

BEFORE THE DEPARTMENT OF
NATURAL RESOURCES AND CONSERVATION
OF THE STATE OF MONTANA

* * * * *

IN THE MATTER OF PETITION NO.)
41H-104360 TO THE DEPARTMENT)
OF NATURAL RESOURCES AND) FINAL
CONSERVATION FOR DESIGNATION) ORDER
OF A CONTROLLED GROUNDWATER)
AREA)

* * * * *

A Proposal for Decision in the above matter was issued June 1, 1998. Copies of the Proposal were mailed to all interested parties. The Proposal recommended designation of the Bozeman Solvent Site as a controlled ground water area.

No objections to the Proposal were received by the Department of Natural Resources and Conservation. Therefore, the Director of the Department of Natural Resources and Conservation, having given the matter full consideration, accepts and adopts the Findings of Fact and Conclusions of Law as contained in the June 1, 1998, Proposal and incorporates them by reference.

WHEREFORE, based upon the record, the Director makes the following:

ORDER

The Bozeman Solvent Site is designated a controlled ground water area. The Bozeman Solvent Site is generally located from West Main Street between North 20th and North 11th Streets and extending north of the East Gallatin River to the Riverside Golf Course and described as follows: the W $\frac{1}{2}$ NW $\frac{1}{4}$, SE $\frac{1}{4}$ NW $\frac{1}{4}$, SW $\frac{1}{4}$, SW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 25; E $\frac{1}{2}$ of Section 26; E $\frac{1}{2}$ Section 35; Section 36; Township 1 South, Range 5 East and the W $\frac{1}{2}$ and W $\frac{1}{2}$ E $\frac{1}{2}$ of Section 1; E $\frac{1}{2}$ E $\frac{1}{2}$ Section 2; E $\frac{1}{2}$ NE $\frac{1}{4}$ of Section 11; NW $\frac{1}{4}$ and N $\frac{1}{2}$ SW $\frac{1}{4}$ of Section 12, Township 2 South, Range 5 East in Gallatin County, Montana.

1. Drilling and installation of water wells within the boundaries of the controlled groundwater are prohibited without first obtaining an interim permit from the Department of Natural Resources and Conservation. Provisional Permits will not be issued where one of more of the following conditions exist:

A. The proposed well is located within the projected limit of "highest contamination" determined from

Final Order
Bozeman Solvent Site
Controlled Groundwater Area

ongoing monitoring activities conducted by Department of Environmental Quality and Potentially Liable Parties. The zone of highest contamination will be defined on the basis of most recent groundwater monitoring data available, and be contained within the modeled projection of concentration greater than or equal to 100 ppb of chlorinated solvents in groundwater.

B. Groundwater pumping from the individual well, or in combination with existing or proposed wells nearby, is likely to induce or redirect contaminated groundwater plume migration.

C. Water supply from the City of Bozeman municipal water supply system is presently available or will be available for use by the time the proposed project is to be completed.

D. The proposed well has a design capacity of equal to or greater than 1,000 gallons per minute.

2. In instances where new wells are allowable, interim and provisional Type A and Type B permits will be available as described in Attachment A, which is incorporated as an integral part of this Order.

3. The Department may approve a permit subject to conditions. These conditions could include recommendations from the Well Permit Review Board such as water treatment requirements, or other conditions the Department deems necessary. If an applicant does not agree to comply with the conditions placed on a permit by the Department, the Department will deny the permit application.

4. The establishment of the controlled groundwater area does not preempt diversions required for remedial or response actions authorized by EPA or remedial or response actions undertaken by the State of Montana and diversions required for restoration actions undertaken by the State of Montana pursuant to its role as trustee for natural resources.

5. The granting of this petition for a controlled groundwater area in no way limits any claims the State of Montana, as trustee for natural resources, may have for damage to natural resources.

6. The granting of this petition for a controlled groundwater area does not constitute an irreversible and irretrievable commitment of the groundwater resource, nor does it serve as a permit for the release of hazardous substances into the

groundwater aquifer.

7. The controlled groundwater area and groundwater closure is being issued in recognition of existing contaminated conditions and does not relieve any person from liability for contamination of the groundwater.

8. A grant of a controlled groundwater area is not an indication of a finding that the groundwater aquifer should not be remediated or restored.

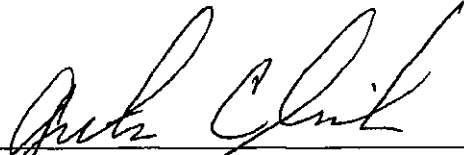
9. Monitoring wells constructed for the sole use of monitoring groundwater quality and quantity are excluded from any controlled groundwater area permit requirements; however, the driller must notify the Department of the intent to construct a monitoring well.

10. If at any time there is clear and convincing evidence any part of the controlled groundwater area is not contaminated and will most likely never be contaminated, procedures may be initiated to remove that part from the controlled groundwater area.

NOTICE

The Department's Final Order may be appealed in accordance with the Montana Administrative Procedure Act by filing a petition in the appropriate court within 30 days after service of the Final Order. If a petition for judicial review is filed, the Department will transmit a copy of the tape(s) of the oral proceedings to the district court. If a party to the proceeding elects to have a written transcription prepared, that party may purchase the tapes and have a transcript prepared.

Dated this 20 day of July, 1998.



Arthur Clinch, Director
Department of Natural Resources
and Conservation
1625 Eleventh Avenue
Helena, Montana 59620
(406) 444-2074

ATTACHMENT A

CONTROLLED GROUNDWATER AREA PERMIT TYPES

Drilling and installation of water wells within the boundaries of the controlled groundwater area are prohibited without first obtaining an interim permit from the Department of Natural Resources and Conservation (Department).

TYPE A PERMITS are for wells which withdraw a maximum of 35 gallons per minute and do not exceed 10 acre-feet of water per year within the controlled groundwater area.

To obtain an interim permit, the applicant must submit a completed application to the Department. The following are minimum requirements for a complete application.

1. The application must contain a detailed site plan showing the specific location of the proposed well. The location must be shown by specific measurements from known, physically locatable reference points. Location data to be submitted will include a legal description of the well site and property, Department of Revenue (County assessor) geocode, and Department of Revenue SIC code designation (if applicable).
2. A description of the proposed well to be constructed including the diameter, approximate depth, size of pump to be installed, and intended use of the water is required.
3. The application must contain an estimate of the total number of people per day who will potentially use water for drinking and other domestic uses and estimate of total volume use (estimated average gallons per day) must be specified. For wells to be used to supply multi-family residential, commercial, service, or industrial water supply, the applicant must provide volume estimates of anticipated peak-period consumptive water use (gallons per minute), an estimate of average daily water use (gallons per minute and total gallons per day) or consumption, and a description of assumptions used in estimates provided.
4. Applicant must provide other information requested by the Department as part of the standard application process.

Upon receipt of a completed application, the Department will review the proposed well location and construction to ensure none of the conditions for denial of a well permit described in this Order exist.

After review, an interim permit may be issued by the Department. The applicant can then drill the well. The well driller shall notify the Department at least **5 working days** prior to drilling the well. The notification is necessary to allow adequate time to organize sampling of the well.

After drilling a Type A well and before a provisional permit is issued, the following procedures and conditions are necessary.

1. A one-time sampling and analysis of the water to determine chlorinated solvent concentrations in the well is required. Well sampling will be done by the Department of Environmental Quality (DEQ) or a designated representative. Well sampling and analysis services will be provided at no direct cost to the permit applicant.

The initial groundwater sample analysis will be used to determine if an individual water treatment system, or other appropriate restrictions will be required as a condition on the provisional permit.

Wells containing concentrations of tetrachloroethylene (PCE) which equal or exceed 5 parts per billion (ppb), will require installation of an on-site water treatment system as a condition of permit approval. The applicant shall consult with DEQ to determine the applicant's eligibility for installation of a water treatment unit at no cost to the applicant under the terms of an existing DEQ Order with Jewel Food Stores and the City of Bozeman.

Various types of water treatment systems exist, and space requirements for installation may vary. Alternative treatment systems and minimum building space requirements will be considered on a case-by-case basis, and must be accepted and approved by DEQ.

Owners of wells determined by the initial analysis not to contain concentrations of PCE greater than 5 ppb will not be required to install individual water treatment systems prior to issuance of a provisional permit, but will be required to provide a dedicated

space to accommodate installation of a water treatment system, if groundwater conditions change in the future.

2. If it is shown by subsequent sampling of the well, or it can be shown as a result of monitoring activities conducted by PLP's for the Bozeman Solvent Site that migration of the groundwater contamination plume is occurring (natural or induced migration) which threaten to increase groundwater concentrations to PCE levels, equal to or exceeding 5 ppb in a permitted well, Department may require well owners to comply with conditions set forth above, or may impose other appropriate well or groundwater management restrictions necessary to protect public health, safety, and welfare.
3. As a condition of all provisional permits, the well owner must agree to allow DEQ or representatives of the PLP's conducting groundwater investigations or monitoring activities periodic access to the well for the purpose of sampling groundwater. Periodic sampling may be conducted at selected wells to supplement monitoring information collected from the existing monitoring well network and/or to aid in understanding the distribution of chlorinated solvent groundwater contamination. Such periodic sampling will be done at no direct cost to the property or well owner.
4. The permittee may be responsible for any testing required by DEQ or other agencies not directly related to the Bozeman Solvent Site controlled groundwater area.
5. Water treatment systems are considered temporary measures to protect the health of the people using the wells because the maintenance requirements are labor intensive and there are other problems with treatment systems which can threaten human health. For these reasons, as extension of the City of Bozeman's municipal water system proceeds and water lines are extended into various portions of the controlled groundwater area, well owners will be required to connect with the water system, and discontinue use of groundwater as a source for drinking water and other domestic uses. Irrigation and stock uses could continue.

6. The applicant must provide other information requested by Department as part of the standard application process.

TYPE B PERMITS include all wells which are designed to withdraw greater than 35 gallons per minute, or exceed 10 acre-feet of water per year within the controlled groundwater area.

To obtain an interim permit, the applicant must submit a completed application to the Department for review. The following are minimum requirements for a complete application.

1. The application must contain a detailed site plan showing the specific location of the proposed well. The location shall be shown by specific measurements from known, physically locatable reference points. Location data to be submitted will include a legal description of the well site and property, Department of Revenue (County assessor) geocode, and Department of Revenue SIC code designation (if applicable).
2. A description of the proposed well to be constructed including the diameter, approximate depth, size of pump to be installed, and intended use of the water is required.
3. The applicant must provide an estimate of the total number of people per day who will potentially use water for drinking and other domestic uses and estimate of total volume use (estimated average gallons per day) must be specified. For wells to be used to supply multi-family residential, commercial, service, or industrial water supply, the applicant must provide volume estimates of anticipated peak-period consumptive water use (gallons per minute), an estimate of average daily water use (gallons per minute and total gallons per day) or consumption, and a description of assumptions used in estimates provided.
4. Applicant must provide other information requested by the Department as part of the standard application process.

Upon receipt of a completed application, the Department will review the proposed well location and construction to ensure none of the conditions for denial of a well permit described in this Order exist.

After review, an interim permit may be issued by the Department. The applicant can then drill the well. The well driller shall notify the Department at least **5 working days** prior to drilling the well. The notification is necessary to allow adequate time to organize sampling of the well.

After drilling a Type B well and before a provisional permit is issued, the following procedures and conditions are necessary.

1. A one-time sampling and analysis of the water to determine chlorinated solvent concentrations in the well is required. A second sampling and analysis of the water may be required upon completion of the pumping test described in item 3 below.

Well sampling will be done prior to conducting the pumping test, and after (if required), as described below, by DEQ or a designated representative. Well sampling and sample analysis will be provided at no extra direct cost to the permit applicant.

The initial groundwater sample analysis will be used to determine if a water treatment system will be required as a condition and/or if other appropriate restrictions will be required as conditions of the provisional permit.

Wells containing concentrations of tetrachloroethylene (PCE) which equal or exceed 5 parts per billion (ppb), will require installation of an on-site water treatment system for water treatment at all point(s) of human consumption or domestic use will be required as a condition of approval. The applicant will consult with DEQ to determine the applicant's eligibility for installation of a water treatment unit at no cost to the applicant under the terms of an existing DEQ Order with Jewel Food Stores and the City of Bozeman.

Owners of wells determined by the initial analysis not to contain concentrations of PCE greater than 5 ppb will not be required to install individual water treatment systems prior to issuance of a provisional permit, unless and until it is shown by site specific sampling of area monitoring points, that groundwater contamination has or is likely to increase to concentrations equal to or exceeding 5 ppb of PCE, but will be required to provide a dedicated space to accommodate installation of a water treatment system

for human consumption or domestic use, should groundwater conditions change in the future.

2. If it is shown by subsequent sampling of the well, or it can be shown as a result of monitoring activities conducted by PLP's for the Bozeman Solvent Site that migration of the groundwater contamination plume is occurring (natural or induced migration) which threatens to increase groundwater concentrations to PCE levels, equal to or exceeding 5 ppb in a permitted well, Department may require well owners to comply with conditions set forth above, or may impose other appropriate well or groundwater management restrictions necessary to protect public health, safety, and welfare.
3. Applicant will conduct a constant rate, single-well pumping test to determine the hydrologic transmissivity or transmissibility, average formation hydraulic conductivity, and well specific-yield. The pumping test will be designed and conducted under the supervision of a qualified groundwater hydrologist or engineer. A second sampling and analysis of the water may be required upon completion of the pumping test described in item 1 above. Pumping test and pumping test analyses will be conducted following Single-Well Constant-Rate test methods described in Chapter 16, *Collection and Analysis of Pumping Test Data in Groundwater and Wells* (2d Ed.) By F.G. Driscoll, and the "10 States Guidelines for Pump Testing", based on the method shown in Exhibit 2.

A report containing tabulated measurements of the pump test drawdown and recovery, pump-flow discharge measurements and calculations to determine the transmissivity or transmissibility, average formation hydraulic conductivity, and well capacity, and calculation of well capture zone (radius or influence) based on the method shown in exhibit 2, must be submitted for Department and/or Board review. This report will also include a narrative of findings, a description of methods used and assumptions made including supporting graphics and calculations, and a determination of impact based well capture zone calculations. The analysis will be prepared and certified by a qualified groundwater professional or engineer.

4. As a condition of all provisional permits, the well owner must agree to allow DEQ or a representative of the PLP's conducting groundwater investigations or monitoring activities periodic access to the well for the purpose of sampling groundwater. Such periodic sampling will be provided at no direct cost to the property or well owner.
5. The permittee is responsible for any testing required by DEQ or other agencies that are not directly related to the controlled groundwater area.
6. Water treatment systems are considered temporary measures to protect the health of the people using the wells and because the maintenance requirements are labor intensive and there other problems with treatment systems which can threaten human health. For these reasons, as extension of the City of Bozeman's municipal water system proceeds and water lines are extended into various portions of the controlled groundwater area, well owners will be required to connect with the water system, and discontinue use of groundwater as a source for drinking water and other domestic uses. Irrigation stock, and industrial/commercial process water use may could continue.

Any change in intended use or conversion of an existing Type A to Type B well constitutes a significant change in permitted well use and requires a new permit application or an application for change from the Department.