropriate, include the construction of additional observation wells, and the installation of additional staff gauges and wetland monitoring probes.

Upon the completion of the tasks identified above, GSWA shall submit to DNR a summary report which will discuss all the tasks performed, the results of the investigative work, and conclusions and recommendations. The summary report shall include a detailed contingency plan and long-term monitoring plan.

b. **a future aquatic resources study** shall supplement the aquatic survey completed by GSWA in March 2000. The objectives of the investigation are to further characterize fish community and water quality and quantity conditions in Big Spring Creek. The results of the characterization study shall be used to establish operational limits that are protective of aquatic resources, and establish a long-term monitoring program for the spring.

The scope of work for the study shall consist of three primary tasks: additional evaluation of aquatic life; collection of stream flow/pond water level information; and long-term monitoring. DNR shall subsequently use this study to help establish operational limits/conditions, such as restricted well pumping rates, minimum stream flows, etc., to be incorporated into any high capacity well system approval.

The additional field investigation shall be conducted in the Big Springs area to supplement the baseline aquatic resources investigation completed by GSWA in March 2000. These activities shall include additional fish surveys in portions of Big Spring Creek above Big Spring Pond, measurements of stream flow, and water-quality monitoring in the creek and associated tributaries.

Setting of operational limits shall directly or indirectly establish minimum stream flows to protect trout habitat in Big Spring Creek. In this manner biological resources and other public interest values shall be protected. By measuring cross-sectional profiles of the stream bottom and adjacent banks, installing staff gauges, and placing control structures (e.g., weir) in the upper tributary and at the outlet of Big Springs, sufficient information shall be generated to establish minimum flows that ensure proper water temperature and oxygen levels are present to support healthy trout populations. If, while not required by this Agreement, any stream habitat restoration activities are undertaken, revised minimum flows shall be established by DNR in accordance with proposed cross sections using Instream Flow Incremental Methodology (IFIM) technology. Due to its limited potential for supporting high quality resource values, the stream emerging from Buckley Springs may have similar but

likely less detailed monitoring.

Because high capacity groundwater extraction may influence water levels in Big Springs and the two ponds at the Buckley property and their associated wetlands, DNR may also establish minimum surface water elevations to protect these aquatic habitats and their biological communities.

A long-term monitoring program shall be established to ensure significant adverse impacts to aquatic resources do not occur. This program shall consist of monitoring compliance with operational limits, documenting abundance and community composition of fish and macroinvertebrates, and monitoring water quality and quantity. Pumping rate and volume shall be monitored continuously and periodic reporting shall be required. Weirs, or other stream gauging methods, shall be installed in the upper tributary of Big Spring Creek and in the stream channels immediately downstream of the outfall structures at Big Spring and the Buckley property. Stream flow shall be monitored during groundwater pumping, at a frequency to be determined by DNR, to demonstrate compliance with any established minimum flows. Water levels in the ponds shall also be monitored periodically, at a frequency to be determined by DNR, by recording levels from staff gauges in the ponds. Pumping shall be reduced or stopped if flows or pond water levels fall below established minimum values. An annual fisheries survey shall be conducted in Big Spring Creek and below the unnamed tributary from the Buckley property ponds, in consultation with DNR, to characterize species composition and abundance once groundwater pumping begins. An annual macroinvertebrate survey shall also be conducted, in consultation with DNR, to characterize community composition and assess water quality and quantity once groundwater pumping commences. Continuous water quality and quantity monitoring shall be conducted annually in July or August once groundwater pumping begins, in consultation with DNR. Results of the annual fisheries, macroinvertebrate and water quality and quantity monitoring shall be summarized in a report and submitted to DNR shortly after data collection. It is anticipated that stream flows and pond water level measurements shall be submitted to DNR on a more frequent basis (e.g., monthly). Periods when pumping ceased or was reduced due to low flows and/or water levels shall be indicated in the reporting. The monitoring program for the existing Big Spring Creek channel will likely be revised if, while not required by this Agreement, the stream channel is restored. While the main elements of the program may remain similar, monitoring locations may vary. A modified monitoring work plan shall be submitted if and when stream channel design is complete.

c. **future long-term monitoring of wetland resources** shall be completed to supplement wetland reconnaissance surveys completed by GSWA in March and April 2000 and to provide data that will be used to assess and protect the ecological health and diversity of wetland resources in the vicinity of the proposed high capacity wells.

The scope of work for the study shall consist of three primary phases taking place over a period of four years: pre-operational field studies (2000); operational monitoring (2001 - 2003); and adaptive management (2000 - 2003).

The objectives of the pre-operational field studies phase are to refine the baseline characterization of wetland resources in the project area; refine the analysis of potential impacts of proposed project elements on wetland resources; and establish the baseline parameters and framework for long-term monitoring activities.

Work elements of the pre-operational field studies phase shall include wetland boundary delineation; plant community characterization; endangered/threatened species surveys; soil and water analyses; water level monitoring; and establishment of permanent vegetation quadrats to facilitate species identification and percent cover estimates. GSWA shall submit a comprehensive report to DNR by September 30, 2000 that describes the methods, relationship to ongoing monitoring activities, findings, and conclusions of the work elements completed during the 2000 summer months.

The objectives of the operational monitoring phase are to evaluate the significance of observed hydrologic or vegetative community alterations in wetlands during groundwater collection system operation, and the relationship of these alterations to system operation; and establish the limits of influence of the groundwater collection system with regard to wetlands in the project area.

Work elements of the operational monitoring phase shall include vegetation monitoring; endangered/threatened species surveys; water analyses; water level monitoring; and an impact analysis.

GSWA shall submit to DNR a comprehensive report by mid-October in each year of monitoring (2001 - 2003) describing the methods, findings and conclusions of the work elements. Species lists, interim findings and final reports shall also be submitted to DNR.

The adaptive management phase provides opportunity for changes in operational limits based on monitoring results in wetlands. The objectives are to evaluate the need for operational adjustments of the groundwater collection system based on wetland health; develop recommendations regarding on-going wetland monitoring needs beyond the initial period; and, while not required by this Agreement, establish wetland resource restoration and enhancement goals if appropriate.

Work elements of the adaptive management phase shall include operation plan review to assess the need for operational adaptations to avoid impacts on wetland systems due to natural, temporal events (e.g., above- or below-normal precipitation) or groundwater extraction rates; monitoring program review; and development of a wetland restoration plan.

All data gathered in the future under the additional groundwater, surface water and habitat monitoring described in this numbered paragraph shall be submitted to DNR for its review and evaluation. The data shall be used as the basis for modifying conditions in any approval of (a) high capacity well system(s) to ensure the continued protection of the groundwater and nearby surface waters and wetlands and associated biological communities.

3. The commitments made by GSWA in the documents it has submitted to DNR as part of the application for (a) high capacity well system(s) **(the groundwater study; the aquatic resources study; and the wetland resources study** - see numbered paragraph 1) are all incorporated by reference into this Agreement.

4. The commitments made by GSWA in the work plans it has submitted to DNR (to do a **future groundwater study; a future aquatic resources study; and future long-term monitoring of wetland resources** - see numbered paragraph 2) are all incorporated by reference into this Agreement. The descriptions of future work activities provided in the final work plans prepared by URS - Dames & Moore and submitted to DNR on behalf of GSWA shall, once approved by DNR, take precedence over the studies summarized in numbered paragraph 2 of this Agreement. This Agreement does not require any stream habitat restoration activities, stream channel restoration, or wetland resource restoration or enhancement.

5. This Agreement shall be incorporated by reference into any subsequent conditional approval of (a) high capacity well system(s). Any violation of a commitment documented herein shall become a violation of that conditional approval and will be enforceable as such.

6. Following receipt of the application for (a) high capacity well system(s) in Adams County and GSWA's related environmental information, DNR assessed the potential environmental impacts of the proposed project and prepared an Environmental Assessment (EA). DNR issued a news release announcing that the draft EA was available for public review and comment. While the law did not require it, DNR held a public informational meeting at the start of the public review period to describe the draft EA findings and to invite public comments. After the review period closes DNR shall review and evaluate all comments received (both oral and written statements submitted at the public informational meeting and written

comments received within the public review period). DNR shall subsequently determine whether any additional environmental review, such as an Environmental Impact Statement (EIS) is needed. Following completion of the environmental analysis and review procedure, DNR shall render a final decision on the application for (a) high capacity well system(s).

7. DNR shall use its authority under section 281.17, Stats., and chapter NR 812, Wis. Adm. Code, to ensure that the proposed withdrawal will not adversely affect or reduce the availability of water to any public utility furnishing water to the public.

8. The Applicants have consented to DNR using its broad authority under sections 31.02, 227.44(5), 281.11 and 281.12, Stats., to protect the groundwater and nearby surface waters and wetlands.

9. Wisconsin has a " reasonable use standard" relating to the withdrawal, use and sale of groundwater. In State v. Michels Pipeline Construction, Inc., 63 Wis. 2d 278 (1974), the Wisconsin Supreme Court gives unrestricted freedom to a landowner to withdraw, use and sell groundwater in any amount, provided that such withdrawal does not cause unreasonable harm to others.

10. The operation of any high capacity well system shall have, under all climatic conditions but especially during drought conditions, no significant adverse impact on any nearby groundwater, surface waters or wetlands. When determining whether any significant adverse impact is occurring, DNR staff shall examine the physical environment and evaluate all relevant groundwater modeling information and other data. A significant adverse impact would occur when the quantity or quality (e.g., temperature, dissolved oxygen, suspended solids, etc.) of the waters available to any affected surface water or wetland is reduced or affected such that its physical, biological, social, economic or any other public interest value cannot be maintained.

11. The Applicants agree to be bound by the terms and conditions of any approval of (a) high capacity well system(s) and recognize that any such approval may include minimum stream flows or pond water levels below which the Applicants shall be limited in their extraction rate or shall stop extraction. The Applicants may not raise the issues of jurisdiction or authority in any future proceedings that might arise regarding a) the reasonableness of that initial approval or b) compliance with it. Under the provisions of section NR 812.09(4)intro., Wis. Adm. Code, failure to comply with any condition of that approval shall void the approval.

12. If following approval of any high capacity well system DNR reviews future data gathered under numbered paragraphs 1 and 2 or elsewhere and determines that additional environmental studies and/or monitoring might be helpful to further assess impacts and/or protect resources, it may unilaterally amend its approval to require such additional studies/monitoring. Any such future amendment is subject only to a limited appeal by the Applicants on the reasonableness of the modified portions of the approval. The appeal may not raise the issues of jurisdiction or authority.

13. If following approval of any high capacity well system DNR determines that the operation of the system is causing a significant adverse impact on any nearby groundwater, surface waters or wetlands, DNR may unilaterally amend its approval to impose conditions to eliminate that impact, including lowering the extraction rate. Any such future amendment is subject only to a limited appeal by the Applicants on the reasonableness of the modified portions of the approval. The appeal may not raise the issues of jurisdiction or authority.

14. The Parties recognize that approval of any high capacity well system in this instance shall be a phased data-driven interactive process, allowing for modification efforts by any of the Parties. If data generated after any approval reflects that a higher extraction rate would under all climatic conditions have no significant adverse impact on any nearby groundwater, surface waters or wetlands, the Applicants may seek an amended approval for that higher extraction rate. Under those circumstances, DNR may not raise the doctrine of collateral estoppel to seek to prevent such a modification effort.

15. In addition to any decision on the application for (a) high capacity well system(s), the Parties recognize that GSWA's potential pipeline, bottling plant and any stream/wetland restoration activities may require many other permits. Such permits may include, but would not necessarily be limited to:

a) **water regulation and wetlands permits** (water quality certification - chapters NR 103 and NR 299, Wis. Adm. Code; structures - section 30.12, Stats.; pipelines - sections 30.12 and 30.20, Stats.; culverts over navigable streams - section 30.123, Stats.; dredging - section 30.20, Stats.; grading - section 30.19, Stats.);

b) **air permits** (direct stationary sources - boiler, emergency electric generator and process lines; indirect sources - parking areas and road access; and operation); and

c) **wastewater permits** (sanitary wastes, noncontact cooling water and boiler blowdown, contact cooling water and process wastewater, and stormwater).

16. All reports, studies and other data submitted to DNR under this Agreement are subject to Wisconsin's public records provisions found in subchapter II of chapter 19, Stats., except as provided in section NR 2.19, Wis. Adm. Code.

17. This Agreement consists of eleven (11) pages, counting the signature pages, and contains the entire understanding between the Parties with respect to the June 20, 2000 application for (a) high capacity well system(s), and supersedes all prior and contemporaneous discussions or negotiations. This Agreement cannot be amended except in writing signed by duly authorized representatives of the Parties.

18. The obligations of each Party in this Agreement shall be binding upon, and its rights and benefits shall inure to the benefit of, the successors and assigns of that Party.

19. This Agreement is made and delivered in Wisconsin, and shall be governed by Wisconsin law applicable to contracts executed and performed therein. Any disputes shall be resolved in an appropriate court in Wisconsin.

20. This Agreement may be executed in separate counterparts, each of which shall be deemed an original. Each Party to this Agreement shall execute eight (8) duplicate original counterparts and shall circulate the same to all other Parties identified in this Agreement.

GREAT SPRING WATERS OF AMERICA, INC.
A Delaware corporation
777 West Putnam Avenue
Greenwich, CT 06830

By: _____ _____

Mark Evans, Vice President & General Counsel

Date of signature

Separate signature pages for Roland C. and Sandra Jensen and Buckley Springs Trust and Department of Natural Resources.

Attachment 14

High-Capacity Well Permits -- Conditions for Approval

For Perrier permits (if approved):	For all other permit applicants:
Timeframe for Permit Approval: Almost six months and counting ; initial discussions with DNR on Perrier studies at Town of New Haven sites started on February 28, 2000.	**Timeframe for Permit Approval**: 65 business days, but average is 24.7 days.
Conditions for approval: 1. Cannot adversely impact a public drinking water utility. 2. Pre-Permit Application Studies: • Groundwater Study • Aquatic Resources Study • Wetland Resources Study Study results were submitted with permit application and some information used for the Environmental Assessment 3. Complete Environmental Assessment (ongoing) 4. Groundwater Study (to be completed before production well operation) • well inventory • long-term aquifer tests • groundwater model • design and implementation of long-term monitoring 5. Pre-Production Well Wetland Resources Study (to be completed before production well operation): • wetland boundary delineation • characterization/survey of plant and endangered/threatened species • soil and water analyses • establish baseline parameters and framework for long-term monitoring 6. Aquatic Resources Study (supplement to March study and to be completed before production well operation): • Additional evaluation of aquatic life • Collection of stream flow/pond water level information • long-term monitoring 7. All studies and modeling will be used to establish an initial withdrawal rate--to be set at levels that will not have a significant adverse impact on surface water and wetland resources. 8. Post-Production Well Permit Conditions: • Extensive long-term monitoring to ensure resource protection • Regular reporting of data • Subject to unilateral responses by DNR in the event adverse impacts are discovered, including lowered extraction rate.	Conditions for Approval 1. Cannot adversely impact a public drinking water utility

For additional information, please call Bill Furbish at (608) 266-9264