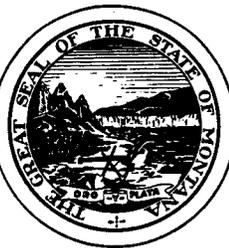


DEPARTMENT OF ENVIRONMENTAL QUALITY  
PERMITTING AND COMPLIANCE DIVISION  
INDUSTRIAL AND ENERGY MINERALS BUREAU



MARC RACICOT, GOVERNOR

1520 EAST SIXTH AVENUE

STATE OF MONTANA

(406) 441-2970  
FAX (406) 441-1923

Opencut Mining Program

PO BOX 200901  
HELENA, MONTANA 59620-0901

**RECEIVED**

March 12, 1998

**MAR 18 1998**

Dear citizen:

**ENVIRONMENTAL  
QUALITY COUNCIL**

As you probably know, the department has received an application from RLazyM (d.b.a. - Creston Sand & Gravel) to amend their Opencut Mining Permit at the Lindsey Lane site. Since you either attended a previous public meeting or wrote a letter to the department, we are sending you this notice directly.

Enclosed is the Environmental Assessment and attachments that have been prepared for the proposed action. Related documents will be available at the Department of Environmental Quality's office located within the Montana Department of Natural Resources and Conservation complex across from the Flathead Valley Community College. They may be viewed between the hours of 8:00am and 5:00pm, Monday through Friday. A public meeting will be held at 7:00pm on March 26, 1998 in the Creston Grange Hall. Written comments must be sent to the address below and postmarked no later than Saturday, March 28, 1998.

Sincerely,

A handwritten signature in cursive script, appearing to read "Jerry Burke".

Jerry Burke, Supervisor  
Opencut Mining Program  
Industrial and Energy Minerals Bureau  
Permitting and Compliance Division

JB/kd  
Enclosures

**ENVIRONMENTAL ASSESSMENT**

**COMPANY NAME:** Creston Sand & Gravel  
**LOCATION:** NE¼NW¼ sec26 T28N R20W  
**PROPERTY OWNERSHIP:**  Federal  State

**PROJECT:** Clouse Site  
**COUNTY:** Flathead  
 Private

**TYPE AND PURPOSE OF ACTION:** The applicant proposes to expand an existing permitted gravel mine. Gravel, sand and small sized mineral fractions would be mined, washed, crushed, and processed into concrete, various sized aggregate products, and cold-mix asphalt as needed, increasing the total affected lands from 8.5 to 33.4 acres. Total production would increase from a planned maximum of 150,000 to 400,000 cubic yards through 2008, the life of the mine. The mine would operate year round, as needed, Monday through Saturday between 6:00 am and 7:00 pm. Upon completion of mining, the site would be reclaimed to pasture and possible home sites.

N = Not present or No Impact will occur.  
 Y = Impacts may occur (explain under Potential Impacts).

IMPACTS ON THE PHYSICAL ENVIRONMENT	
RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
1. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE:	<p>[Y] The permit area is located in the Flathead Valley on a rolling glacial outwash terrace left by the last retreating glacier around 10,000 years ago. The Kalispell Valley lies within an intermountain, fault block basin known as the Rocky Mountain Trench and is bordered by the Whitefish Range to the north, the Flathead and Swan Ranges to the south and east, and the less dramatic Salish Range to the west. These ranges are comprised of billion year old Belt Series sandstone, mudstone and limestone rocks which were sculpted by both alpine and continental glacial advances during the Pleistocene (1.6 million to 10,000 years before present). The Kalispell Valley fill comprises unconsolidated to semiconsolidated Tertiary (66.4 to 1.6 million year old) rocks, beneath a thick mantle of Pleistocene glacial, stream, and lake deposits. Terrace deposits such as those identified in the permit area occur in the east and central valley areas and comprise stratified layers of Pleistocene to recent alluvium and glacial outwash sand, gravel and cobbles which are mantled by glaciolacustrine deposits. The terrace is generally pock-marked with potholes created when large blocks of glacial ice were buried in the outwash and later melted.</p> <p>Up to 12 inches of fairly well drained, sandy clay loam topsoil, which is rocky in places, and up to 6 inches of sandy overburden (subsoil) overlie the glacial sands and gravels. Local terrace slopes demonstrate reasonably good stability. All topsoil material would be salvaged and stockpiled away from the mined land. Overburden would be sold as product. Following mining, grading and ripping, the soils would be replaced, disced and seeded to prevent erosion. Microbes would re-colonize the soil.</p>

## IMPACTS ON THE PHYSICAL ENVIRONMENT

### 2. WATER QUALITY, QUANTITY AND DISTRIBUTION:

[Y] The only surface water within the permit area is a small incised stockpond which would be avoided. Glacial pothole lakes dot the general area. Most of these potholes are restricted to the terrace that exists east of Creston between Highway 35 and the Swan Range. Potholes are connected with the near surface ground-water system that lies beneath the permit area and vicinity. The near surface ground-water and pothole system is primarily recharged by underlying confined aquifers that are fed from creeks that head in the Swan Range. Near surface ground-water level elevations measured from test pits in the permit area and potholes to the south are between 2,940 and 2,945 feet above mean sea level (M.S.L.). The near surface ground-water and pothole system likely drains west towards the springs that line the cut terrace bank west of Highway 35. Those springs are at an elevation of roughly 2,920 feet above M.S.L.. The site would be mined to an elevation of not less than 2,958 feet above M.S.L., which is 13 feet above the elevation of near surface ground water measured from test pits in the permit area.

There are 12 domestic water wells within a ¼-mile radius of the permit area. Most wells are 100 to 300 feet deep and are completed in a confined sand and gravel aquifer of high transmissivity and quality. This confined aquifer is likely recharged directly from creeks that head in the Swan Range. The observed static water level elevations from wells completed in the confined aquifer are approximately 2,955 to 2,960 feet above M.S.L. Ground water in the confined aquifer generally flows west toward the Flathead River. Roughly 100 feet of less permeable clayey till, silt and silty sand layers separate the confined aquifer from the near surface shallow ground water.

The apparent upward ground-water gradient from the confined aquifer to the shallow near surface water table, and the thick zone of less permeable material overlying the confined aquifer protect water in the confined aquifer against potential surface contamination. The following general housekeeping measures would minimize potential impacts to the near surface ground-water system: All bulk fuel, lubricants and chemicals would be kept in a bermed and lined area which meets Department specifications; vehicles designed for fuel storage or refueling would be parked inside the lined and bermed fuel storage area when not being used for fueling; any fuel, lubricant or chemical spills would be immediately excavated and the soil disposed of at a licensed disposal site; and there would be no asphalt buried on site. Only naturally occurring solids such as sand, silt and clay found in the gravel would be contained in the wash plant settling ponds.

## IMPACTS ON THE PHYSICAL ENVIRONMENT

<p>3. AIR QUALITY:</p>	<p>[Y] The level of mining activity is not expected to change, so air quality impacts would not change. Equipment operation would produce exhaust emissions. Road dust would be controlled by spraying with lignin or other environmentally safe and approved road oil. No crankcase or other waste oil would be used. Pit dust would be controlled by spraying with water from the settling ponds or the water well. The haul road and the parking area around the office and scale would be paved after operations have begun. The operator has applied for an air quality permit to operate the screening plant and associated equipment. This permit would be required before screening plant operations could begin. No more than 250 tons/year of any regulated pollutant could be produced by the screening plant or crushers, which may be brought in to process material. Modeling by the Air and Waste Management Bureau indicates that the PM-10 24-hour average and the PM-10 annual average would be within National Ambient Air Quality Standards. If a crusher were moved onto the site, an air quality permit would be required for it as well as for the screening plant.</p>
<p>4. VEGETATION COVER, QUANTITY AND QUALITY:</p>	<p>[Y] Vegetation on the mine site is tame pasture consisting primarily of introduced species including smooth brome, orchardgrass, and timothy. There are islands of native vegetation which include second and third growth trees. There is no record of rare plants or cover types being present. Because of previous disturbance associated with establishing and using the tame pasture, it is unlikely that there are any rare plant species on the site. Stripping of soil would destroy the existing vegetation. After mining ceases, the disturbed area would be recontoured, topsoiled, and replanted as required by the landowner, with introduced and native grass and legume species.</p>
<p>5. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:</p>	<p>[Y] Wildlife habitat on the site is tame pasture, which is not limited in the area, with islands of native vegetation on which there are areas of second or third growth trees. Habitat would be destroyed for the life of the operation. The habitat, except for the trees and other native vegetation, would be restored after mining ceases and reclamation has been completed.</p>
<p>6. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES:</p>	<p>[N] Based on soil characteristics, a depression just outside of the permit area, has been determined to be a wetland. This wetland would be protected from adjacent mining with a silt fence and would not be dewatered by the operation.</p> <p>While grizzly bears and gray wolves have used the area in the past, continuing subdivision development and other human activities have made the area marginal habitat at best. Bald eagles occur in the Flathead Valley, but this particular site has no good nesting habitat.</p>
<p>7. HISTORICAL AND ARCHAEOLOGICAL SITES:</p>	<p>[N] A cultural resource survey has been done and no resources were found. If any archaeological or historic resources are encountered during mining, operations would be routed around the site of discovery and the Department and the State Historic Preservation Office promptly notified.</p>

### IMPACTS ON THE PHYSICAL ENVIRONMENT

<p>8. AESTHETICS:</p>	<p>[Y] The mine site is just east of Highway 35. Land use in the surrounding area is rural residential. There are eight houses within 1,500 feet of the site. The mine site is visible to people living in or traveling through the area. Topsoil would be stockpiled in berms, which would be rounded and seeded with the approved seed mixture, and positioned to reduce views of the pit from the surrounding areas as much as possible. Noise levels would not be expected to increase over the present condition, since the level of mine activity would not increase. Topsoil berms would help absorb and deflect noise generated by equipment.</p>
<p>9. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY:</p>	<p>[Y] No limited resources would be expected to be used. The operator proposes to install a 150-foot-deep ground-water supply well south of the office, outside the permit area, to support various aspects of the operation, including personal needs. The well would be completed in the confined aquifer and is anticipated to yield 35 gallons per minute. Licensing and operation of the proposed well would be regulated by the Department of Natural Resources and Conservation. The operator anticipates pumping the well only during operational hours (8 hours daily). Assuming the proposed well would have a specific capacity equal to or greater than the average specific capacity of domestic wells in the immediate vicinity to the site, associated drawdown outside the permit area at the nearest domestic well (about 700 feet away) should be less than 5 feet. This estimate was derived using the Theis method to solve for drawdown in a confined aquifer.</p>
<p>10. IMPACTS ON OTHER ENVIRONMENTAL RESOURCES:</p>	<p style="text-align: center;">[N]</p>

### IMPACTS ON THE HUMAN POPULATION

<p>11. HUMAN HEALTH AND SAFETY: Will this project add to health and safety risks in the area?</p>	<p>[N] About 30 trucks per day would operate during periods of hauling activity, not significantly different from the present situation. Access would be from the highway instead of Lindsey Lane. The new access has an easier grade and better visibility and would relieve traffic on Lindsey Lane. Air pollutants would be kept to a minimum through limitations on the duration of activity and the use of best available control technology as described in part 3 above. There is a natural gas pipeline traversing the site from north to south. This pipeline will be marked with steel fence posts every 100 feet and no mining or related activities will occur within 12 feet of the pipeline centerline.</p>
<p>12. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION:</p>	<p>[N] 24.9 acres will be temporarily removed from pastureland, but will revert to that use in 10 years unless developed to homesites.</p>
<p>13. QUANTITY AND DISTRIBUTION OF EMPLOYMENT: Will the project create, move or eliminate jobs? If so, estimated number.</p>	<p>[N]</p>

## IMPACTS ON THE HUMAN POPULATION

<p>14. LOCAL AND STATE TAX BASE AND TAX REVENUES: Will the project create or eliminate tax revenue?</p>	<p>[N] A third-party property appraisal was performed to USPAP standards. The appraisal indicates that there would be no change in the market values of surrounding real property. See Attachment A for a summary of the results.</p>
<p>15. DEMAND FOR GOVERNMENT SERVICES: Will substantial traffic be added to existing roads? Will other services (fire protection, police, schools, etc.) be needed?</p>	<p>[N]</p>
<p>16. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS: Are there State, County, City, USFS, BLM, Tribal, etc. zoning or management plans in effect?</p>	<p>[N] Zoning clearance has been obtained. The area is not presently zoned by the county. A proposal that could result in rural residential zoning for the area is under consideration by the Flathead County Commission. At this time, the County Commissioners are expecting to take action in late March. If approved, zoning would probably take effect in May.</p>
<p>17. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES: Are wilderness or recreational areas nearby or accessed through this tract? Is there recreational potential within the tract?</p>	<p>[N]</p>
<p>18. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING: Will the project add to the population and require additional housing?</p>	<p>[N]</p>
<p>19. SOCIAL STRUCTURES AND MORES: Is some disruption of native or traditional lifestyles or communities possible?</p>	<p>[N]</p>
<p>20. CULTURAL UNIQUENESS AND DIVERSITY: Will the action cause a shift in some unique quality of the area?</p>	<p>[N]</p>
<p>21. PRIVATE PROPERTY IMPACTS: Are we regulating the use of private property under a regulatory statute adopted pursuant to the police power of the state? (Property management, grants of financial assistance, and the exercise of the power of eminent domain are not within this category.) If so, no further analysis is required.</p>	<p>[Y] The proposed gravel mine would be regulated under the Opencut Mining Act (Title 82, Chapter 4, Part 4, MCA). Therefore, no further analysis is required.</p>
<p>22. PRIVATE PROPERTY IMPACTS: Does the proposed regulatory action restrict the use of the regulated person's private property? If not, no further analysis is required.</p>	<p>[N]</p>

**IMPACTS ON THE HUMAN POPULATION**

**23. PRIVATE PROPERTY IMPACTS:**  
Does the agency have legal discretion to impose or not impose the proposed restriction or discretion as to how the restriction will be imposed? If not, no further analysis is required. If so, the agency must determine if there are alternatives that would reduce, minimize or eliminate the restriction on the use of private property, and analyze such alternatives.

[N/A]

**24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:**

[N]

**25. ALTERNATIVES CONSIDERED:**

No Action: The proposed mine expansion would not be permitted. When mining under the present permit is completed, the pit would be reclaimed, and the operator would have to forgo further development of and income from the gravel resource he controls through agreement with the landowners. The applicant could apply again in the future.

Approval: The gravel mine operation would be expanded as described above.

Approval with modification: No unresolved issues have been identified which would require modification of the proposal at this time.

**26. PUBLIC INVOLVEMENT:** A scoping meeting on a previous proposal, since withdrawn, when meeting with the local home owners group helped to define the scope of analysis for this EA. The availability of this EA was advertised in the Bigfork Eagle and Kalispell Daily Inter Lake newspapers. Copies were sent to interested parties for public review and comment. A public meeting will be held at 7:00pm on March 26 at the Creston Grange Hall.

**27. OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION:** Montana Department of Environmental Quality for Air Quality Permit (application has been made and an environmental assessment has been prepared); Mine Safety and Health Administration for safety permit; Montana Department of Labor & Industry, Bureau of Safety for safety permit; Montana Department of Natural Resources and Conservation for the water right for the water well. The State Fire Marshal's Office was consulted regarding proper fuel storage and handling.

**28. MAGNITUDE AND SIGNIFICANCE OF POTENTIAL IMPACTS:** No significant impacts associated with the proposed expansion are anticipated. Impacts are unlikely to be significant because the increase in acreage will not require an increase in equipment or activity.

**29. CUMULATIVE EFFECTS:** Past gravel mine disturbance immediately east of the permit area will be reclaimed in the near future. The expansion being considered for the presently permitted operation would temporarily add to the existing disturbance of wildlife, wildlife habitat, and aesthetics in addition to that caused by rural residential development, roads and traffic, and other human activities. Up to 24.9 additional acres, used for livestock grazing would not be able to support livestock for up to 10 years, however, there is very limited use occurring now. There would be very little impact to recreationists who would use the Flathead National Forest and the Swan Range as Lindsey Lane does not provide the primary public access. Reclamation would be concurrent with mining and when none of the disturbed areas are no longer used for mining related activities and the site would be totally reclaimed when mining ceases. The other forms of disturbance will remain and are likely to increase in the future as more people move into the area, and the land is further subdivided.

**Recommendation for Further Environmental Analysis:**

EIS     More Detailed EA     No Further Analysis

**EA Checklist Prepared By:** Greg Hallsten, Permitting & Compliance Division, and Dan Erbes and Jerry Burke, Industrial & Energy Minerals Bureau

**Approved By:** Steve Welch, Chief, Industrial & Energy Minerals Bureau

  
\_\_\_\_\_  
Signature

  
\_\_\_\_\_  
Date

**PLAN OF OPERATION**  
**Including The**  
**Mining And Reclamation Plan**  
**" Clouse SITE"**

**Section I - Pre-mining Conditions**

**1. Site location and topography:**

Hwy 35, Mile Post 39. Rolling hills, some timber, grass land within and surrounding the site.

**2. Present land use and past mining disturbance:**

Presently being mined on 9 acres, the balance of the area is idle grazing pasture. The property adjoining the pit is rural residential some timber, pasture, and a gravel pit.

**3. Estimated depth to the seasonal high and low water table (give information sources) and proposed depth of mining:**

Water has been in a stock pond located on property Survey site # 1022, site # 1025, #1030, # 1053, and # 1054 (Refer to contract map Exhibit #1). We have never seen standing water in site # 1055 location, other than from spring run off. The tables as described in MBMG (Exhibit #3) shows a 6' - 10' rise and fall in the water table. High water seems to average regionally in June- July, and low water averages regionally in November - December of each year. We can also safely say the flow of the water is to the West, towards the Flathead River.

On January 11, 1998 there was water observed at an elevation of 2945' M.S.L. in a test pit near the existing highwall, assuming high ground water can fluctuate 10' high, groundwater is estimated at 2955' M.S.L.

Some areas of the site may have unmarketable material and it will be left in place, this will leave some of the site at elevations greater than 2958' M.S.L. Some areas of the site are naturally below 2958' M.S.L. and will be left unmined.

**4. Locations, descriptions, and uses of marshes, ponds, lakes, ditches, springs, streams, rivers, and other surface water features in and within 1,000' of the proposed site:**

There are three ponds to the south of the pit across Gregg Lane. There is one hole dug for stock watering that has water in it, it is located within the property of the pit. There is a spring West of the highway, across from the pit. There is a low area East of Eby's home that holds water during the spring season. West of Pitzens house is capable of being considered a wetland area. (Exhibit #1)

**5. Locations, water levels, total depths, and uses of water wells in and within 1,000' of the proposed site (give information sources):**

(Exhibit #4 - Well logs)

**6. Descriptions and thicknesses of soil and overburden to be disturbed (include test hole data if available):**

(See Exhibit #6 - test hole data)

**7. Dominant vegetation:**

Pasture areas contain introduced species including smooth brome, orchard grass and timothy.  
Timbered areas contain Douglas fir, Western larch, with pinegrass, Oregon grape and kinnikinick.

**8. Use by wildlife:**

Some deer and signs that elk have passed through.

**9. Other useful information:**

**Section II - Mining And Reclamation Plan****1. POST-MINING LAND USE: State the proposed post-mining land use of the site:**

Pasture and possible location for homes.

**2. SOIL AND OVERBURDEN SALVAGE: All available soil will be stripped from, and a buffer of at least 10 feet will be stripped ahead of, any area to be mined, excavated, graded, or used as a permanent mineral or overburden disposal site. At least 6 inches of soil, if available, will be stripped from all soil, overburden, and mineral stockpile areas, processing facility areas, staging areas, improved, expanded, and new access, haul, and support road locations that will be graded or surfaced, and any other areas to be disturbed. Soil will be handled separately from overburden and either hauled directly to graded or prepared areas or stockpiled where it will not be disturbed, contaminated, or lost to erosion. Soil and overburden stockpiles that will remain for more than 1 year will be shaped and seeded to the approved mix. All soil will remain on site and available until the approved post-mining land use is assured. Describe the proposed methods and depths of soil and overburden salvage on the various areas to be disturbed:**

- a. 12" of topsoil will be stripped by using a loader or dozer.
- b. Generally 12" of soil exists on site, however there are areas where the soil depth may be more or less. If greater depths of soil are encountered, all that are available will be salvaged and separated from overburden and stock piled in appropriate areas. Salvage and stockpiling will be done with a dozer and/or front end loader.
- c. All soil stockpiles will be seeded at the first available season (between October 15 and May 15 of each year. Overburden varies from 0"-approximately 24", over approximately 15% of the pit area.

**Phase 1** - No overburden to salvage except in the location of hole #10 on map B, shows signs of clay layer over the gravel. This will be mined and sold as product.

**Phase 2** - Indications of clay over burden around hole #12 on map B. This will also be mined and sold as a product.

**Phase 3** - Indications show there is some overburden in the area of hole #14 on map B, this will also be mined and sold as product.

**Phase 4** - Any overburden will be used as product, averages approximately 12" soil.

**3. ROAD CONSTRUCTION: All access, haul, and support roads will be located, constructed, and maintained in a manner that controls and minimizes erosion. Describe any planned road improvement and new construction including location, length, width, drainage, crossings, surfacing, and erosion control, and any road portions proposed to remain open after the operation is completed, their intended use, and the condition in which they will be left (contact the Department if you need road design, construction, and maintenance guidelines):**

Existing haul roads will be used. The haul road south from Lindsey Lane will be mined out in Phase I and not replaced.

**4. WATER MANAGEMENT: Describe any proposed sediment control and water containment structures, water treatment systems, drainage systems, diversions, berms, and other sediment and water control methods (include diagrams, cross-sections, and maps, as appropriate; sediment pond and drainage system designs are available on request):**

Settling ponds will be built using overburden material to form berms, there will be no ponds built with the bottom any closer than 3' from high water which is approximately 2958' mean sea level elevation. Ponds will be approximately 40' wide at the bottom and 50' at the top, they will be 150' long (Exhibit #7).

When we begin mining near Pitzen's "wetland area" we will install a silt fence around the entire area to prevent sediments from entering the area.

**5. WATER PROTECTION: Surface and groundwater will be given appropriate protection from deterioration of water quality and quantity that could be caused by mining and reclamation activities. Any bulk fuel storage tanks will be bermed and lined to minimum Department specifications (see Fuel Storage Containment schematic). Any spilled or contaminated materials will be properly disposed of. Excavations will be kept at least 50 feet from the channel of an ephemeral or intermittent drainage, and 100 feet from the channel of a perennial drainage, unless otherwise specified below (guidelines that discuss operating in or near streams, wetlands, and flood plains are available on request). Describe any possible effects on surface and groundwater quantity, quality, systems, and structures, and any proposed measures to prevent, mitigate, or monitor these effects:**

We will not mine closer than 3' above the estimated ground water level (2958' M.S.L.), and all fuel will be contained as directed (Exhibit #8). Any petroleum product spills will be immediately cleaned up and properly disposed of.

All reasonable precautions will be taken to prevent spills, leaks, and over flows during fueling process.

We will have 3 observation wells to monitor the rise and fall of ground water, they will be located at test hole #1028 - 300' NW of office, #1053 - 20' W of Pitzen's wetland, and one to be on the floor of present pit site point 1010. A log will be kept on water levels of all wells, the data will be taken on the 1st day of each month (Exhibit #1 & 2).

A domestic sized water well will be installed near the office facility, off of the contracted area, described further in paragraph E of the outline in Section IV.

Any cleaning of equipment that will involve release of hydrocarbons or the use of solvents will take place on a lined and bermed area, of sufficient size and depth to contain any of the contaminates.

**6. MINERAL STOCKPILES: Excess minerals left on site will be consolidated into stockpiles of similar grade and type and left as near as possible to a site access point. All oversize and fines will be buried in an approved fill or on the pit floor, unless otherwise specified below (non toxic fines may be used as plant growth medium; see #9 (b) below). Any fines stockpiles remaining will be shaped to a natural appearance with slopes of 4:1 or less. For future reclamation by the applicant, landowner, or another party, an appropriate amount of soil will be left stockpiled, shaped, and seeded next to each mineral stockpile that remains. Additional information:**

None.

**7. WASTE DISPOSAL: Only clean fill such as soil, dirt, sand, gravel, rock, non-painted brick, rebar-free concrete, and asphaltic pavement generated on site by this operation will be disposed of on site. Other wastes will only be disposed of on site if an appropriate solid waste management system license is obtained from the Department of Environmental Quality. If asphaltic pavement is disposed of on site, a separation of at least 25 feet will be maintained between the waste and the seasonally high groundwater table, unless otherwise approved by the Department. Road, work, and stockpile area surface materials (e.g., gravel) will be retrieved and properly disposed of or stockpiled. All wastes not conducive to plant growth will be covered with fine gravel, fines, and/or overburden, then topsoil for a total cover depth of 3 feet. Wastes will be placed where they will not interfere with future mining operations. Oversize, fines, and excess overburden will not be disposed of on sideslopes or in drainages, unless otherwise specified below. Wastes will be disposed of in a manner that will not cause water pollution or other adverse effects. Describe the proposed methods and sites for clean fill, asphaltic pavement, oversize, fines, excess overburden, and road, work, and stockpile area surface materials disposal:**

Oversize, fines, and stockpile area surface materials will be placed at the toe of slope of the pit face and buried under the 3:1 slopes when pit is reclaimed. There will be no asphalt buried, all waste will be disposed of at a licensed disposal site.

**8. GRADING: Unless otherwise specified below, all surfaces will be left at least 3 feet above the highest seasonal water table, graded to conform to the surrounding topography and drainages, graded to 3:1 or flatter (4:1 or flatter for sand, 5:1 or flatter for hayland and farmland), and graded to drain or concentrate water in specific areas. Describe the planned post-mining topography, backfilling and**

**grading methods proposed to achieve this landscape, any pond design (see Pond Guideline), and any pit portion to stay open (quarter-acre maximum allowed; include a written landowner request to leave any pit portion open):**

Mined area will slope North to South and East to West, backfilling and regrading will be done with a dozer, loader and grader.

**9. STRIPPING, OVERBURDEN AND SOIL REPLACEMENT, AND REVEGETATION: Describe the proposed:**

(a) **Methods and depths of ripping road, facility and stockpile areas, and other compacted surfaces:**

Roads, work areas, stockpile and other compacted surface areas will be ripped 12" with dozer, grader, or loader bucket teeth. Topsoil will be replaced with loader or dozer.

(b) **Depths of overburden and soil replacement on mined, excavated, and graded areas, and of soil replacement on all other disturbed areas (if available, areas that will be reclaimed to dryland range or hayland will receive 18 inches or more of overburden and soil, and areas to be reclaimed to irrigated pasture or farmland will receive 36 inches or more of overburden and soil):**

All available soil will be evenly replaced up to a depth of 12" with a dozer and/or front end loader, a grader with a ripper attachment will break up and loosen the soils. All overburden will be sold as a product.

(c) **Methods, types, rates, and timing of fertilizer or other amendment application:**

None.

(d) **Methods of seedbed preparation (rock greater than 5 inches will be removed from hayland and farmland):**

Seed bed will be prepped by disc, or by grader with ripper attachment or loader bucket teeth.

(e) **Methods, species, rates, and time periods for seeding or planting all affected areas:**

See DEQ guidelines (Exhibit #9).

(f) **Mulch application:**

None.

**10. ROAD RECLAMATION: Upon road location downsizing or abandonment, all road surfacing materials will be retrieved and properly disposed of or stockpiled, and the road location graded to conform to the surrounding topography and drainages, then ripped, topsoiled, and seeded.**

**Additional information:**

None

**11. SITE PROTECTION AND MANAGEMENT: Adequate site protection and management measures will be implemented from the time of seeding or planting through one complete growing season for cropland and two complete growing seasons for grassland, or until reclamation success is achieved, whichever is longer. If it becomes apparent that these measures are inadequate, additional measures will be implemented or the Department will be notified of any site protection or management problems. Describe the proposed methods to be used or arrangements made with the landowner for the protection and management of reclaimed areas from human or animal disturbance:**

The site is mostly fenced at this time, we will maintain and repair the existing fence and lock the gate if it becomes necessary. No livestock for 2 years following reclamation.

**12. WEED CONTROL: All seed will be weed free and noxious weeds will be controlled as specified in the respective district weed management plan until the site is released. Please contact the District Weed Supervisor prior to any surface disturbance and describe any proposed weed control measures: All finished slopes and topsoil stockpiles that will remain for more than one year will be seeded at the first opportunity with certified weed free seed utilizing the above mix and application rates to prevent noxious weeds. The County Weed Board will be contacted and a plan will be implemented to control weeds.**

Land owner has weed spraying equipment and we will use said equipment as we have in the past.

**13. CONCURRENT AND FINAL RECLAMATION: Reclamation will be concurrent with mining and all reclamation work will be completed within 1 year after the cessation of mining or related activities. Give the estimated completion date of the final reclamation of all affected areas:**

Fall of 2008.

**14. RECLAMATION COSTS: Provide a general breakdown of the estimated per-acre costs to reclaim the proposed mine and facility level disturbances including equipment, labor, and material costs, and give the estimated total cost to reclaim the entire affected area (government entities put "N/A"; the Bond Level Recommendations approach may be used; it is recommended that an operator verify the bond amount with the Department before processing the bond):**

See Exhibit #10.

**15. ROAD AND BOUNDARY MARKERS: The center lines of all new or to be improved access, haul, and support road locations will be temporarily marked, and the boundary of the main contract area permanently marked, before contract application is made. These markers will be placed within sight of one another and at every corner and bend in road or boundary. Describe the methods and materials used to mark the proposed roadways and main contract area:**

Existing roads within the site will be used, property corners of the permit will be marked by fence posts and will be permanently marked with flagging.

**Section III - Wildfire Prevention, Archaeological And Historical Value Protection, Annual Reports, And Field Personnel and Subcontractors**

- 1. Proper care will be taken to prevent wildfires;**
- 2. Archaeological and historical values in the affected area will be given appropriate protection. Should a significant archaeological or historical value be found, the operation will be routed around the site of discovery for a reasonable time until salvage can be made. The State Historic Preservation Office will be promptly notified;**
- 3. The Annual Progress Report requirements of ARM 26.4.206 will be complied with; and**
- 4. All on-site personnel, including subcontractors, involved in activities affected by this plan will be familiar with the specifics of the plan.**

**Section IV - Additional Information (refer to the appropriate subsections and attach other information as necessary)**

There will be three observation wells constructed in the following manner: A pvc pipe 15' long, 4" in diameter, with the lower 5' of the pipe slotted will be inserted into a 13' deep excavated test hole. Clean gravel will be placed around the pipe for a depth of 7' and the remainder of the hole will be covered with material dug from the trench, and the upper 3' of the hole will be covered with

3' of compacted clayey material. This will prevent surface water from percolating down and giving false readings of the groundwater depth. A cap will be placed on the pipe, this will provide a place to monitor the ground water and to provide additional history for groundwater elevations. A person licensed by the State of Montana will be on hand to verify proper installation. The observation wells will be installed as per State Law.

## OUTLINE OF CRESTON SAND & GRAVEL

### PLAN OF OPERATIONS

#### A) Equipment that will be operated

- 1) Gravel Washing & Screening Equipment
- 2) Gravel Crushing
- 3) Concrete Batch Plant
- 4) Pug Mill
  - a) Pug mills mix gravel with water and they can also mix gravel with emulsified asphalt to make cold mix.
- 5) Most of the above equipment will be portable, as they will be moved to other job sites, as well as used at out site.
- 6) Equipment will operate as needed for producing whatever material needs we have throughout the year.

#### B) Fuel & Material Handling, Settling Ponds

- 1) Mining and processing equipment will operate and be parked anywhere inside the permit area as needed for mining. Vehicles designed for fuel storage or refueling will operate anywhere within the permit but will be parked inside a lined and bermed fuel storage area as shown on the map when not being used for fueling.
- 2) All bulk fuel storage containers will be placed in a bermed and lined area (Exhibit # 8), there will be no set limit on size of storage container.
- 3) Silt from the wash plant will be used for back fill for reclamation, or may be sold as fill.
- 4) Wash plant settling ponds will be dug 40' wide, 150' long and 10' deep. There will be two ponds for the wash plant. Effluent will overflow from one pond to another such that the end pond will contain few solids and the decanted water will be available for recycling use. Only naturally occurring solids such as sand, silt and clay found in the gravel will be contained in the ponds. The ponds will seal themselves from percolation into the ground by the fines which settle out from the water.
- 5) See Exhibit #1 for location of observation wells.

#### C) Equipment and Equipment placement for operation within the pit.

- 1) All equipment that operates within our operation that requires an Air Quality or any other permit will not be allowed to operate until the time all requirements by law are satisfied.
- 2) Equipment Placement will vary as equipment is portable and will be placed to close proximity of the products as needed to use in making whatever by product we are producing.

#### D) Pit Operation

- 1) Our Entrance and Exit to the pit will change from Lindsey Lane entrance to the road that was used during the Highway Construction project. This will alleviate pressure on Lindsey Lane and it will be safer as the grade to the highway is less, and it has better visibility.
- 2) Dust control - the haul road will be oiled using lignin or other environmentally safe and approved road oil. No crankcase or other waste oil will be used. As soon as we can it will be paved, as well as the parking area around the office building and scale. Pit dust control will be done by using water.
- 3) Truck Traffic - will probably average around thirty (30) trucks a day, but there is the possibility that there may be more at times.

#### E) Water Consumption

- 1) We intend to drill a well near our office. The well will be dug approximately 150' deep, and will have 8" casing, and will be rated at a delivery rate of a maximum of 35 gallons per minute, pumping water into a storage tank or pond.
- 2) We will use water for our office, wash plant, concrete plant, pug mill, crusher, and for dust control.

**F) Plan for Mining Operations**

- 1) Our plan is to mine from our present site North to Lindsey Lane, between our office and Arndt's property, then South into Pitzen's property to remove the ridge and day light that is into the level of our existing pit. This will be approximately 5 acres. We will also open up 1 acre on the North side of the haul road to remove sand. This will be phase 1.
- 2) As Phase 1 nears completion we will begin Phase 2, which will move to the ridge South of the office. This location will be part of Pitzen's land South to the land that borders our Southern boundary, and West to Montana Power's gas line, which is also about 5 acres. The Montana Power Gas pipeline right of way is 12' on the centerline and will be marked at approximately 100' centers with steel fence posts to prevent accidental damage. (Exhibit #11)
- 3) Phase 3 will follow the private road on the South of the property, and goes towards the West property line, then turns to the North and goes towards Lindsey Lane (Exhibit #1).
- 4) Phase 4 will be the remainder of the 33<sup>4</sup> acres permitted.  
~~20~~ 3-6-97

**G) Reclamation**

- 1) Topsoil will be stripped as described in the Plan of Operations.
- 2) All topsoil berms will be positioned as shown on the map to block off sight, sound, and visual impacts. The berms will be rounded with 2:1 slopes and planted with grass and sprayed for weeds.
- 3) All back slopes will be reclaimed to a 3' to 1' slopes, and top soil spread out and planted with recommended seed.
- 4) We will reclaim disturbed areas as soon as we possibly can.

I Certify That The Statements And Information Given Apply To The Clouse Site And That This Plan Will Be Followed Unless Officially Modified.

*R. Cecil McKinley*

Signature

*3-6-98*

Date

# ATTACHMENT A

# Appraisal Research Group

Philip J. Rygg, MAI 211 South Main Street Kalispell, MT 59901 (406)752-7000

February 27, 1998

Steve Welch  
State of Montana Department of Environmental Quality  
1520 E. 6th Avenue  
P.O. Box 200901  
Helena, Montana 59620-0901

Dear Mr Welch:

In accordance with our agreement of February 4, 1998, I have prepared and now present the study which was the subject of that agreement. The stated purpose of that agreement was to determine "whether the existence of a gravel pit and gravel crushing operation impacts the value of surrounding real property."

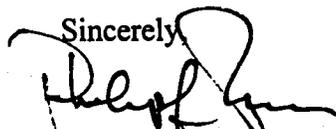
The subject gravel pits are located approximately seven miles north of Bigfork, Montana on the east side of Highway 35.

The attached report includes my research, analysis, and conclusion which are consistent with the terms of our agreement and with the Uniform Standards of Professional Appraisal Practice promulgated by the Appraisal Institute.

Sales of residential properties located within the area of influence --1/2 mile radius of the gravel pits -- from 1994 to the most recent in October, 1997 were compared to the sales of similar properties located in areas outside the influence of a gravel pit. The goal was to determine whether a price differential between an influenced property and an uninfluenced property could be detected and attributed to the influence of the gravel pits.

As a result my investigation of the properties and analysis of the information gathered, and subject to the assumptions and limiting conditions stated in the report, it is my opinion as of February 15, 1998, that the subject gravel pits had not adversely affected the value of the surrounding real property. If the gravel pit activity reverts to the operational level of 1994 through 1996 (prior to the summer of 1997), there is no market evidence to suggest that property values will be affected in the future.

Sincerely,



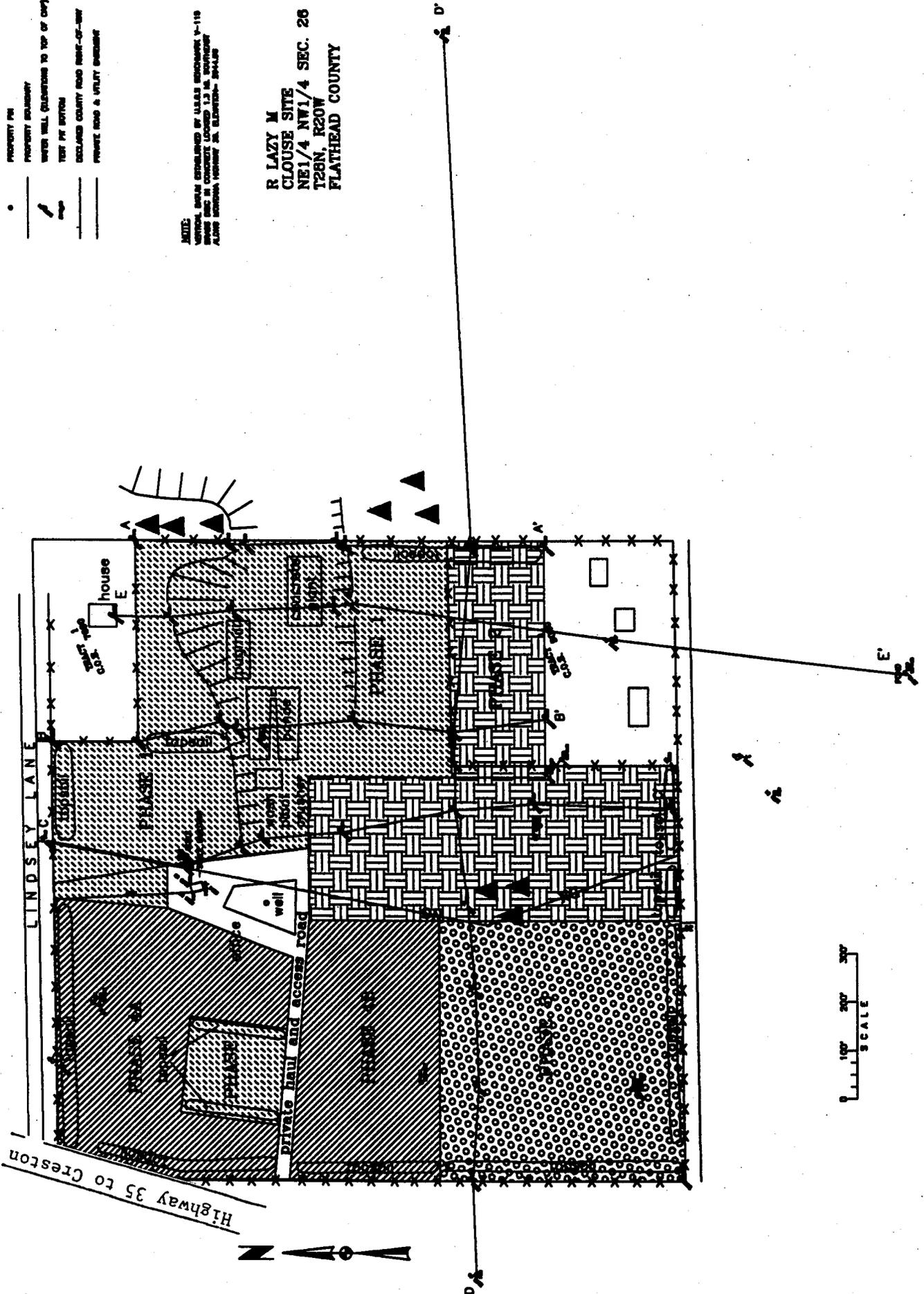
Philip J. Rygg, MAI

**LEGEND**

- PROPERTY PIN
- PROPERTY BOUNDARY
- WITH WELL (REFERENCE TO TOP OF CURB)
- TEST PIT BOTTOM
- DECLARED COUNTY ROAD RIGHT-OF-WAY
- PRIVATE ROAD & UTILITY EXCERPT

**NOTE:**  
 VERTICAL DATA OBTAINED BY UTILITY RECORDS 9-118  
 WHICH ARE IN CONCRETE LOCATED 1.3 M. DISTANCE  
 ALONG SOUTHWEST CORNER OF SECTION 26-1-18

**R LAZY M  
 CLOUSE SITE  
 NE1/4 NW1/4 SEC. 26  
 T28N, R20W  
 FLATHEAD COUNTY**



MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY  
PERMITTING & COMPLIANCE DIVISION  
INDUSTRIAL & ENERGY MINERALS BUREAU  
PO BOX 200901  
HELENA MT 59620-0901  
PHONE: 406 444-4970 FAX: 406 444-1923

### ZONING COMPLIANCE FORM FOR OPENCUT SAND & GRAVEL MINING

For Compliance With Local Zoning Regulations  
Title 76, Chapter 2, And Title 84, Chapter 4

This document must be signed by an appropriate city/county government representative and accompany an application for a Mined Land Reclamation Contract involving sand and gravel mining.

I/We, hereby declare that PLAZA MEAT, Inc DBA <sup>CRESTON SAND & GRAVEL</sup> (applicant) has notified me/us that Applicant is proposing to conduct opencut mining sand and gravel operations in the NE 1/4 NW 1/4, Section 26, Township 28 N/S, Range 20 E/W, Flathead County. The proposed operation complies with FLATHEAD

County/City's approved zoning regulations. THERE IS NO ZONING IN PLACE AT THIS TIME.

  
\_\_\_\_\_  
Signature of County/City Official

3-9-98

\_\_\_\_\_  
Date

DIRECTOR

\_\_\_\_\_  
Title

PLAN OF OPERATION  
Including The  
Mining And Reclamation Plan  
" Clouse SITE"

RECEIVED

MAR 04 1998

ENVIRONMENTAL  
QUALITY COUNCIL

Section I - Pre-mining Conditions

**1. Site location and topography:**

Hwy 35, Mile Post 39. Rolling hills, some timber, grass land within and surrounding the site. No live streams on or near streams.

**2. Present land use and past mining disturbance:**

Presently being mined on 9 acres, the balance of the area is idle grazing pasture. The property adjoining the pit is rural residential some timber, pasture, and a gravel pit.

**3. Estimated depth to the seasonal high and low water table (give information sources) and proposed depth of mining:**

Water has been in a stock pond located on property Survey site # 1022, site # 1025, #1030, # 1053, and # 1054 (Refer to contrast map Exhibit #1). We have never seen standing water in site # 1055 location, other than from spring run off. The tables as described in MBMG (Exhibit #3) shows a 6' - 10' rise and fall in the water table. High water seems to average regionally in June- July, and low water averages regionally in November - December of each year. We can also safely say the flow of the water is to the West, towards the Flathead River.

**4. Locations, descriptions, and uses of marshes, ponds, lakes, ditches, springs, streams, rivers, and other surface water features in and within 1,000' of the proposed site:**

There are three ponds to the south of the pit across Gregg Lane. There is one hole dug for stock watering that has water in it, it is located within the property of the pit. There is a spring West of the highway, across from the pit. There is a low area East of Eby's home that holds water during the spring season. West of Pitzens house is capable of being considered a wetland area. (Exhibit #1)

**5. Locations, water levels, total depths, and uses of water wells in and within 1,000' of the proposed site (give information sources):**

(Exhibit #4 - Well logs)

**6. Descriptions and thicknesses of soil and overburden to be disturbed (include test hole data if available):**

An average 12" of sandy clay loam topsoil over the proposed area, the depth of sandy clay silty overburden varies 0-24" on 15% of the area. (Exhibit #5 - test hole data)

**7. Dominant vegetation:**

Pasture areas contain introduced species including smooth brome, orchard grass and timothy.  
Timbered areas contain Douglas fir, Western larch, with pinegrass, Oregon grape and kinnikinnick.

**8. Use by wildlife:**

Some deer and signs that elk have passed through.

**9. Other useful information:**

## Section II - Mining And Reclamation Plan

### 1. POST-MINING LAND USE: State the proposed post-mining land use of the site:

Pasture and possible location for homes.

### 2. SOIL AND OVERBURDEN SALVAGE: All available soil will be stripped from, and a buffer of at least 10 feet will be stripped ahead of, any area to be mined, excavated, graded, or used as a permanent mineral or overburden disposal site. At least 6 inches of soil, if available, will be stripped from all soil, overburden, and mineral stockpile areas, processing facility areas, staging areas, improved, expanded, and new access, haul, and support road locations that will be graded or surfaced, and any other areas to be disturbed. Soil will be handled separately from overburden and either hauled directly to graded or prepared areas or stockpiled where it will not be disturbed, contaminated, or lost to erosion. Soil and overburden stockpiles that will remain for more than 1 year will be shaped and seeded to the approved mix. All soil will remain on site and available until the approved post-mining land use is assured. Describe the proposed methods and depths of soil and overburden salvage on the various areas to be disturbed:

a. 12" of topsoil will be stripped by using a loader or dozer.

b. All overburden piles will be pushed into berms next to topsoil berms.

Only about 12" of overburden, if available will be stock piled. If we encounter more than 12", I will probably use the excess for highwall reduction and reclamation in other areas of the pit. Same equipment will be used as for stripping topsoil.

c. All soil and overburden stockpiles will be seeded at the first available season (between October 15 and May 15 of each year. Overburden varies from 0"-approximately 24", over approximately 15% of the pit area.

### 3. ROAD CONSTRUCTION: All access, haul, and support roads will be located, constructed, and maintained in a manner that controls and minimizes erosion. Describe any planned road improvement and new construction including location, length, width, drainage, crossings, surfacing, and erosion control, and any road portions proposed to remain open after the operation is completed, their intended use, and the condition in which they will be left (contact the Department if you need road design, construction, and maintenance guidelines):

Existing haul roads will be used.

### 4. WATER MANAGEMENT: Describe any proposed sediment control and water containment structures, water treatment systems, drainage systems, diversions, berms, and other sediment and water control methods (include diagrams, cross-sections, and maps, as appropriate; sediment pond and drainage system designs are available on request):

Settling ponds will be built using overburden material to form berms, there will be no ponds built with the bottom any closer than 3' from high water which is approximately 2955' mean sea level elevation (Exhibit #10). Ponds will be approximately 40' wide at the bottom and 50' at the top, they will be 150' long (Exhibit #6).

When we begin mining near Pitzen's "wetland area" we will install a silt fence around the entire area to prevent sediments from entering the area.

We will have 3 observation wells to monitor the rise and fall of ground water, they will be located at test hole #1028 - 300' NW of office, #1053 - 20' W of Pitzen's wetland, and one to be on the floor of present pit site point 1010. A log will be kept on water levels of all wells, the data will be taken on the 1st day of each month (Exhibit #1 & 2).

### 5. WATER PROTECTION: Surface and groundwater will be given appropriate protection from deterioration of water quality and quantity that could be caused by mining and reclamation activities. Any bulk fuel storage tanks will be bermed and lined to minimum Department specifications (see Fuel Storage Containment schematic). Any spilled or contaminated materials will be properly disposed of. Excavations will be kept at least 50 feet from the channel of an ephemeral or intermittent drainage, and 100 feet from the channel of a perennial drainage, unless otherwise specified below (guidelines that discuss operating in or near streams, wetlands, and flood plains are

available on request). Describe any possible effects on surface and groundwater quantity, quality, systems, and structures, and any proposed measures to prevent, mitigate, or monitor these effects:

We will not mine closer than 3' from ground water, and all fuel will be contained as directed (Exhibit #7).

6. MINERAL STOCKPILES: Excess minerals left on site will be consolidated into stockpiles of similar grade and type and left as near as possible to a site access point. All oversize and fines will be buried in an approved fill or on the pit floor, unless otherwise specified below (non toxic fines may be used as plant growth medium; see #9 (b) below). Any fines stockpiles remaining will be shaped to a natural appearance with slopes of 4:1 or less. For future reclamation by the applicant, landowner, or another party, an appropriate amount of soil will be left stockpiled, shaped, and seeded next to each mineral stockpile that remains. Additional information:

None.

7. WASTE DISPOSAL: Only clean fill such as soil, dirt, sand, gravel, rock, non-painted brick, rebar-free concrete, and asphaltic pavement generated on site by this operation will be disposed of on site. Other wastes will only be disposed of on site if an appropriate solid waste management system license is obtained from the Department of Environmental Quality. If asphaltic pavement is disposed of on site, a separation of at least 25 feet will be maintained between the waste and the seasonally high groundwater table, unless otherwise approved by the Department. Road, work, and stockpile area surface materials (e.g., gravel) will be retrieved and properly disposed of or stockpiled. All wastes not conducive to plant growth will be covered with fine gravel, fines, and/or overburden, then topsoil for a total cover depth of 3 feet. Wastes will be placed where they will not interfere with future mining operations. Oversize, fines, and excess overburden will not be disposed of on sideslopes or in drainages, unless otherwise specified below. Wastes will be disposed of in a manner that will not cause water pollution or other adverse effects. Describe the proposed methods and sites for clean fill, asphaltic pavement, oversize, fines, excess overburden, and road, work, and stockpile area surface materials disposal:

Oversize, fines, excess overburden, road and stockpile area surface materials will be placed at the toe of slope of the pit face and buried under the 3:1 slopes when pit is reclaimed. There will be no asphalt buried, all waste will be disposed of at a licensed disposal site.

8. GRADING: Unless otherwise specified below, all surfaces will be left at least 3 feet above the highest seasonal water table, graded to conform to the surrounding topography and drainages, graded to 3:1 or flatter (4:1 or flatter for sand, 5:1 or flatter for hayland and farmland), and graded to drain or concentrate water in specific areas. Describe the planned post-mining topography, backfilling and grading methods proposed to achieve this landscape, any pond design (see Pond Guideline), and any pit portion to stay open (quarter-acre maximum allowed; include a written landowner request to leave any pit portion open):

Mined area will slope North to South and East to West, backfilling will be done with a dozer, loader and grader.

9. RIPPING, OVERBURDEN AND SOIL REPLACEMENT, AND REVEGETATION: Describe the proposed:

- (a) Methods and depths of ripping road, facility and stockpile areas, and other compacted surfaces:

Roads, work areas, stockpile and other compacted surface areas will be ripped 12" with dozer, grader, or loader bucket teeth. Topsoil will be replaced with loader or dozer.

- (b) Depths of overburden and soil replacement on mined, excavated, and graded areas, and of soil replacement on all other disturbed areas (if available, areas that will be reclaimed to dryland range or hayland will receive 18 inches or more of overburden and soil, and areas to be reclaimed to irrigated pasture or farmland will receive 36 inches or more of overburden and soil):

Overburden will be placed under the topsoil, approximately 6" of overburden will be replaced throughout the pit area, the amount of overburden will vary as it varies throughout the pit area. There will then be 12" of topsoil placed over the

overburden. This will be done with a loader, dozer, and a disc. A grader with ripper attachment will break up and loosen the soils.

**(c) Methods, types, rates, and timing of fertilizer or other amendment application:**

None.

**(d) Methods of seedbed preparation (rock greater than 5 inches will be removed from hayland and farmland):**

Seed bed will be prepped by disc, or by grader with ripper attachment or loader bucket teeth.

**(e) Methods, species, rates, and time periods for seeding or planting all affected areas:**

See DEQ guidelines (Exhibit #8).

**(f) Mulch application:**

None.

**10. ROAD RECLAMATION: Upon road location downsizing or abandonment, all road surfacing materials will be retrieved and properly disposed of or stockpiled, and the road location graded to conform to the surrounding topography and drainages, then ripped, topsoiled, and seeded.**

**Additional information:**

None

**11. SITE PROTECTION AND MANAGEMENT: Adequate site protection and management measures will be implemented from the time of seeding or planting through one complete growing season for cropland and two complete growing seasons for grassland, or until reclamation success is achieved, whichever is longer. If it becomes apparent that these measures are inadequate, additional measures will be implemented or the Department will be notified of any site protection or management problems. Describe the proposed methods to be used or arrangements made with the landowner for the protection and management of reclaimed areas from human or animal disturbance:**

The site is mostly fenced at this time, we will maintain and repair the existing fence and lock the gate if it becomes necessary. No livestock for 2 years following reclamation.

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Land owner has weed spraying equipment and we will use said equipment as we have in the past.

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Fall of 2008.

**14. RECLAMATION COSTS: Provide a general breakdown of the estimated per-acre costs to reclaim the proposed mine and facility level disturbances including equipment, labor, and material costs, and give the estimated total cost to reclaim the entire affected area (government entities put "N/A"; the Bond Level Recommendations approach may be used; it is recommended that an operator verify the bond amount with the Department before processing the bond):**

Using DEQ calculations of letter dated 12-17-97. The following calculations for bonding is required (Exhibit # 9 ).

Present bond in place	\$62,000.00
Present bond required	28,297.00
add 1.60 acres @ 3595 per acre	<del>5,752.00</del>
22.30 acres for future mining @200.00	4,460.00
<b>TOTAL BOND REQUIRED</b>	<b>38,509.00</b>

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- 3. The Annual Progress Report requirements of ARM 26.4.206 will be complied with; and**
- 4. All on-site personnel, including subcontractors, involved in activities affected by this plan will be familiar with the specifics of the plan.**

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- 2) All bulk fuel storage containers will be placed in a bermed area (Exhibit # 8), there will be no set limit on size of storage container.
- 3) Any material or fuel will be protected by containment systems as required by law.
- 4) Any waste or excess product will be disposed of as required by law.
- 5) Silt from the wash plant will be used for back fill for reclamation, or may be sold as fill.
- 6) Wash plant settling ponds will be dug 40' wide, 150' long and 10' deep. There will be two ponds for the wash plant. Effluent will overflow from one pond to another such that the end pond will contain few solids and the decanted water will be available for recycling use. Only naturally occurring solids such as sand, silt and clay found in the gravel will be contained in the ponds. The ponds will seal themselves from percolation into the ground by the fines which settle out from the water.

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- 2) Equipment Placement will vary as equipment is portable and will be placed to close proximity of the products as needed to use in making whatever by product we are producing.

**D) Pit Operation**

- 1) All terms and conditions will remain the same from the original application with exception of backsloping, we will also extend this permit for 5 years, to the year 2008.
- 2) Our Entrance and Exit to the pit will change from Lindsey Lane entrance to the road that was used during the Highway Construction project. This will alleviate pressure on Lindsey Lane and it will be safer as the grade to the highway is less, and it has better visibility.
- 3) Dust control - the haul road will be oiled using lignin or other environmentally safe and approved road oil. No crankcase or other waste oil will be used. As soon as we can it will be paved, as well as the parking area around the office building and scale. Pit dust control will be done by using water.
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will be rated at a delivery rate of 35 gallons per minute, pumping water into a storage tank or pond.
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**F) Plan for Mining Operations**

- 1) Our plan is to mine from our present site North to Lindsey Lane, between our office and Arndt's property, then South into Pitzen's property to remove the ridge and day light that is into the level of our existing pit. This will be approximately 5 acres. We will also open up 1 acre on the North side of the haul road to remove sand. This will be phase 1.
- 2) As Phase 1 near completion we will move to the ridge South of the office. This location will be part of Pitzen's land South to the land that borders our Southern boundary, and West to Montana Power's gas line, which is also about 5 acres. The Montana Power Gas pipeline right of way is 10' either side of the centerline and will be marked at approximately 100' centers with steel fence posts to prevent accidental damage. The Power Company has agreed that the easement may be used for (haul road, stockpiling material, etc.) but may not be excavated below the original grass level (Exhibit #1).
- 3) Phase 3 will consume the ridge that follows the private road on the South of the property, and goes towards the West property line, then turns to the North and goes towards Lindsey Lane (Exhibit #1).

**G) Reclamation**

- 1) Topsoil will be stripped as described in the Plan of Operations.

- 2) All topsoil berms will be positioned as shown on the map to block off sight, sound, and visual impacts. The berms will be rounded with 2:1 slopes and planted with grass and sprayed for weeds.
- 3) All back slopes will be reclaimed to a 3' to 1' slopes, and top soil spread out and planted with recommended seed.
- 4) We will reclaim disturbed areas as soon as we possibly can.

I Certify That The Statements And Information Given Apply To The Clouse Site And That This Plan Will Be Followed Unless Officially Modified.

R. Cecil McKinley  
Signature

2-3-98  
Date

## **EXHIBIT LIST**

**Exhibit #1 - Main Maps**

**Exhibit #2 - Field Notes**

**Exhibit #3 - Ground Water Level Data**

**Exhibit #4 - Well Log Data**

**Exhibit #5 - Cross Sections**

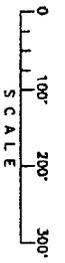
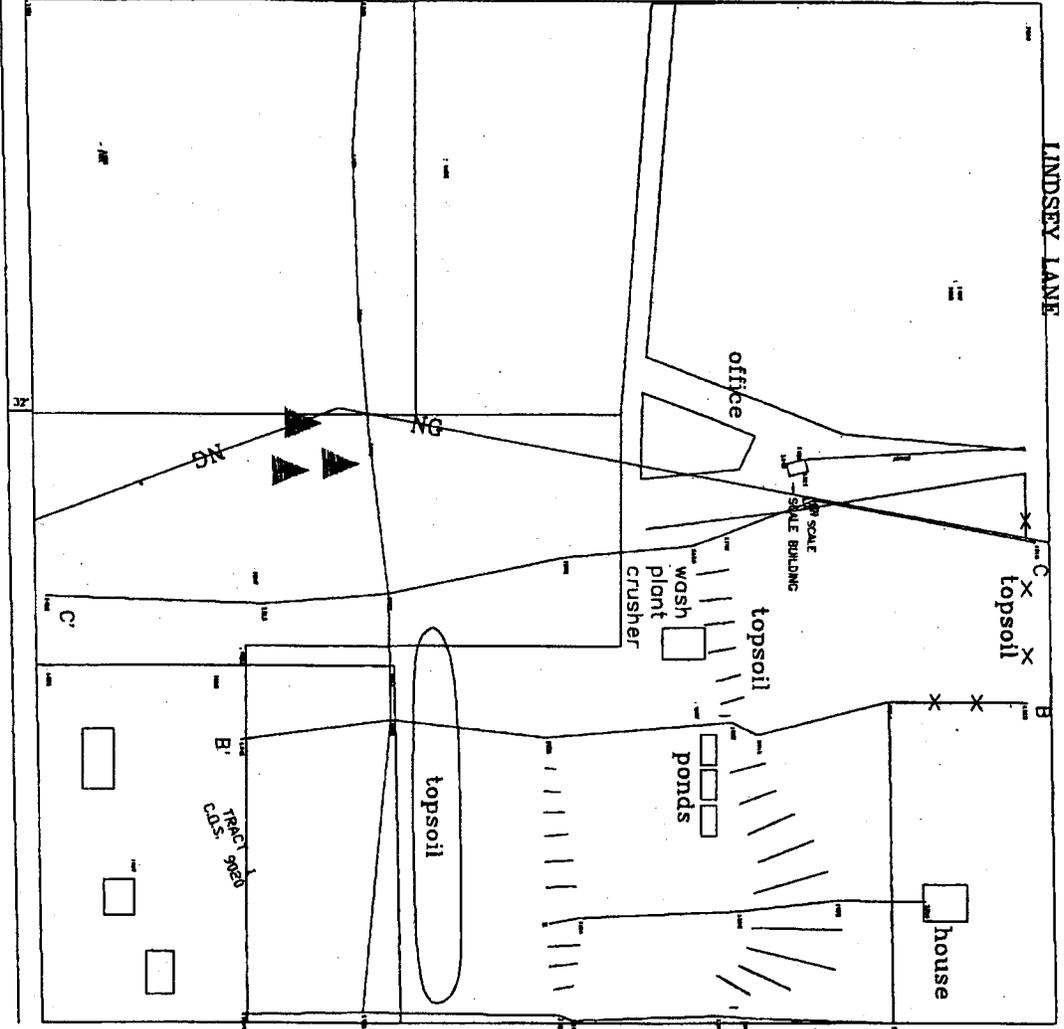
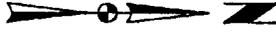
**Exhibit #6 - Test Hole Data**

**Exhibit #7 - Settling Ponds**

**Exhibit #8 - Fuel Storage Diagram**

**Exhibit #9 - Seed Mix Guidelines**

**Exhibit #10 - Reclamation Breakdown**



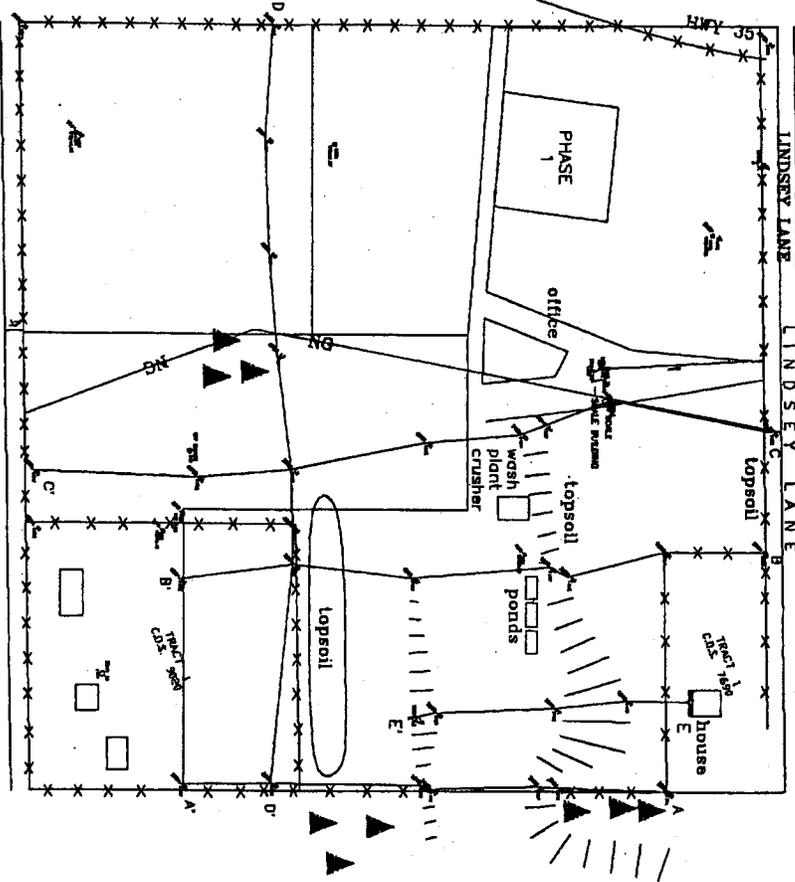
POND

LEGEND

- PROPERTY BOUNDARY
- WATER WELL (ELEVATIONS TO TOP OF CAP)
- TEST PIT BOTTOM
- DECLARED COUNTY ROAD RIGHT-OF-WAY
- PRIVATE ROAD & UTILITY EXPOSURE

NOTE:  
VERTICAL DATUM ESTABLISHED BY U.S.G.S. BENCHMARK V-115  
BRASS DISC IN CONCRETE LOCATED 1.3 MI. SOUTH/EAST  
ALONG MONTANA HIGHWAY 20. ELEVATION— 2944.58'

R LAZY M  
CLOUSE SITE  
NE1/4 NW1/4 SEC. 26  
T28N, R20W  
FLATHEAD COUNTY



**LEGEND**

- PROPERTY LINE
- PERMITS
- WATER MAIN
- SEWER
- TRAIL
- ROAD
- RAILROAD
- UTILITY

NOTE:  
 ALL DISTANCES SHOWN BY THIS SURVEY ARE IN FEET AND INCHES.  
 ALL DISTANCES SHOWN BY THIS SURVEY ARE IN FEET AND INCHES.  
 ALL DISTANCES SHOWN BY THIS SURVEY ARE IN FEET AND INCHES.

R LAZY X  
 CLOUSE SITE  
 NE 1/4 NW 1/4 SEC. 26  
 T28N, R20W  
 PLATHEAD COUNTY

0 100 200 300  
 FEET  
 SCALE

Exhibit #2

Field Notes

RlazyM field notes from survey on 1/27/98 by TD&H  
 Data added from survey notes on 1/13/98 by DEQ

1	5000.000	5000.000	2990.480	PROP PIN
2	4822.270	4999.980	2986.920	PROP PIN
3	4984.567	4322.106	2980.710	CP, edge of road
1000	5000.332	4114.988	2965.064	GS, near NW prop cor, Lindsey Ln
1001	5177.623	4366.111	2985.944	MHW, Eby well top
1002	4140.360	4086.885	2963.424	GS, D Xsec, west end of Xsec, west prop line
1003	4126.858	4284.508	2954.699	GS, D Xsec, pasture
1004	4133.538	4484.124	2955.415	GS, D Xsec, pasture
1005	4148.108	4659.308	2955.166	GS, D Xsec, pasture west of timber
1006	4868.604	5261.882	3011.890	MHW, top well cap on Arndt
1007	4172.049	4859.594	2962.173	GS, C and D Xsec, east side timber ridge
1008	4403.300	4812.586	2961.291	GS, C Xsec, north end timber ridge
1009	4611.743	4782.136	2964.645	GS, C Xsec, top north hwall
1010	4568.221	4797.973	2958.564	GS C Xsec, bottom north hwall
1011	4727.715	4737.967	2966.315	GS, C Xsec, nat gas line near office
1012	5009.813	4791.879	2973.415	GS, C Xsec, north end of Xsec, nat gas line
1013	4993.889	4999.130	2990.001	GS, B XSec, NW prop corner, start of XSec
1014	4821.718	4999.465	2986.800	GS, B XSec, SW prop corner
1015	3997.086	4827.589	2960.581	BH, test hole bottom, dry
1016	4008.657	4872.577	2960.942	GS, C Xsec, south end of timber
1017	4726.511	4735.974	2966.385	TBM, top of scale
1018	4691.304	4690.238	2964.759	BLD, 1st cor
1020	4714.939	4684.217	2964.882	BLD, 2nd cor
1021	4718.812	4700.300	2965.385	BLD, 3rd cor
1022	4246.549	4294.990	2941.671	BH, stock pond water level
1024	3798.535	4275.622	2951.566	GS, test pit ground level

1025	3800.437	4278.140	2940.854	BH, test pit water level
1026	3725.160	4862.387	2973.946	GS, C Xsec, south end of XSec
4	3573.153	4969.544	2974.377	CP, pasture
1027	3513.596	4894.316	2971.014	MHW, Walker well top
1028	4910.285	4450.648	2958.387	GS, swale west of office, ground level
1029	5062.145	3812.238	2919.898	GS, spring, water and ground level
1030	4906.465	4451.061	2949.836	BH, test pit water level, swale west of office
1031	4186.342	6475.210	3063.592	MHW, Schellinger well top
5	4381.914	5290.424	2987.931	CP, E XSec, top of south highwall, end of XSec
1032	4394.230	5408.460	2979.819	GS, A XSec, top of south hwall
1033	4380.193	5045.911	2961.603	GS, B XSec, bottom and end of south hwall
1034	4411.681	5415.595	2968.871	GS, A XSec, bottom of south hwall
1035	4599.009	5409.959	2970.213	GS, A XSec, bottom of north hwall
1036	4421.412	5282.623	2965.234	GS, E XSec, bottom of south hwall
1037	4619.274	5025.701	2960.902	GS, B XSec, bottom of north hwall
1038	4627.236	5274.447	2966.966	GS, E XSec, bottom of north hwall
1039	4754.734	5260.233	2998.691	GS, E XSec, north end of XSec, top of hwall
1040	4653.295	5043.019	2985.983	GS, B XSec, top of north hwall
1041	4825.964	5419.106	3014.630	GS, lot corner, start of A XSec
6	4827.163	5418.908	3015.078	PROP PIN
1042	4633.960	5411.837	2992.880	GS, A XSec, top of north hwall
1043	3236.364	5139.578	2942.195	GS, pond water level
1044	4173.983	4958.287	2956.396	GS, D Xsec, Pitzen prop cor
1045	4174.738	5022.534	2954.426	GS, B and D XSec, on Pitzen prop line
1046	3978.881	5049.831	2951.483	GS, B XSec, end of XSec on Pitzen prop, hillside above wetland
1047	3847.063	5214.945	2961.509	MHW, top of Pitzen well
1048	4136.936	5404.988	2975.994	GS, D XSec, east end of XSec

1049,	3980.278	5407.625	2954.419	GS, A XSec, south end of XSec, SW corner of permit
1050	3726.703	4958.302	2974.285	GS, Pitzen SW prop cor
1051	3703.408	4091.008	2959.355	GS, SW prop cor
1052	4133.394	3895.709	2962.676	MHW, Mathwig well top
1053			2947.00	Trench on hill near wetland. 1/13/98. Wet. Water level at 2942.001
1054			2956.00	Trench on pit floor 1/13/98. Wet. Water level at 2945.00
1055			2944.80	Pit in wetland on 1/13/98. Wet. Water level at 2942.40

DR20 V03-05 Copyright 1985-92 by Datacom Software Research Limited.  
Serial no 16-Dec-97 10:18  
Angle : Degrees Dist : Feet Press : Inch Hg  
Temp : Fahrenht Coord : N-E-Elv H.obs : Right

OB Job ID CRESTON S&G 001

OTE CP Sea level crn: N

OTE CP C and R crn: N

OTE CP Atmos crn: N

CALE S.F. 1.0000000000

OTE TS 15-Dec-97 12:25

OS KI 0001 Nrth 5000.000 East 5000.000 Elv 2990.480  
Code PROPPIN *Property pin*

OTE -5/8 DOYLE

OS KI 0002 Nrth 4822.270 East 4999.980 Elv 2986.920  
Code PROPPIN

OTE -5/8 DOYLE

OS KI 0003 Nrth 4984.567 East 4322.106 Elv 2980.710  
Code CP

NSTR SET EDM <No text> Serial no 000000  
Theo <No text> Serial no 000000 Mount: not applc  
V.obs : Zenith Edm o/s <Null> Refl o/s <Null>  
P.C. mm 0.000

TN TP 0003 Nrth 4984.567 East 4322.106 Elv 2980.710  
Theo ht 5.270 Code CP

KB TP 0003-0001 Azmth 88-41'45" H.obs 0-00'01"

RGET Trget ht 4.850

BS F1 0003-0001 Dist <Null> V.obs 89-32'34" H.obs 0-00'01"  
Code PROPPIN

RGET Trget ht 8.300

OS TP 1000 Nrth 5000.332 East 4114.988 Elv 2965.064  
Code GS

WELL 5177.023 East 4366.111 Elv 2985.944  
Code MHW

NOTE -MHW-WELL CASING

NOTE -TOP WELL CAP

TRGET Trget ht 8.300

POS TP 1002 Nrth 4140.360 East 4086.885 Elv 2963.424  
Code GS

POS TP 1003 Nrth 4126.858 East 4284.508 Elv 2954.699  
Code GS

POS TP 1004 Nrth 4133.538 East 4484.124 Elv 2955.415  
Code GS

POS TP 1005 Nrth 4148.108 East 4659.308 Elv 2955.166  
Code GS

TRGET Trget ht 15.980

NOTE -TOP WELL CAP

POS TP 1006 Nrth 4868.604 East 5261.882 Elv 3011.890  
Code MHW

TRGET Trget ht 8.300

NOTE -TOP WELL CAP

POS TP 1007 Nrth 4172.049 East 4859.594 Elv 2962.173  
Code GS

POS TP 1008 Nrth 4403.300 East 4812.586 Elv 2961.291  
Code GS

POS TP 1009 Nrth 4611.743 East 4782.136 Elv 2964.645  
Code GS

TRGET Trget ht 12.000

POS TP 1010 Nrth 4568.221 East 4797.973 Elv 2958.564  
Code GS *Ground Shot*

TRGET Trget ht 8.300

POS TP 1011 Nrth 4727.715 East 4737.967 Elv 2966.315  
Code GS

POS TP 1012 Nrth 5009.813 East 4791.879 Elv 2973.415  
Code GS

POS TP 1013 Nrth 4993.889 East 4999.130 Elv 2990.001  
Code GS

POS TP 1014 Nrth 4821.718 East 4999.465 Elv 2986.800  
Code GS

TRGET Trget ht 9.000

POS TP 1015 Nrth 3997.086 East 4827.589 Elv 2960.581  
Code BH *Base hole - next 21.*

NOTE -TOP PIT GS/PIT DRY

POS TP 1016 Nrth 4008.657 East 4872.577 Elv 2960.942  
Code GS

TRGET Trget ht 8.300

POS TP 1017 Nrth 4726.511 East 4735.974 Elv 2966.385  
Code TBM *Temp bench mark*

NOTE -TOP SCALE FINISH GRADE

TRGET Trget ht 6.000

POS TP 1018 Nrth 4691.304 East 4690.238 Elv 2964.759  
Code BLD ST *Building Start (3 corners)*

TRGET Trget ht 12.000

POS TP 1020 Nrth 4714.939 East 4684.217 Elv 2964.882  
Code BLD

POS TP 1021 Nrth 4718.812 East 4700.300 Elv 2965.385  
Code BLD

TRGET Trget ht 19.000

NOTE -TOP H2O

POS TP 1022 Nrth 4246.549 East 4294.990 Elv 2941.671  
Code BH

TRGET Trget ht 17.000

POS TP 1024 Nrth 3798.535 East 4275.622 Elv 2951.566  
Code GS

POS TP 1025 Nrth 3800.437 East 4278.140 Elv 2940.854  
Code BH

NOTE -H2O

TRGET Trget ht 8.300

POS TP 1026 Nrth 3725.160 East 4862.387 Elv 2973.946  
Code GS

TRGET Trget ht 4.850

POS TP 0004 Nrth 3573.153 East 4969.544 Elv 2974.377  
Code CP

POS TP 1027 Nrth 3513.596 East 4894.316 Elv 2971.014  
Code MHW *man made water*

NOTE -TOP WELL CAP

TRGET Trget ht 8.300

POS TP 1028 Nrth 4910.285 East 4450.648 Elv 2958.387  
Code GS

TRGET Trget ht 25.000

Code GS

NOTE	-SPRINGS	LEV.		
TRGET	Trget ht	12.600		
POS TP 1030	Nrth 4906.465	East 4451.061	Elv 2949.836	
	Code BH			
NOTE	-H2O			
TRGET	Trget ht	3.000		
POS TP 1031	Nrth 4186.342	East 6475.210	Elv 3063.592	
	Code MHW			
NOTE	-TOP WELL CAP			
TRGET	Trget ht	4.850		
POS TP 0005	Nrth 4381.914	East 5290.424	Elv 2987.931	
	Code CP			
STN TP 0005	Nrth 4381.914	East 5290.424	Elv 2987.931	
	Theo ht 5.380	Code CP		
BKB TP 0005-0003	Azmth 301-53'49"	H.obs 0-00'00"		
OBS F1 0005-0003	Dist <Null>	V.obs <Null>	H.obs 0-00'00"	
	Code CP			
TRGET	Trget ht	8.300		
POS TP 1032	Nrth 4394.230	East 5408.460	Elv 2979.819	
	Code GS			
TRGET	Trget ht	4.850		
POS TP 1033	Nrth 4380.193	East 5045.911	Elv 2961.603	
	Code GS			
TRGET	Trget ht	8.300		
POS TP 1034	Nrth 4411.681	East 5415.595	Elv 2968.871	
	Code GS			
POS TP 1035	Nrth 4599.009	East 5409.959	Elv 2970.213	
	Code GS			
TRGET	Trget ht	4.850		
POS TP 1036	Nrth 4421.412	East 5282.623	Elv 2965.234	
	Code GS			
TRGET	Trget ht	8.300		
POS TP 1037	Nrth 4619.274	East 5025.701	Elv 2960.902	
	Code GS			
TRGET	Trget ht	4.850		
POS TP 1038	Nrth 4627.236	East 5274.447	Elv 2966.966	
	Code GS			

TRGET	Trget ht 8.300		
POS TP 1040	Nrth 4653.295 Code GS	East 5043.019	Elv 2985.983
TRGET	Trget ht 4.850		
POS TP 1041	Nrth 4825.964 Code GS	East 5419.106	Elv 3014.630
POS TP 0006	Nrth 4827.163 Code PROPPIN	East 5418.908	Elv 3015.078
NOTE	-5/8 DOYLE		
POS TP 1042	Nrth 4633.960 Code GS	East 5411.837	Elv 2992.880
STN TP 0004	Nrth 3573.153 Theo ht 5.230	East 4969.544 Code CP	Elv 2974.377
3KB TP 0004-0003	Azmth 335-21'30"	H.obs 0-00'00"	
DBS F1 0004-0003	Dist <Null> Code CP	V.obs <Null>	H.obs 0-00'00"
	<i>Control print</i>		
POS TP 1043	Nrth 3236.364 Code GS	East 5139.578	Elv 2942.195
NOTE	-POND ELEV.		
TRGET	Trget ht 8.300		
POS TP 1044	Nrth 4173.983 Code GS	East 4958.287	Elv 2956.396
POS TP 1045	Nrth 4174.738 Code GS	East 5022.534	Elv 2954.426
POS TP 1046	Nrth 3978.881 Code GS	East 5049.831	Elv 2951.483
TRGET	Trget ht 4.850		
POS TP 1047	Nrth 3847.063 Code MHW	East 5214.945	Elv 2961.509
NOTE	-SWAG +/- 0.2 TOP	OF WELL	
TRGET	Trget ht 8.300		
POS TP 1048	Nrth 4136.936 Code GS	East 5404.988	Elv 2975.994
POS TP 1049	Nrth 3980.278 Code GS	East 5407.625	Elv 2954.419
POS TP 1050	Nrth 3726.703 Code GS	East 4958.302	Elv 2974.285
TRGET	Trget ht 26.000		
NOTE OS	888.080 89-37'45"	303-50'11"	OS 11 200

POS TP 1051

Nrth 3703 408  
Code GS

East 4091.008

Elv 2959.355

TRGET

Trget ht 9.010

POS TP 1052

Nrth 4133.394  
Code MHW

East 3895.709

Elv 2962.676

\*END OF REPORT \*

Exhibit #3

# Ground-Water Level Data

Sambah



# MONTANA TECH

of The University of Montana

Montana Bureau of Mines and Geology  
1300 West Park Street  
Butte, Montana 59701-8997  
(406) 496-4180



November 20, 1997

Representative Bob Keenan  
Box 697  
Bigfork MT 59911

Dear Representative Keenan:

In response to your November 18, 1997 inquiry about ground-water conditions in the vicinity of section 26, of Township 28 North, Range 20 West, the enclosed data may be useful in evaluating potential impacts on ground water from installation of an asphalt plant. We are enclosing the following maps and tables based on data from our Ground-Water Information Center (GWIC) data base.

- ▶ A Map showing the water table and direction of ground-water flow based on water-level measurements from wells completed within 200 feet of the land surface in the Many Lakes area. The measurements were obtained by the Ground-Water Characterization Program in the summer of 1996. The map shows that ground-water flow is from east to west.
- ▶ A Map showing the locations of 5 wells and their hydrographs (water-level change over time) located within 3 miles of the proposed plant. The closest well for which a hydrograph is available is about 1.3 miles to the northeast. The hydrographs show that seasonal ground-water change near the proposed project is about 6 to 10 feet.
- ▶ A Map showing the locations of wells in the Many Lakes area reportedly used for domestic purposes and within 1 mile of the project. Records in the data base for wells located west of Highway 35 show that they are all greater than 100 feet in depth and therefore they are not included on the map. The locations of most of the wells on this map are as reported by well drillers and land owners and are unchecked. There likely are additional wells in the area that are not shown and for which we have no records at the Information Center. Short of a door-to-door search, the best way to determine the total number of nearby wells would be to combine a listing of water rights for the area with a listing of well log data from GWIC and eliminate the duplicates.

Keenan

-2-

November 20, 1997

- ▶ **Water-level hydrographs** and associated data for 10 wells within the Many Lakes area that show general water-level change over the past 1 - 2 years.
- ▶ A **Table** of water quality data for the Many Lakes area showing that in general the natural water quality is excellent. At the back of the table is an explanation sheet that can be used to interpret the water quality data.
- ▶ A **Table** listing all wells visited in the summer of 1996 by the Ground-Water Characterization Program in the Many Lakes area and all data measured at these wells.
- ▶ A **Table** of data for all wells located within about 1 mile of the proposed asphalt plant containing reported well yields and descriptions of their construction and in particular, annular seal information.

Because much of the information we are providing was gathered as part of a study covering Flathead, Lake, and eastern Sanders counties, it will not be as detailed as desired to evaluate any site-specific impacts that the asphalt plant may have on local ground water. However, the water-level and water-quality data are specific enough to evaluate the direction of ground-water flow and background water quality near the proposed activity. The information provided by GWIC should provide a framework within which more detailed study around the project site can be conducted.

In addition to the data included with this letter, I am also enclosing some information describing purposes and activities of the Montana Ground-Water Assessment Program. The data that we are able to provide to you are in large part made possible by the Assessment Program. If there are questions about the data or if there is anything else that we can do, call me at 406-496-4153. My email address is [rkymtn@mbmgsun.mtech.edu](mailto:rkymtn@mbmgsun.mtech.edu).

Sincerely,

Thomas W. Patton  
Hydrogeologist

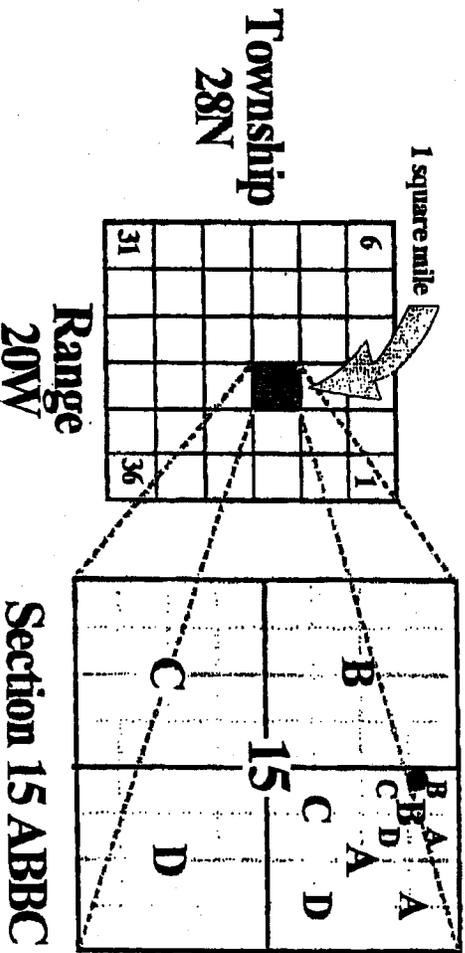
cc Roger Nobel  
John Kimble  
Rod Samdahl  
Linda Walker

encl.

## How to locate a well on a map using GWIC locations

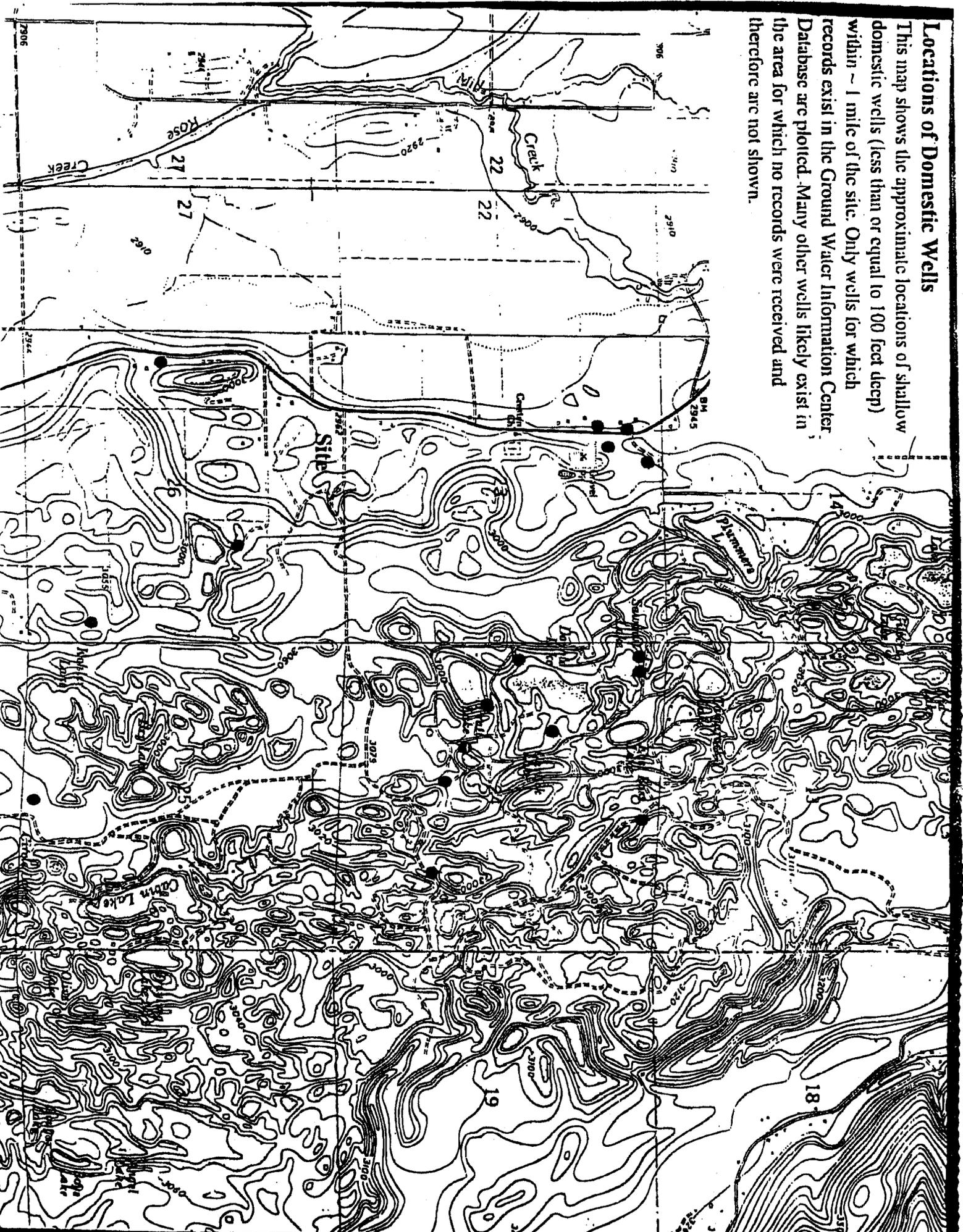
**For example: find well number M:35209  
located in 28N 20W 15 ABBC**

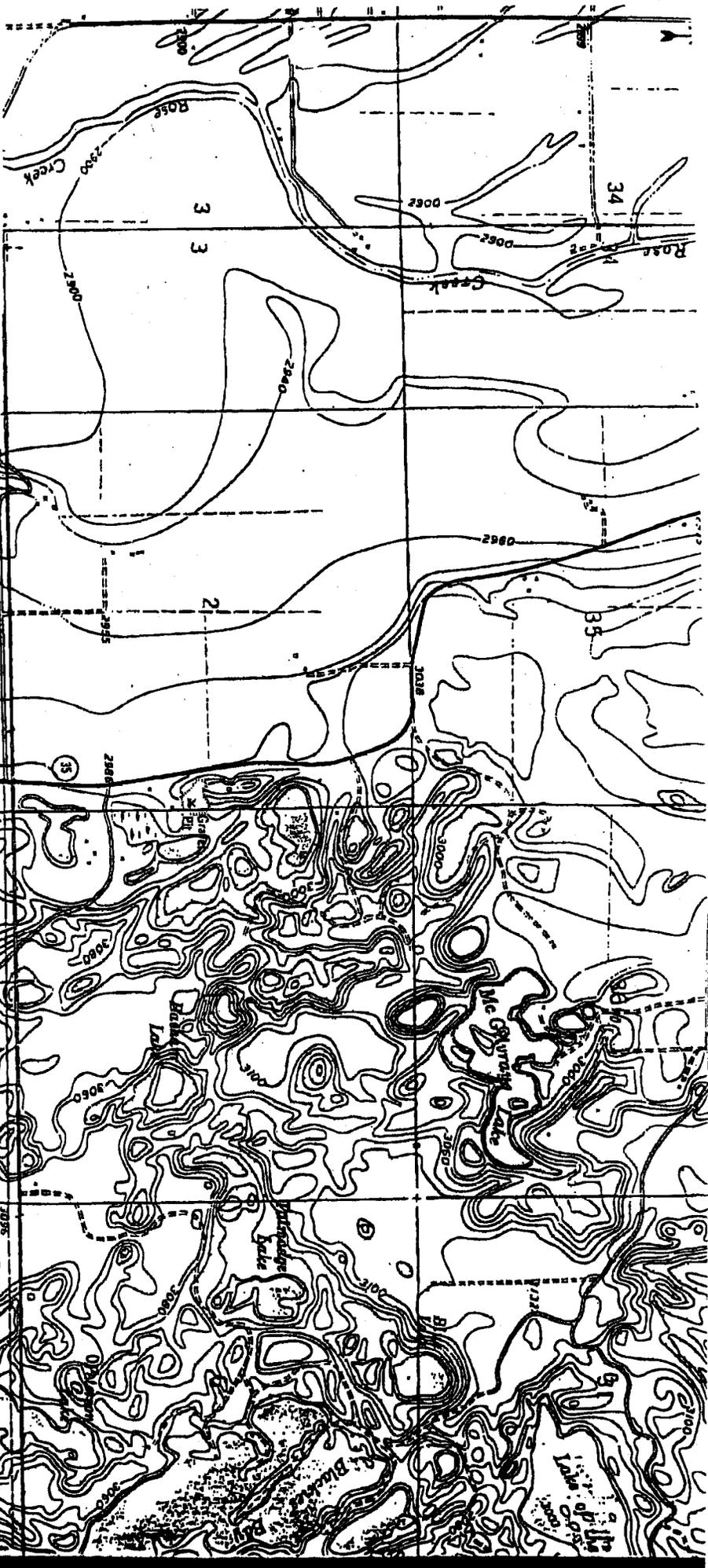
To locate the well in the Township, Range, and Section, read the tract (ABCD) designations from left to right, largest tract to smallest tract. Beginning in the center of the section, travel to the 'A' in the center of the northeast quarter. From there, travel to the 'B' in the center of the northwest quarter of the northeast quarter. From there, travel to the 'B' in the northwest quarter of the northeast quarter. From there, travel to the 'B' in the northwest quarter of the northeast quarter. From there, travel to the 'C' or southwest quarter of the northwest quarter of the northwest quarter of the northeast quarter of the northeast quarter of section 15.



# Locations of Domestic Wells

This map shows the approximate locations of shallow domestic wells (less than or equal to 100 feet deep) within ~ 1 mile of the site. Only wells for which records exist in the Ground Water Information Center Database are plotted. Many other wells likely exist in the area for which no records were received and therefore are not shown.





Arctic Well Location

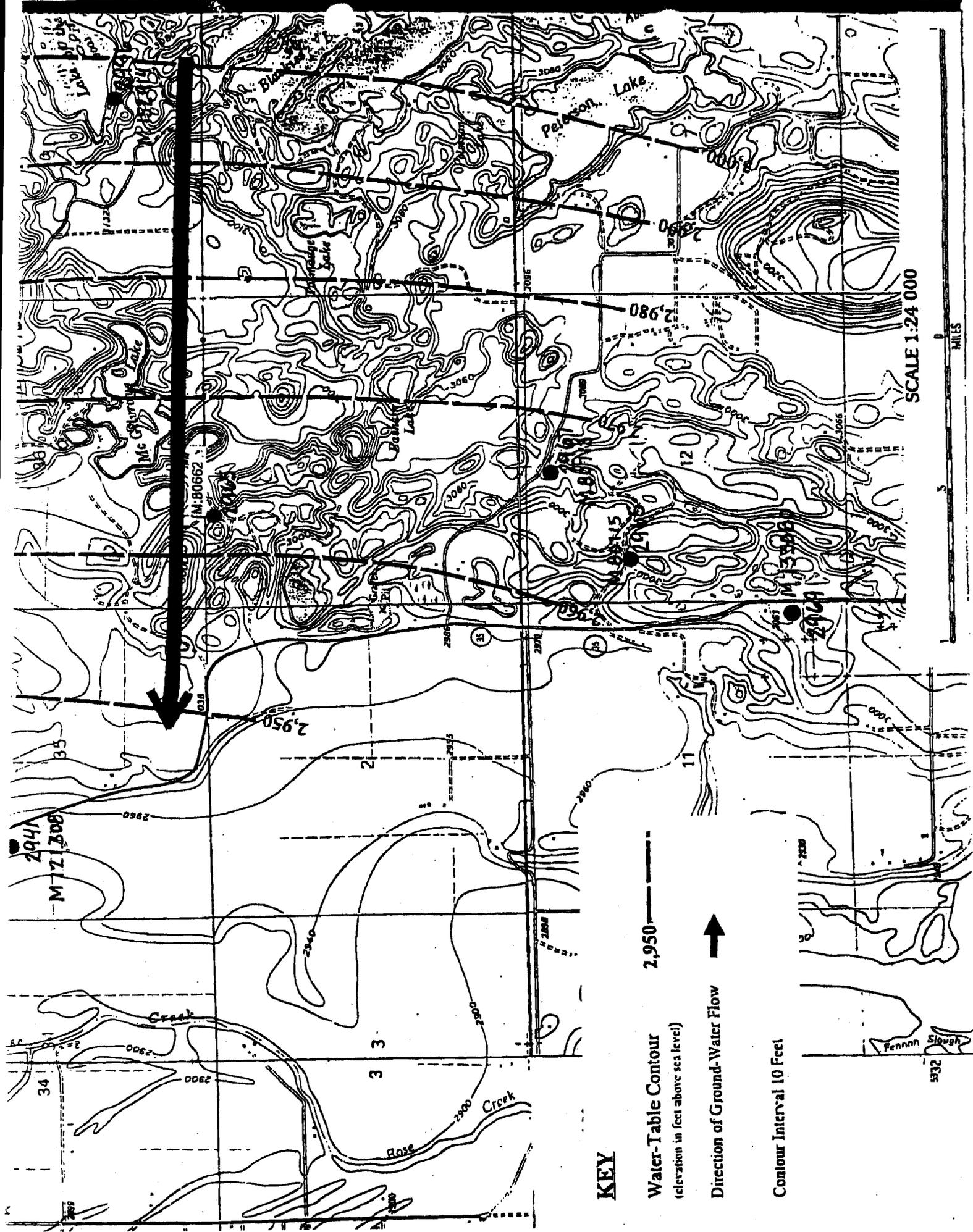


KEY

5121 1571

11 12

SCALE 1:24 000



**KEY**

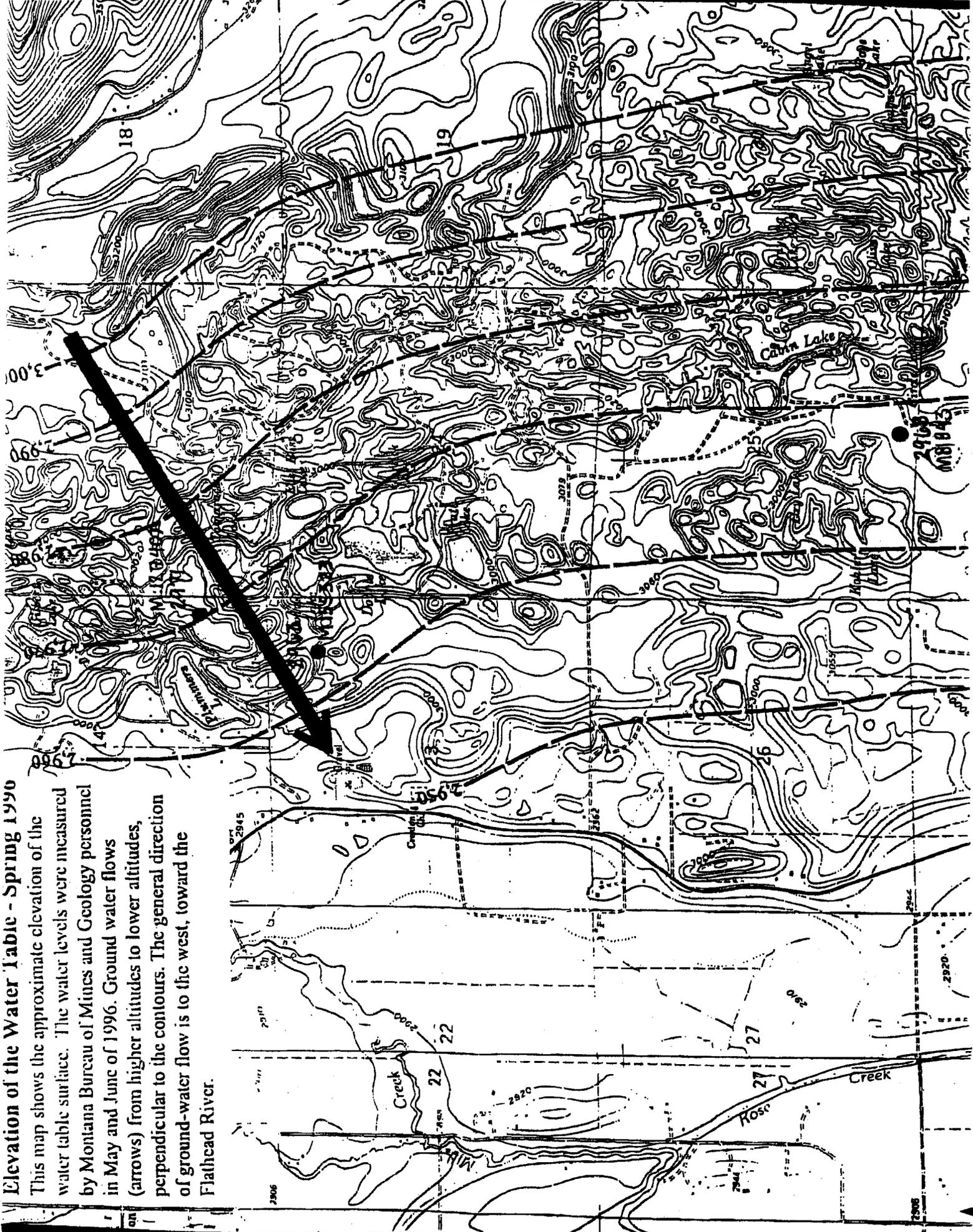
Water-Table Contour  
(elevation in feet above sea level)

Direction of Ground-Water Flow

Contour Interval 10 Feet

SCALE 1:24 000

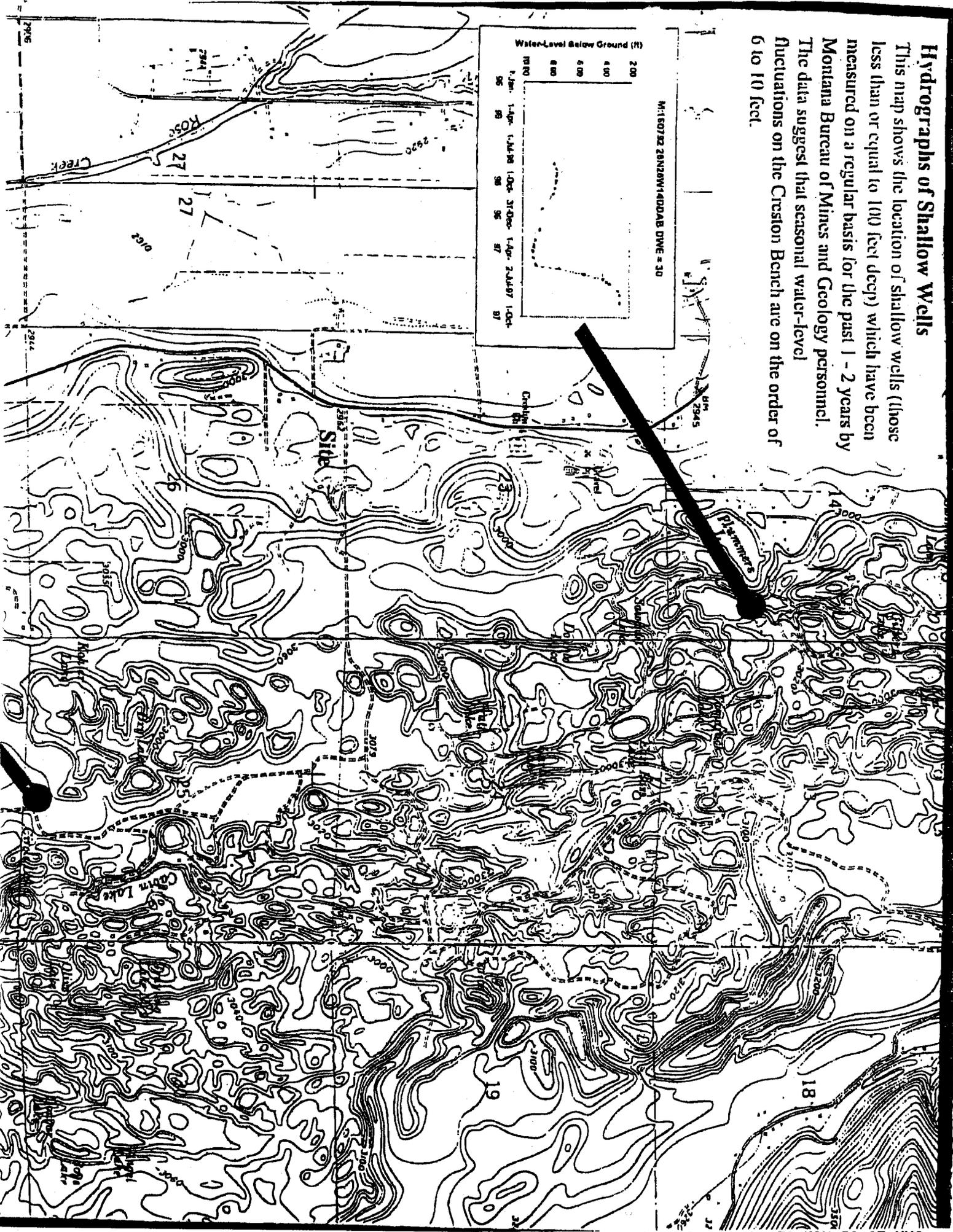
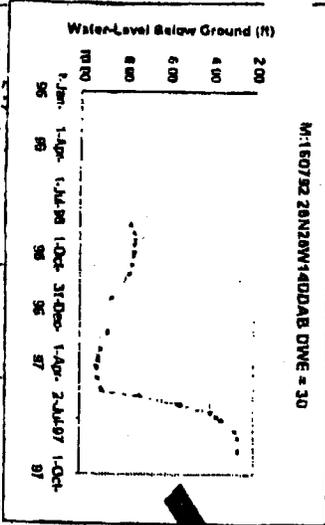
MILES

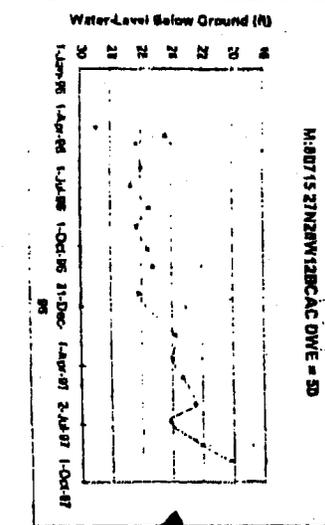
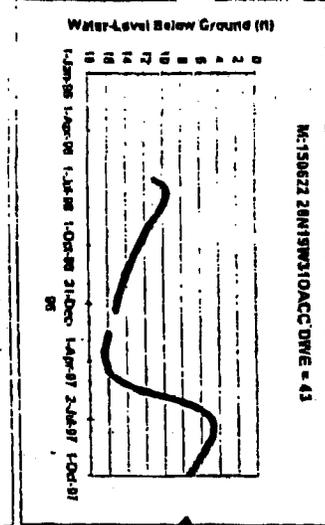
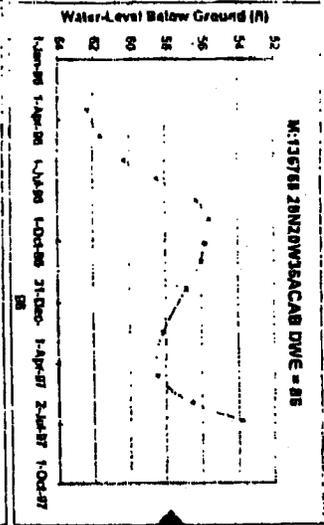
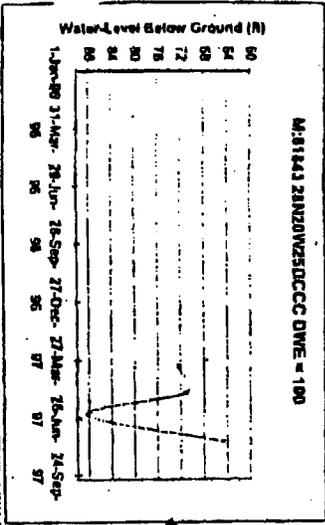
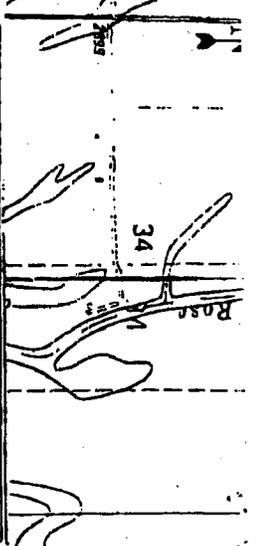


**Elevation of the Water Table - Spring 1996**  
 This map shows the approximate elevation of the water table surface. The water levels were measured by Montana Bureau of Mines and Geology personnel in May and June of 1996. Ground water flows (arrows) from higher altitudes to lower altitudes, perpendicular to the contours. The general direction of ground-water flow is to the west, toward the Flathead River.

# Hydrographs of Shallow Wells

This map shows the location of shallow wells (those less than or equal to 100 feet deep) which have been measured on a regular basis for the past 1 - 2 years by Montana Bureau of Mines and Geology personnel. The data suggest that seasonal water-level fluctuations on the Creston Bench are on the order of 6 to 10 feet.



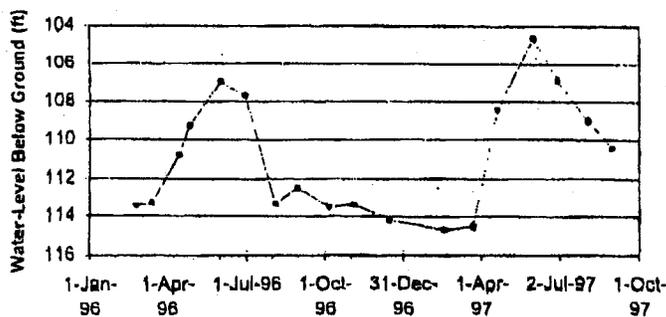


SCALE 1:24 000

### Hydrographs

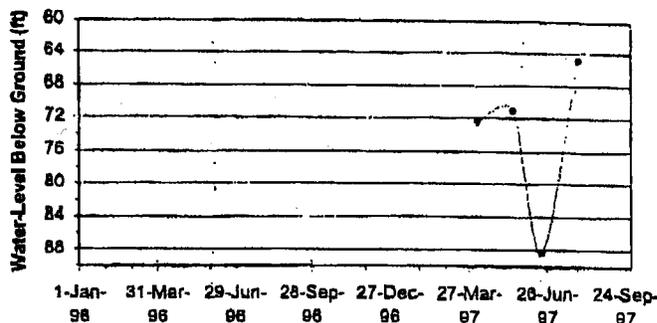
M:81530 28N19W07CCCC DWE = 169

10'



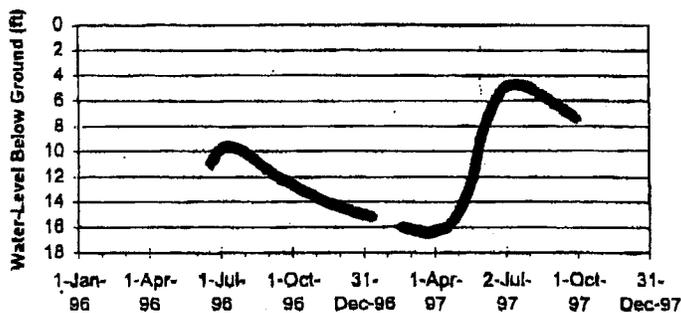
M:81843 28N20W25 DCCC DWE = 100

23'



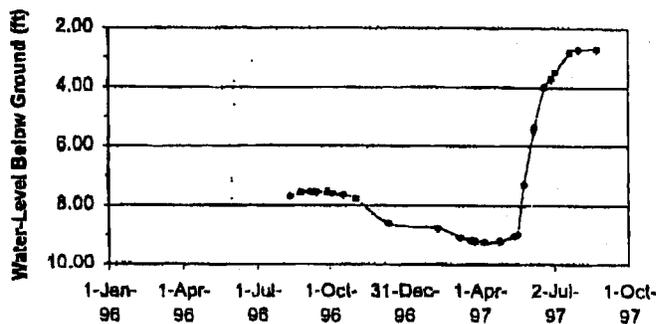
M:150622 28N19W31DACC DWE = 43

12'



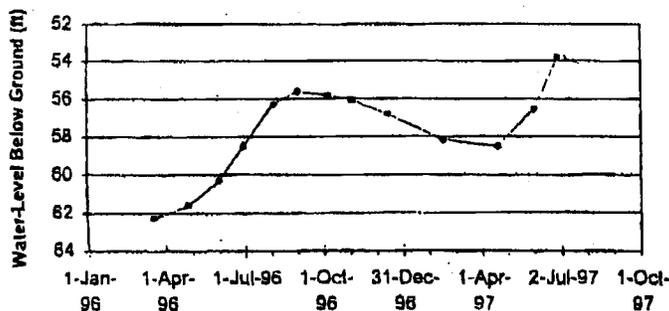
M:160792 28N20W14DDAB DWE = 30

6'



M:136768 28N20W36ACAB DWE = 86

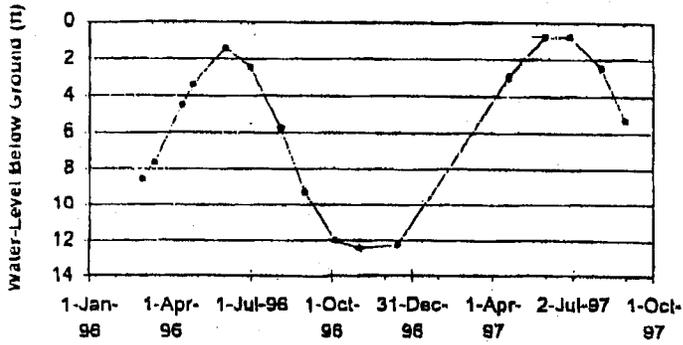
5'



### Hydrographs

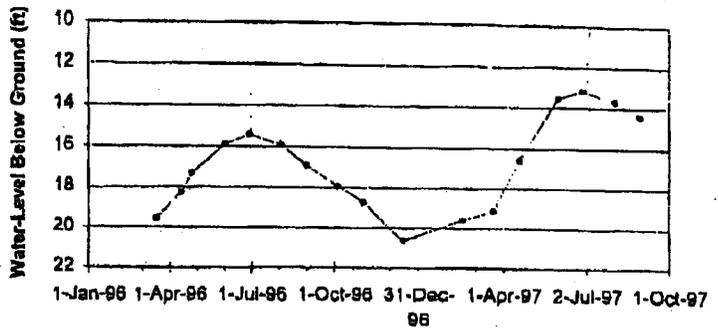
M:80324 27N19W14BBAA DWE = 115

12'



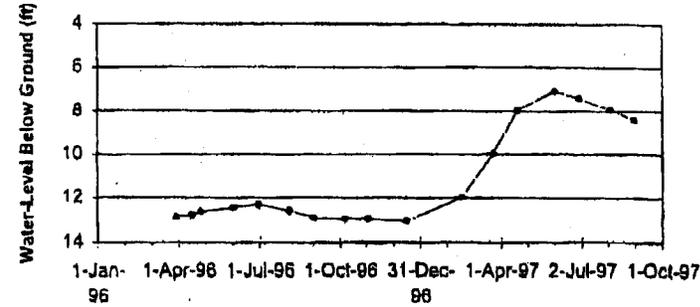
M:132055 27N19W35DBBC DWE = 125

9'



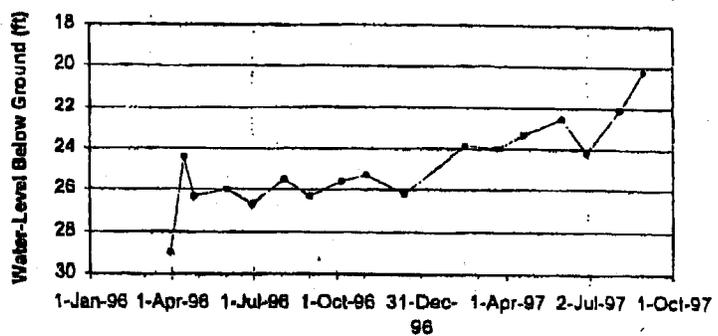
M:154871 27N19W20ACDD DWE = 30

1'



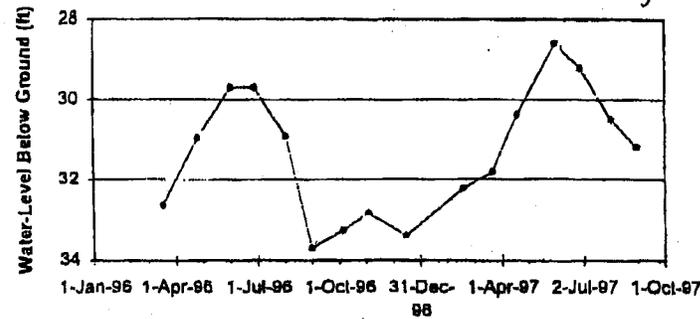
M:80715 27N20W12BCAC DWE = 50

8.5'



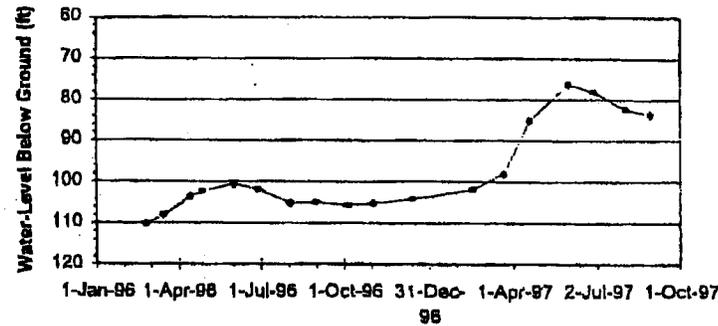
M:134212 27N19W25BBBC DWE = 100

5' x 6'



M:80738 27N20WDDCB DWE = 140

35'



# LIBERTY DRILLING & PUMP COMPANY, INC.



3850 Highway 93 South, Kalispell, Montana 59901  
(406) 752-2809 FAX (406) 756-0029

January 31, 1998

Cecil McKinley  
5447 Highway 35  
Kalispell, MT 59901

RE: Water levels in the Creston area.

Dear Cecil:

Liberty Drilling has drilled water wells in this area for over 35 years. It has been our observation that ground water levels are at a higher elevation than average. This high has been occurring for a couple of years and is likely connected to the record precipitation we experienced.

In the Creston pothole area, water levels appear to be the same whether it be surface water or ground water. In other words, the high water mark of a pothole would be the water level within a well drilled up gradient.

I would expect water levels to go back down after several years of average precipitation. This bounce we are experiencing may seem dramatic, however, ground water levels have only been recorded in this area for about forty years. What we do know and what has been documented is the presence of a large aquifer under the Flathead Valley. The Montana Bureau of Mines and Geology is conducting a program to study this aquifer's characteristics. I have enclosed a summary of their activity to date.

If you have any questions or desire more information, please feel free to call on us.

Sincerely,  
LIBERTY DRILLING & PUMP COMPANY, INC.

William A. Gardner  
President

# Geologic Framework of Aquifers and Confining Units in the Kalispell Valley, Northwestern Montana

Larry N. Smith

Montana Ground-Water Characterization Program

Montana Bureau of Mines and Geology

Montana Tech, Butte, MT 59701-8997

[larry@mbmgsun.mtech.edu](mailto:larry@mbmgsun.mtech.edu), 496-4379 (v), 496-4451 (fax)

The Kalispell valley has contained large lakes since at least late Pleistocene times, making for a poorly exposed valley-fill stratigraphic record. The Kalispell valley also contains about 10,000 water wells, and many additional wells are being drilled each year. Knowledge of the stratigraphic framework of sediments and interpretations of the glacial/post-glacial history rely on mapping with data derived from well logs. As part of the Montana Ground-Water Characterization Program, maps of the depth and thicknesses of geologic units in the valley have been made by interpreting more than 7,000 water-well lithologic logs.

The distribution of aquifers in the valley are controlled by the stratigraphy of clay-rich and clay-poor sediment. The geologic framework of the valley can be summarized as (from oldest-to-youngest):

- Deep sand and gravel was deposited as pro-glacial outwash and pre-Late(?) Wisconsin alluvium across most of the valley. Near valley margins and in the delta region south of Creston and Kalispell, the sand and gravel unit is locally replaced by Pleistocene(?) lacustrine silt and clay (>51,700 BP), alluvial fans, or possibly older till.
- Late(?) Wisconsin till mantled the sand and gravel and bedrock knobs within the valley. The Flathead lobe of the Cordilleran ice sheet overrode older lacustrine sediment and possibly floated on a lake, depositing till mainly along valley margins and between modern drainages. The lobe is known to have been at the Polson moraine by ~15,000 B.P., but multiple advances and retreats may be recorded in the till unit.
- Glaciolacustrine silt, clay, and minor gravel infilled broad areas flanked by the till sheet and were inset into areas between recessional moraines (to a 945-m elevation). Glacier Peak tephra (11,200 B.P.) capped some glaciolacustrine deposits, indicating that retreat of the last ice from the valley was followed by expansion of "lake Kalispell" to an elevation of about 945 m.
- Surficial sand and gravel formed sheets along modern stream valleys, eolian blankets, outwash aprons (and fan deltas?) that emanated from canyons bordering the valley, and sinuous paleochannels in lacustrine silts and clays the modern delta. Fluvial erosion since about 11,200 B.P. lowered the lake sill by about 60 m.

Based on the presence of overlying and/or underlying clay-rich confining units, three aquifers can be recognized in the stratigraphic section:

- Deep sand and gravel aquifer, confined below till or glaciolacustrine silt and clay;
- Intermediate aquifer(s) of locally important sand and gravel units generally confined within the till or glaciolacustrine section; and
- Shallow sand and gravel aquifer(s) in post-glacial, coarse-grained sediment, generally unconfined.

## Hydrogeology and Ground-Water Chemistry of the Kalispell Valley, Northwestern Montana

John I. LaFave  
Montana Ground-Water Assessment Program  
Montana Bureau of Mines and Geology  
1300 West Park St.  
Butte, MT 59701  
johnl@mbmgsun.mtech.edu, 496-4306 (v), 496-4451 (fax)

Ground-water resources of the Kalispell valley in northwest Montana are being evaluated as part of the Montana Ground-Water Characterization Program. In 1996, water-level measurements were obtained from about 380 wells, and 80 wells were sampled for major ions, nitrate and trace metals. In addition, selected wells were sampled for tritium and radon. Most of the data were collected from the deep and intermediate aquifers within the valley fill and from the Precambrian bedrock aquifer which surrounds the basin.

Ground-water flow is generally away from the valley margins toward the axis of the basin and then south toward Flathead Lake. In many places hydraulic heads in the intermediate aquifers, which are localized units of sand and gravel within the glaciolacustrine or till confining beds, are close to those in the deep aquifer. This suggests a fair degree of hydraulic connection between the deep and intermediate aquifers within the valley fill. Potentiometric surface mapping also suggests that the Precambrian bedrock aquifer is hydraulically connected to the deep aquifer.

In 1996, seasonal ground-water fluctuations of about 10 feet were common in the deep sand and gravel and Precambrian bedrock aquifers. However, one well, completed in an intermediate aquifer near the northern margin of the valley, exhibited more than 50 ft of ground-water fluctuation. Water-level data, obtained to date, show that the 1997 spring runoff was a major ground-water recharge event.

The geology does not appear to be a significant control on ground-water chemistry. Water from all sampled aquifers is a Ca-Mg-HCO<sub>3</sub> type, characterized by low total dissolved solids (< 500 mg/L). Nitrate concentrations ranged from non-detectable to 8.2 mg/L as N; the average was less than 3.0 mg/L as N. Geology does appear to control the radon concentrations in ground water. In the deep and intermediate sand and gravel aquifers, the radon concentrations in 22 samples ranged from 160 to 1,870 pCi/L with an average concentration of 688 pCi/L (median = 630 pCi/L). In the Precambrian bedrock aquifer, the radon concentrations in 14 samples ranged from 800 to 8,360 pCi/L, with average of 1,872 pCi/L (median = 1,298 pCi/L). The EPA has proposed a maximum contaminant level for radon of 300 pCi/L for public water supplies.

Only three out eight samples from the deep sand and gravel aquifer contained detectable tritium. Two of the samples with detectable tritium had concentrations less than 2.0 tritium units (TU); the other, which was from a well along the northern margin of the valley, had a concentration of 15.9 TU. The results from the tritium sampling indicate that the deep sand and gravel aquifer is dominated by water recharged before 1953 (pre bomb), suggesting that the glaciolacustrine and till confining beds provide reasonable geologic protection to the aquifer.



# Certificate of Water Right

THIS CERTIFICATE OF WATER RIGHT IS HEREBY ISSUED TO:

GALEN D & LYNDA J HUFFMAN  
4725 BROWN VALLEY LN  
COLORADO SPRINGS CO 80907

UPON FINDING THAT THE REQUIREMENTS OF SECTION 85-2-301 MCA  
HAVE BEEN MET.

**CERTIFICATE OF WATER RIGHT NUMBER:** 53679-G76LJ

**PRIORITY DATE:** AUGUST 11, 1983 AT 1:40 P.M.

**ICIAL AMOUNT:** 20.00 GPM UP TO 3.70 AC-FT ON 1.50 ACRES

**DIVERSION POINT:** NESWNE SEC. 26 TWP. 28N RGE. 20W FLATHEAD CO

**SOURCE:** GROUNDWATER WELL

**USE:** 20.00 GPM UP TO 2.00 AC-FT (01/01-12/31)  
FOR DOMESTIC

20.00 GPM UP TO 1.50 AC-FT (04/15-10/15)  
FOR LAWN AND GARDEN

20.00 GPM UP TO .20 AC-FT (01/01-12/31)  
FOR STOCK

**PLACE OF USE:** SESWNE SEC. 26 TWP. 28N RGE. 20W FLATHEAD CO  
FOR DOMESTIC

SESWNE SEC. 26 TWP. 28N RGE. 20W FLATHEAD CO  
FOR LAWN AND GARDEN

SESWNE SEC. 26 TWP. 28N RGE. 20W FLATHEAD CO  
FOR STOCK

**\*\* PRIOR RIGHTS:**  
THIS CERTIFICATE IS ISSUED SUBJECT TO ALL PRIOR EXISTING WATER RIGHTS  
IN THE SOURCE OF SUPPLY.

**FAILURE TO COMPLY WITH ANY TERMS AND CONDITIONS HEREIN MAY RESULT IN  
THE LOSS OF THE WATER RIGHT GRANTED BY THIS CERTIFICATE.**

**\*\* TRANSFER TO NEW OWNER:**  
UPON A CHANGE IN OWNERSHIP OF ALL OR ANY PORTION OF THIS CERTIFICATE,  
PURSUANT TO SECTION 85-2-403, MCA, THE PERSON RECEIVING THE INTEREST  
SHALL NOTIFY THIS DEPARTMENT ON A NOTIFICATION OF TRANSFER OF APPROPRIATION WATER RIGHT, FORM 608.

*Patty Spindler*  
WITNESS

*Rita Nason*  
WATER RIGHTS ANALYST: RITA NASON

DATE: SEPTEMBER 22, 1983 WATER RIGHTS BUREAU, WATER RESOURCES DIVISION

STATE OF MONTANA )  
County of \_\_\_\_\_ ) ss. (For County Use Only)

Filed for Record this \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_,  
at \_\_\_\_\_, and Recorded in \_\_\_\_\_  
\_\_\_\_\_ on Page \_\_\_\_\_  
of the Records of \_\_\_\_\_ County, State of Montana.

By \_\_\_\_\_ Deputy  
Clerk and Recorder

# NOTICE OF COMPLETION OF GROUND-WATER DEVELOPMENT

For ground-water developments with a maximum use of less than 100 gpm

(Use Form 600, Application for Beneficial Water Use Permit for undeveloped springs or appropriations of 100 gpm or more.)

# RECEIVED

AUG 11 1983

MONTANA D.N.R.C.  
KALISPELL FIELD OFFICE

### IMPORTANT

The right to the use of ground water is not automatic. Your priority will be determined by the date of filing this form. STATE LAW REQUIRES THAT THIS FORM BE FILED BY THE WELL OWNER WITHIN 60 DAYS AFTER THE WATER HAS BEEN PUT TO BENEFICIAL USE. Attach the proper filing fee, payable to the Department of Natural Resources and Conservation and submit to your area water rights field office as listed on the back sheet.

### FOR DEPARTMENT USE ONLY

Notice No. 53679  
Date Received 8-11-1983  
Time 1340 A.M./P.M.  
Transmittal No. 08-006-01-09  
Fee Received \$ 10.00  
Received By [Signature]  
Refund Made \_\_\_\_\_

(Please type or print in ink)

1. NAME(S) GALEN D. & LYNDA J. HUFFMAN  
MAILING ADDRESS 4725 BROWN VALLEY LANE  
CITY COLORADO SPRGS. STATE CO ZIP 80907  
HOME PHONE 599-5721 OTHER PHONE \_\_\_\_\_

2. SOURCE OF GROUND WATER SUPPLY  WELL  DEVELOPED SPRING (excavation performed)  
 PIT  OTHER (describe) \_\_\_\_\_

3. DATE WATER PUT TO BENEFICIAL USE: 18 AUG 78  
NAME AND ADDRESS OF WELL DRILLER OR CONTRACTOR: (If applicant or other please indicate.)  
Name HUDSON & WILHELM  
Address \_\_\_\_\_  
Maximum withdrawal 50 gallons per minute (as tested by driller)

Does this well replace an existing well? Yes \_\_\_\_\_ No   
If Yes, complete the following information pertaining to the existing (old) well.  
Depth \_\_\_\_\_ ft. G.P.M. \_\_\_\_\_ Date drilled \_\_\_\_\_ month/day

If Yes, contact your area field office as you may be able to file a change in point of diversion and retain the priority date of the old well.

4. POINT OF DIVERSION: (Your legal land description may be obtained from your deed, county assessor, or clerk and recorder. Complete the following and attach an aerial photo or survey map showing the location of your well or development and your place of use, if available.)

Lot \_\_\_\_\_ Block \_\_\_\_\_ Subdivision \_\_\_\_\_  
Government Lot \_\_\_\_\_ or NE 1/4 SW 1/4 NE 1/4 Section 26  
TWP 28 N. RGE. 20 W. County FL

5. PLACE OF USE: (If more than one place of use, attach additional sheets. If same as the point of diversion, CHECK )

Lot \_\_\_\_\_ Block \_\_\_\_\_ Subdivision (if applicable) \_\_\_\_\_  
Government Lot \_\_\_\_\_ or SE 1/4 SW 1/4 NE 1/4 Section 26  
TWP 28 N. RGE. 20 W. County FL

MONTANA DEPARTMENT OF NATURAL RESOURCES & CONSERVATION

32 SOUTH EWING

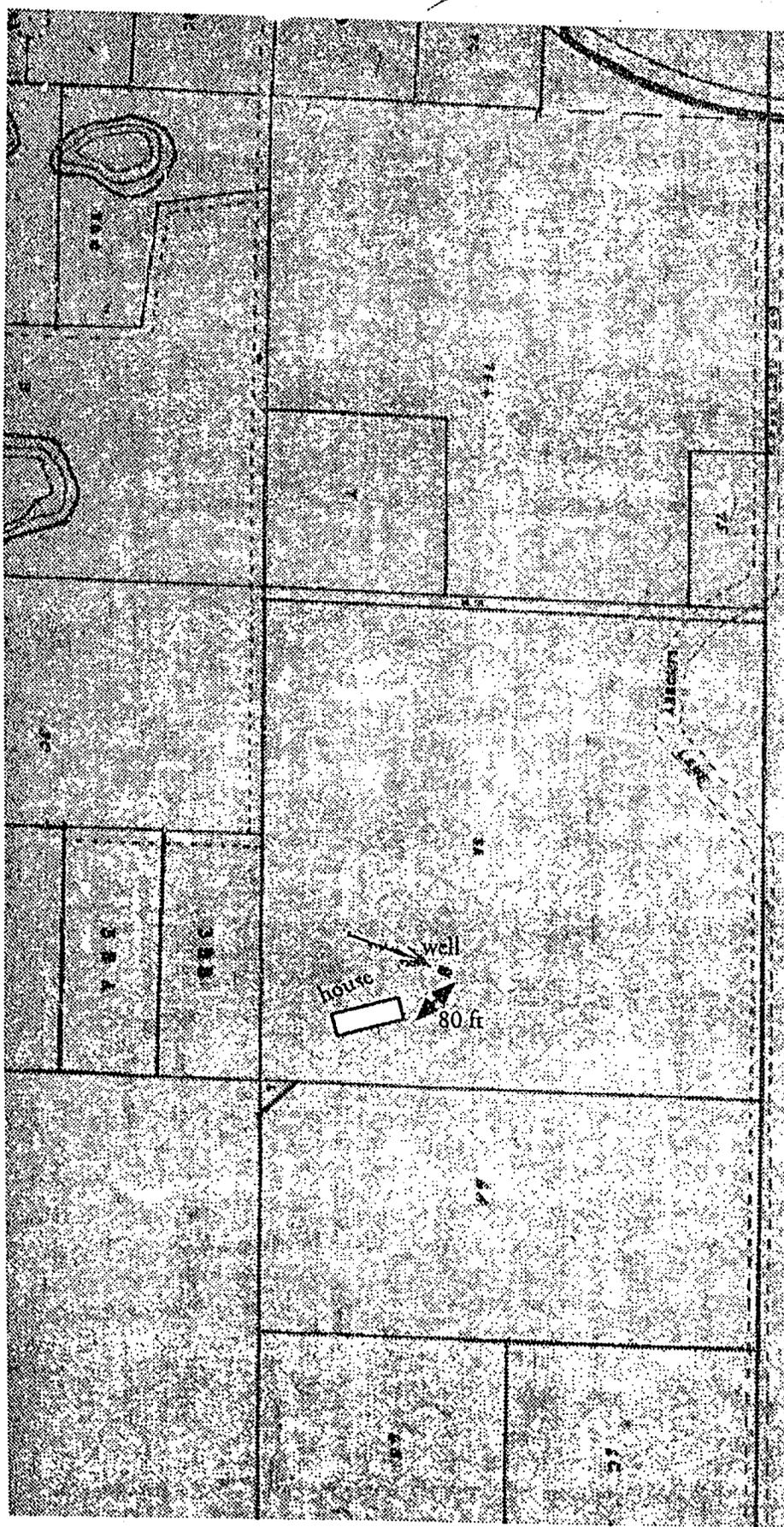
HELENA MONTANA 59620

449-3962

# DNRG

20 28 20

38 W. 31



N 89° 19' E  
53330'

house  
well  
80 ft

2627-84163-00

### NOTICE OF COMPLETION OF GROUNDWATER DEVELOPMENT

For groundwater developments with a maximum use of 35 GPM not to exceed 10 AC-FT per year.  
GROUNDWATER IS DEFINED AS ANY WATER BENEATH THE GROUND SURFACE.  
(Use Form 000, Application for Beneficial Water Use Permit for Appropriations in Excess of 35 GPM or 10 AC-FT per year.)

RECEIVED

NOV 6 1992

MONT. DEPT. of NATURAL RESOURCES & CONSERVATION

FOR DEPARTMENT USE ONLY

Notice No. 84163 Basin 761

Priority Date 11-6-92  
Time 11:00 (AM/PM)  
Received By CB  
Fee Received 25.00  
Check No. 611  
Transmittal No. 08-033  
Refund

#### IMPORTANT

The right to use groundwater is not automatic. State law requires this form be filed by the well owner within 90 days after the water has been put to use. Your priority is determined by the date of filing. Complete the notice and attach an aerial photo, survey or other map showing the location of your development. Submit it with the \$20.00 filing fee, payable to DNRC, to the appropriate Water Resources Regional office. Their addresses are listed on the back. The form will be returned if any of the pertinent information is incomplete.

(Please type or print in ink)

1. NAME JAN AMKRENTZ  
MAILING ADDRESS 250 LINDSEY LANE  
CITY KAWISPELL STATE MT ZIP 59901  
HOME PHONE 406 257 1946 OTHER PHONE 406 837 4928

2. SOURCE OF GROUNDWATER SUPPLY  Well  Developed Spring (excavation performed)  
 Pit  Other

3. ACTUAL PUMPING RATE 20 GPM Pump: HP Rating 1/2 Installation Depth 135 ft.

4. DATE WATER PUT TO BENEFICIAL USE 10/30/92 month/day/year

5. DOES THIS WELL REPLACE AN EXISTING WELL?  Yes  No  
If Yes, complete the following information pertaining to the existing (old) well. Contact your regional office, you may be able to file a change in point of diversion and retain the priority date of the old well.

Old Well Depth \_\_\_\_\_ ft. Old Well GPM \_\_\_\_\_ Date Old Well Drilled \_\_\_\_\_ month/day/year

6. WILL THIS DEVELOPMENT Be Used In Combination With Another Groundwater Development?  Yes  No  
If Yes, what is the combined appropriation? \_\_\_\_\_ GPM Water Right No. \_\_\_\_\_

7. POINT OF DIVERSION The land description must be described to a 10-acre area. Is to the 1/4 1/4 1/4. Legal land descriptions can be obtained from your county records.

SE 1/4 NW 1/4 NE 1/4 Section 26 Twp 28 N1/2 Rge 20 NW County MPH, FLATHEAD COUNTY  
Lot \_\_\_\_\_ Block \_\_\_\_\_ Tract No. 3A Subdivision \_\_\_\_\_ Government Lot \_\_\_\_\_

8. PLACE OF USE Purpose of Use DOMESTIC If Same As Point of Diversion, CHECK

1/4 1/4 1/4 Section \_\_\_\_\_ Twp \_\_\_\_\_ N1/2 Rge \_\_\_\_\_ EW County \_\_\_\_\_  
Lot \_\_\_\_\_ Block \_\_\_\_\_ Tract No. \_\_\_\_\_ Subdivision \_\_\_\_\_ Government Lot \_\_\_\_\_

Purpose of Use: \_\_\_\_\_ If Same As Point of Diversion, CHECK

1/4 1/4 1/4 Section \_\_\_\_\_ Twp \_\_\_\_\_ N1/2 Rge \_\_\_\_\_ EW County \_\_\_\_\_  
Lot \_\_\_\_\_ Block \_\_\_\_\_ Tract No. \_\_\_\_\_ Subdivision \_\_\_\_\_ Government Lot \_\_\_\_\_

9. PURPOSE AND PERIOD OF USE:

Domestic: Number Of Families Currently Using Water From This Development? 1 Year-round use?  Yes  No

If No: From \_\_\_\_\_ month/day To \_\_\_\_\_ month/day, Inclusive of Each Year

Lawn and/or Garden: Size of Area Watered (length in feet) n/a and (width in feet) \_\_\_\_\_ OR Number of Acres \_\_\_\_\_

Period of Use: From \_\_\_\_\_ month/day To \_\_\_\_\_ month/day, Inclusive of Each Year

Stock: Number and Type n/a Year-round use?  Yes  No

If No: From \_\_\_\_\_ month/day To \_\_\_\_\_ month/day, Inclusive of Each Year

Irrigation: Type of Crop or Shelterbelt n/a Number of Acres \_\_\_\_\_

Period of Use: From \_\_\_\_\_ month/day To \_\_\_\_\_ month/day, Inclusive of Each Year

Other: Describe the Purpose of Use n/a

Amount of Water Used \_\_\_\_\_ gallons per day Year-Round Use?  Yes  No

If No: From \_\_\_\_\_ month/day To \_\_\_\_\_ month/day, Inclusive of Each Year

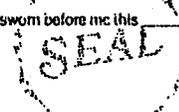
10. REMARKS (Use this space for additional information.)

11. AFFIDAVIT OF OWNERSHIP OR WRITTEN CONSENT

The Appropriator certifies the statements appearing here are to the best of the appropriators knowledge, true and correct. The Appropriator also certifies the appropriator has a possessory interest in the property where the water is to be put to a beneficial use and exclusive property rights in the groundwater development or the written consent of the person with those property rights.

Appropriator's Signature: \_\_\_\_\_ Date: 11/4/92

Subscribed and sworn before me this 4th day of November, 19 92



Notary's Signature: Rose M. Hall

Notary for the State of Montana

Residing at Bigfork

My commission expires 1-11-93

MONTANA DEPARTMENT OF NATURAL RESOURCES & CONSERVATION

1520 EAST SIXTH AVENUE HELENA, MONTANA 59620-2301 444-0610

DNRC

*Rich*  
*2/12/95*  
*WELL LOG & PLAN*  
*FOR TRACT NO.*

5

STATEMENT OF CLAIM FOR EXISTING WATER RIGHTS RECEIVED

IRRIGATION

SEP 30 1981

For the Water Courts of the State of Montana

MONTANA D.N.R.C. KALISPELL FIELD OFFICE

FL-C  
08-226-02-19  
10.00

1. Owner of Water Right GREGG / JOSEPHINE / K.  
Co-Owner or Other Interest Owner  
Address 2573 Montana 35  
City Kalispell State Montana Zip Code 59901  
Home Phone No. 755-2991 Business Phone No.

2. Person completing form GREGG / JOSEPHINE / K.  
Address 2573 Montana 35  
City Kalispell State Montana Zip Code 59901  
Home Phone No. 755-2991 Business Phone No.

3. Name of ditch, creek or river

Use:  Irrigation

4. Method of Irrigation Use:  Sprinkler  Furrow  Flood

5. Source of Water: (Check Only One)

- Spring Name
 Well Name
 Stream Name Tributary of
 Lake Name No name Stream none
Tributary of cloud basin
 Reservoir Name Stream
Tributary of

6. Point of Diversion: County Flathead
SE 1/4 NW 1/4 Section 26 T 28 N1/2 R 20 EW
Lot Block Subdivision

7. Means of Diversion:

- Pump Capacity 250 gpm
 Headgate and ditch or pipe
 Flood and dike

8. Means of Conveyance:

- Ditch
 Pipeline
 Other: Explain

STATE OF MONTANA  
ADMINISTRATOR OF GROUNDWATER CODE  
OFFICE OF STATE ENGINEER

RECEIVED  
DEC 30 1963

Declaration of Vested Groundwater Rights

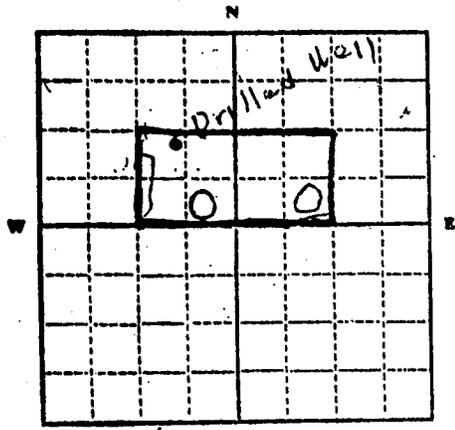
(Under Chapter 237, Montana Session Laws, 1961)

STATE ENGINEER

#5

1. Josephina K. Gregg, R.H. Kalspell  
(Name of Appropriator) of (Address) (Town)

County of Fitzhugh State of Montana  
have appropriated groundwater according to the Montana laws in effect prior to January 1, 1962, as follows:



SE 1/4 NW 1/4  
SW 1/4 NE 1/4 Sec. 26 T. 28 R. 20

Indicate point of appropriation and place of use, if possible. Each small square represents 10 acres.

2. The beneficial use on which the claim is based 50 head of livestock, and irrigation

3. Date or approximate date of earliest beneficial use; and how continuous the use has been June, 1945  
constant

4. The amount of groundwater claimed (in miner's inches or gallons per minute) 350 gal. per min.

5. If used for irrigation, give the acreage and description of the lands to which water has been applied and name of the owner thereof  
40 acres of pasture and hay

6. The means of withdrawing such water from the ground and the location of each well or other means of withdrawal.  
Pump, natural sloughs

7. The date of commencement and completion of the construction of the well, wells, or other works for withdrawal of groundwater June, 1945

8. The depth of water table 50 ft.

9. So far as it may be available, the type, size and depth of each well or the general specifications of any other works for the withdrawal of groundwater. Drilled well, 50 ft.

10. The estimated amount of groundwater withdrawn each year 15 million gals.

11. The log of formations encountered in the drilling of each well if available gravel

12. Such other information of a similar nature as may be useful in carrying out the policy of this act, including reference to book and page of any county record.

Signature of Owner Josephina K. Gregg  
Date Dec 18, 1963

DEPARTMENT OF NATURAL RESOURCES & CONSERVATION  
WATER RIGHTS BUREAU  
WATER RIGHT INFORMATION

WATER RIGHT NUMBER: 76LJ C026982-00

OWNER DATA:

CURRENT OWNER: I CINDY R & BRUCE J CARRELL  
5567 MONTANA 3S

KALISPELL

MT

59901

ORIGINAL OWNER: I PAUL C & BEVERLY RICHINS SR  
13532 S PARK DR

MAGALIA

CA

95954

WELL DATA:

LIMITS FOR WATER RIGHT

SURFACE/GROUND WATER  
MAXIMUM RATE: 10.00 GPM  
MAXIMUM VOLUME (AF): 1.50

OPERATING DATES  
APPLICATION RECEIVED: 3/24/80  
PRIORITY DATE: 1050 03/24/1980  
CERTIFICATE ISSUED: 10/09/80

MISCELLANEOUS  
INITIAL ID: . . . . .  
FEE PAID: . . . . .

WELL DATA:

NUMBER: 01  
LOCATION: SWNW SEC 26 TWP 28N RGE 20W FLATHHEAD CO

DETAILS OF WELL  
STATIC WATER LEVEL: 10.00  
YIELD RATE: 6.02  
CASING DIAMETER: 25  
RATE: 10.00 GPM  
DEPTH: 117

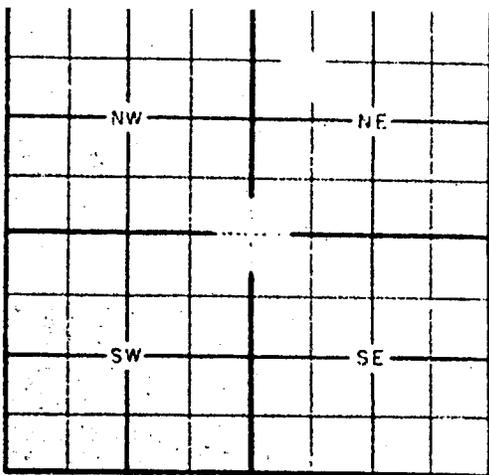
PURPOSE DATA:

TYPE OF USE: (DM) DOMESTIC  
NUMBER OF HOUSEHOLDS: 1

LIMITS OF USE  
PERIOD OF USE: JAN 01-DEC 31  
RATE: 10.00 GPM  
VOLUME: 1.50  
MAXIMUM VOLUME: 1.50

WELL DATA:

NUMBER ACRES LOT BLOCK QTR SCTN SCTN TWP RGE  
DM01-001 SWNW 26 28N 20W FLATHHEAD CO



T. 28N R. 20W Section 26  
 N or S E or W  
 OR, Lot \_\_\_\_\_ Block \_\_\_\_\_  
 Subdivision \_\_\_\_\_  
 City \_\_\_\_\_ County Flathead  
 Elevation \_\_\_\_\_ Accuracy: ±10'; ±50'; ±100'

5. DRILLING METHOD \_\_\_\_\_ cable, \_\_\_\_\_ bored,  
 forward rotary, \_\_\_\_\_ reverse rotary, \_\_\_\_\_ jetted,  
 other (specify) \_\_\_\_\_

**6. WELL CONSTRUCTION AND COMPLETION**

Size of drilled hole	Size and weight of casing	From (feet)	To (feet)	Perforations <u>NO</u> and/or Screen		
				Kind Size	From (feet)	To (feet)
6"	6 5/8 17.02#	0	117 1/2			

Was casing left open end?  Yes, \_\_\_\_\_ No  
 Was a packer or seal used? \_\_\_\_\_ Yes,  No  
 If so, what material \_\_\_\_\_  
 Was the well gravel packed? \_\_\_\_\_ Yes,  No  
 Was the well grouted?  Yes, \_\_\_\_\_ No  
 To what depth? 25

Material used in grouting: \_\_\_\_\_  
 Well head completion: Princess adapter  
12 in. above grade yes \_\_\_\_\_, other \_\_\_\_\_  
 (if other, specify) clay slurry  
 Pump horsepower \_\_\_\_\_, pump type \_\_\_\_\_  
 Pump intake level \_\_\_\_\_ feet below land surface  
 Power (electric, diesel, etc.) \_\_\_\_\_

**7. WATER LEVEL**

Static water level 10 feet below land surface  
 If flowing, flow rate \_\_\_\_\_ gpm  
 \_\_\_\_\_  
 \_\_\_\_\_

Pumping level below land surface:  
100 fter 3 hrs. pumping 25 gpm  
 \_\_\_\_\_ after \_\_\_\_\_ hrs. pumping \_\_\_\_\_ gpm

9. WAS WELL PLUGGED OR ABANDONED? Yes  No  
 If yes, how? \_\_\_\_\_

10. DATE STARTED 10/1/79  
 DATE COMPLETED 10/3/79

**11. WELL LOG**

Depth (ft.)		Formation
From	To	
0	90	clay, gravel
90	106	gravel
106	112	gravel, water, approx. 3 gpm
112	117 1/2	gravel, water

**12. DRILLER'S CERTIFICATION**

This well was drilled under my jurisdiction and this report is true to the best of my knowledge. 10/15/79

**STINGER WELL DRILLING**  
 Firm Name \_\_\_\_\_  
 Address 560 MountainView Dr., Kalispell, Mt. 59901

\_\_\_\_\_  
 \_\_\_\_\_



#4

ACKNOWLEDGEMENT OF WATER RIGHT TRANSFER  
FROM  
DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION  
STATE OF MONTANA

11/01/90

WATER RIGHT NUMBER 76LJ-C-026982-00

\*\*\*\*\*  
WE HAVE RECEIVED AND RECORDED A TRANSFER OF WATER RIGHT OWNERSHIP IN WHICH YOU  
WERE NAMED AS A PARTY. THE RECORDS MAINTAINED BY THE WATER RIGHTS BUREAU  
HAVE BEEN CHANGED TO REFLECT THE NEW OWNERSHIP ACCORDING TO THE WATER RIGHT  
TRANSFER. THE ABSTRACT BELOW SHOWS THE CURRENT WATER RIGHT INFORMATION.  
BOTH BUYER AND SELLER HAVE BEEN SENT THIS ACKNOWLEDGEMENT.

IF YOU HAVE QUESTIONS, PLEASE CONTACT YOUR LOCAL WATER RIGHTS BUREAU FIELD  
OFFICE. KALISPELL FIELD OFFICE, 752-2288.

\*\*\*\*\*

OWNERS:  
KENNEDY CHARLOTTE H  
PO BOX 5015  
KALISPELL MT 59901  
KENNEDY, JR JOHN E  
PO BOX 5015  
KALISPELL MT 59901

PRIORITY DATE: MAR 24, 1980 10:50

FLOW RATE: 10.00 GALLONS PER MINUTE (G)

VOLUME: 1.50 ACRE FEET PER YEAR (AF)

SOURCE: WELL

PURPOSE:

USE	FLOW	VOLUME (AF)	ACRES	PERIOD OF USE
DOMESTIC	10.00 G	1.50		JAN 1 TO DEC 31

POINTS OF DIVERSION AND MEANS OF DIVERSION:

WELL:  
LOT BLK QTR SEC SEC TWP RGE COUNTY  
SNNW 26 28N 20W FLATHEAD

PLACE OF USE FOR DOMESTIC:  
ACRES LOT BLK QTR SEC SEC TWP RGE COUNTY  
001 SNNW 26 28N 20W FLATHEAD

**\*\* TRANSFER OF OWNERSHIP:**  
UPON A CHANGE IN OWNERSHIP OF ALL OR ANY PORTION OF THIS  
CERTIFICATE, THE PARTIES TO THE TRANSFER SHALL FILE WITH  
THE DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION A  
WATER RIGHT TRANSFER CERTIFICATE, FORM 608, PURSUANT TO  
SECTION 85-2-424, MCA.

NOTICE OF TRANSFER RECEIVED 9/17/90.



RECEIVED

NOV 29 1994

MONTANA D.N.R.C.  
NATURAL RESOURCES DIVISION

NOTICE OF COMPLETION OF  
GROUNDWATER DEVELOPMENT  
For groundwater developments with a maximum use  
of 35 GPM not to exceed 10 AC-FT per year  
GROUNDWATER IS DEFINED AS ANY WATER BENEATH THE GROUND SURFACE.  
(Use Form 60C, Application for Beneficial Water Use Permit for  
appropriations in excess of 35 GPM or 10 AC-FT per year.)

WORK COPY

IMPORTANT

The law requires this form to be filed by the appropriator within 60 days after the water  
has been put to use. Your priority is determined by the date of filing.

Complete the notice and attach an aerial photo, survey, or other map showing the  
location of your development. Submit it with the \$25.00 filing fee, payable to DNRC,  
to the appropriate Water Resources Regional Office. This form will be returned if any  
of the pertinent information is incomplete or incorrect.

Notice No. 92402 Basin 74LT  
Priority Date \_\_\_\_\_  
Time 2:00 AM (PM)  
Rec'd By C. Molina  
Fee Rec'd \$ 25.00  
Check No. 11563  
Transmittal No. 08-073  
Refund \$ \_\_\_\_\_ Date \_\_\_\_\_

(Please type or print in ink.)

- NAME Lloyd E. Mathwig  
MAILING ADDRESS 2218 Faith Hill Rd  
CITY Kalispell STATE Montana ZIP 59501  
HOME PHONE 755-2898 OTHER PHONE \_\_\_\_\_
- SOURCE OF GROUNDWATER SUPPLY  Well  Developed Spring (Excavation performed at spring location)  
 PK  Other \_\_\_\_\_
- ACTUAL PUMPING RATE 20 GPM Pump: HP Rating 1 Installation Depth 112 Ft.
- DATE WATER PUT TO BENEFICIAL USE (Water must be used prior to this filing) 11 19 94
- DOES THIS WELL REPLACE AN EXISTING WELL? Yes  No   
Old Well Depth \_\_\_\_\_ Ft. Old Well GPM \_\_\_\_\_ Date Old Well Drilled or Dug \_\_\_\_\_
- WILL THIS DEVELOPMENT be used in combination with another well or spring? Yes  No   
If yes, list the water numbers and explain how they are used.

PER MAP  
99  
4/14/95

- POINT OF DIVERSION Describe the location to the nearest 10 acres (i.e.: to the 1/4 1/4 1/4). Legal land descriptions may  
be obtained from your county records.  
E 2 1/4 NW 1/4 NW 1/4 Section 26 Twp 25 N Rge 20 W County Flathead  
Lot \_\_\_\_\_ Block \_\_\_\_\_ Tract No. 7C Subdivision Name \_\_\_\_\_  
Government Lot \_\_\_\_\_
- PURPOSE AND PLACE OF USE  
Purpose of Use household lawn + garden If same as Point of Diversion, Check   
1/4 1/4 1/4 Section Twp N/S Rge E/W County  
Lot \_\_\_\_\_ Block \_\_\_\_\_ Tract No. \_\_\_\_\_ Subdivision Name \_\_\_\_\_  
Government Lot \_\_\_\_\_
- PURPOSE AND PERIOD OF USE

DOMESTIC	Number of Households Currently Using Water From This Development <u>1</u> Year-round Use? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If no, From _____ to _____, Inclusive of Each Year. <i>If lawn and/or garden exceeds 1/4 acre, list total size below.</i>
LAWN AND / GARDEN	Total Size of Lawn and / or Garden _____ (Length x Width ÷ 43680 = Acres) Period of Use: From _____ to _____, Inclusive of Each Year.
STOCK	Number and Type _____ Year-round Use? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If no, From _____ to _____, Inclusive of Each Year.
IRRIGATION (Other than Lawn and Garden)	Shelterbelt or Type of Crop _____ Total Acres Irrigated _____ Period of Use: From _____ to _____, Inclusive of Each Year.
OTHER	Describe the Purpose of Use _____ Amount of Water Used _____ Gallons Per Day _____ Year-round Use? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If no, From _____ to _____, Inclusive of Each Year.

10. REMARKS (Use this space for additional information.)

11. AFFIDAVIT OF OWNERSHIP OR WRITTEN CONSENT

I certify the statements appearing here are to the best of my knowledge true and correct. I also certify I have necessary interest in the property where the water is to be put to beneficial use and own the property rights in the groundwater development or the entire amount of the person with those property rights.

Appropriator's Signature Lloyd E. Mathwig Date: 11-25-94

Subscribed and sworn before me this 25th day of November 1994

Notary's Signature Shirley Jackson  
Notary for the State of Montana  
Residing at Kalispell  
My commission expires 8-22-98



STATE OF MONTANA  
DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION  
1520 EAST SIXTH AVENUE P.O. BOX 202301 HELENA, MONTANA 59620-2301



# Certificate of Water Right

UPON FINDING THE REQUIREMENTS OF SECTION 85-2-301 MCA HAVE BEEN MET,  
THIS CERTIFICATE OF WATER RIGHT IS ISSUED TO:

LLOYD E MATHWIG  
2218 FOOTHILL RD  
KALISPELL MT 59501

**CERTIFICATE DE WATER RIGHT NUMBER:** 92402-76LJ

**PRIORITY DATE:** NOVEMBER 29, 1994 AT 2:00 P.M.

**SOURCE:** GROUNDWATER

**DIVERSION:** FROM: 01/01-12/31 MEANS: WELL  
E2NWNW SEC. 26 TWP. 28N RGE. 20W FLATHEAD CO

**INITIAL FLOW RATE:** 20.00 GPM

**INITIAL VOLUME:** 1.63 ACRE FEET PER YEAR

**USE:** 20.00 GPM UP TO 1.63 AC-FT (01/01-12/31)  
FOR DOMESTIC

**PLACE OF USE:** E2NWNW SEC. 26 TWP. 28N RGE. 20W FLATHEAD CO  
FOR DOMESTIC

**\*\* PRIOR RIGHTS:**  
THIS CERTIFICATE IS ISSUED SUBJECT TO ALL PRIOR EXISTING WATER RIGHTS  
IN THE SOURCE OF SUPPLY.

**\*\* BACKFLOW PREVENTOR:**  
PURSUANT TO SECTION 85-2-505, MCA, TO PREVENT  
GROUNDWATER CONTAMINATION, AN OPERATIONAL BACK FLOW  
PREVENTOR MUST BE INSTALLED AND MAINTAINED BY THE  
APPROPRIATOR IF A CHEMICAL OR FERTILIZER DISTRIBUTION  
SYSTEM IS CONNECTED TO THE WELL.

**\*\* LAND DESCRIPTION CLARIFICATION:**  
THE POINT OF DIVERSION AND PLACE OF USE ARE LOCATED ON  
TRACT NO. 7C.

**FAILURE TO COMPLY WITH ANY TERMS AND CONDITIONS HEREIN MAY RESULT IN  
THE LOSS OF THE WATER RIGHT GRANTED BY THIS CERTIFICATE.**

**\*\* TRANSFER OF OWNERSHIP:**  
UPON A CHANGE IN OWNERSHIP OF ALL OR ANY PORTION OF THIS CERTIFICATE,  
THE PARTIES TO THE TRANSFER SHALL FILE WITH THE DEPARTMENT OF NATURAL  
RESOURCES AND CONSERVATION A WATER RIGHT TRANSFER CERTIFICATE,  
FORM 608, PURSUANT TO SECTION 85-2-424, MCA.

*[Signature]*  
WITNESS

*[Signature]*  
PROGRAM ASSISTANT

**DATE:** APRIL 19, 1995 WATER RIGHTS BUREAU, WATER RESOURCES DIVISION



**ARNDT**

# WELL LOG REPORT

State-law requires that this form be filed by the water well driller within 60 days after completion of the well.

<p><b>1. WELL OWNER</b> Name <u>Jeff Kruckenberg</u></p>	<p><b>8. WATER LEVEL</b> Static water level <u>54</u> feet below land surface If flowing; closed-in pressure _____ psi Controlled by: _____ valve, _____ reducers, _____ other, (specify) _____</p>																	
<p><b>2. CURRENT MAILING ADDRESS</b> <u>645 Conrad Road No. 16</u> <u>Kalispell, Montana 59901</u></p>	<p><b>9. WELL TEST DATA</b> _____ pump _____ baller <input checked="" type="checkbox"/> other, (specify) <u>air</u> Pumping water level below land surface: <u>120</u> ft. after <u>2½</u> hrs. pumping <u>50</u> gpm <u>238</u> ft. after <u>2</u> hrs. pumping <u>85</u> gpm</p>																	
<p><b>3. WELL LOCATION</b> County <u>Flathead</u> Township <u>28</u> <u>N/W</u> Range <u>20</u> <u>E/W</u> <u>N2/E</u> NE ¼ NW ¼ Section <u>26</u> Lot _____ Block _____ Subdivision _____</p>	<p><b>10. WAS WELL PLUGGED OR ABANDONED?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, how? _____</p>																	
<p><b>4. PROPOSED USE</b> Domestic <input checked="" type="checkbox"/> Stock <input type="checkbox"/> Irrigation <input type="checkbox"/> Other <input type="checkbox"/> specify _____</p>	<p><b>11. DATE COMPLETED</b> <u>5-9-1985</u></p>																	
<p><b>5. DRILLING METHOD</b> _____ cable, _____ bored, <input checked="" type="checkbox"/> forward rotary, _____ reverse rotary, _____ jetted, _____ other (specify) _____</p>	<p><b>12. WELL LOG</b> Depth (ft.) From To Formation</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:5%;">G.I.</td> <td style="width:15%;">46'</td> <td style="width:15%;">Large Gravel Silt sand</td> </tr> <tr> <td></td> <td>46' 89'</td> <td>Silty Ssd</td> </tr> <tr> <td></td> <td>89' 231'</td> <td>Silty sand Gravel</td> </tr> <tr> <td></td> <td>231' 238'</td> <td>Sand Gravel water</td> </tr> </table>	G.I.	46'	Large Gravel Silt sand		46' 89'	Silty Ssd		89' 231'	Silty sand Gravel		231' 238'	Sand Gravel water					
G.I.	46'	Large Gravel Silt sand																
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	231' 238'	Sand Gravel water																
<p><b>6. WELL CONSTRUCTION AND COMPLETION</b></p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Size of drilled hole</th> <th rowspan="2">Size and weight of casing</th> <th rowspan="2">From (feet)</th> <th rowspan="2">To (feet)</th> <th colspan="3">Perforations _____ and/or _____</th> </tr> <tr> <th>Screen</th> <th>Kind Size</th> <th>From (feet) To (feet)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">6"</td> <td style="text-align: center;">6" 17#'</td> <td style="text-align: center;">G.I.</td> <td style="text-align: center;">238'</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Size of drilled hole	Size and weight of casing	From (feet)	To (feet)	Perforations _____ and/or _____			Screen	Kind Size	From (feet) To (feet)	6"	6" 17#'	G.I.	238'				<p style="text-align: center; font-size: 2em; font-weight: bold;">RECEIVED</p> <p style="text-align: center;">JUL 15 1985</p> <p style="text-align: center;">MONTANA D.N.R.C. KALISPELL FIELD OFFICE</p> <p style="text-align: center; font-size: 0.8em;">(use separate sheet if necessary)</p>
Size of drilled hole					Size and weight of casing	From (feet)	To (feet)	Perforations _____ and/or _____										
	Screen	Kind Size	From (feet) To (feet)															
6"	6" 17#'	G.I.	238'															
<p>Was casing left open end? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Was a packer or seal used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If so, what material _____ Was the well gravel packed? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Was the well grouted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No To what depth? _____ Material used in grouting _____ Well head completion: Pitless adapter <input type="checkbox"/> Yes <input type="checkbox"/> No Top of casing 12 in. or greater above grade <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p><b>13. DRILLER'S CERTIFICATION</b> This well was drilled under my jurisdiction and this report is true to the best of my knowledge. Date <u>7-5-1985</u> Chambers Drilling Co. Firm Name Box 1756 Columbia Falls, Montana 59912 Address <u>J. F. Chambers</u> 321 Signature License No.</p>																	
<p><b>7. WHAT IS THE TEMPERATURE OF THE WATER?</b> Degrees Fahrenheit <input type="checkbox"/> Measured <input type="checkbox"/> Estimated</p>																		

**MONTANA DEPARTMENT OF NATURAL RESOURCES & CONSERVATION**

32 SOUTH EWING
HELENA, MONTANA 59620
444-6610 **DNRC**

BM →

# LIBERTY DRILLING COMPANY

3850 HIGHWAY 93 SOUTH  
PH. 752-2809  
KALISPELL, MONTANA 59901

DOMESTIC  
IRRIGATION

LICENSED, BONDED AND INSURED

Tony Clouse  
P.O. Box 2644  
Kalispell, Montana 59901

April 21, 1987

## WELL LOG

Location: East side of Highway 35 - Clouse Farm.

### Formation Log:

- 0 - 34 Gravel and cobbles mixed in tan sandy silt.
- 34 - 87 Tan silty sand.
- 87 - 107 Small gravel mixed in tan silty sand. 10 gallons per minute very dirty water - will not clear.
- 107 - 174 Medium gravel mixed in tan silty sand. 15 gallons per minute very dirty water - will not clear.
- 174 - 184 Large gravel mixed in tan silty sand. 50+ gallons per minute water.

### Water Log:

Well produced in excess of 50 gallons per minute of clear sand-free water on a five hour test with an air lift pump. Static water level at completion of well was four feet from surface.

### Casing Log:

Well is cased from 2'4" above surface to 178' with 6 5/8" OD x .250 wall new black steel water well casing. A six inch forged steel drive shoe is welded to the bottom of the six inch casing. From 174' to 184' the well is filled with clean coarse gravel in order to make a filter and conduit to conduct water into the well. All water is entering the well thru the open bottom of the six inch casing.

### Grouting Log:

An eight inch hole was drilled to a depth of 20' to provide an annulus around the six inch casing. The annulus was filled with pure bentonite in order to make a sanitary surface seal and prevent seepage of surface waters and other contaminants into and around the well.

### Note:

Wells of this type in this area can be depended upon year after year to produce clear sand-free water as long as they are not overpumped, i.e., they should be pumped at rates not in excess of 70 to 80 percent of the tested capacity of the aquifer.

# LIBERTY DRILLING & PUMP COMPANY, INC.



3850 Highway 93 South, Kalispell, Montana 59901  
(406) 752-2809 FAX (406) 756-0029

January 31, 1998

Cecil McKinley  
5447 Highway 35  
Kalispell, MT 59901

RE: Water levels in the Creston area.

Dear Cecil:

Liberty Drilling has drilled water wells in this area for over 35 years. It has been our observation that ground water levels are at a higher elevation than average. This high has been occurring for a couple of years and is likely connected to the record precipitation we experienced.

In the Creston pothole area, water levels appear to be the same whether it be surface water or ground water. In other words, the high water mark of a pothole would be the water level within a well drilled up gradient.

I would expect water levels to go back down after several years of average precipitation. This bounce we are experiencing may seem dramatic, however, ground water levels have only been recorded in this area for about forty years. What we do know and what has been documented is the presence of a large aquifer under the Flathead Valley. The Montana Bureau of Mines and Geology is conducting a program to study this aquifer's characteristics. I have enclosed a summary of their activity to date.

If you have any questions or desire more information, please feel free to call on us.

Sincerely,  
LIBERTY DRILLING & PUMP COMPANY, INC.

A handwritten signature in cursive script that reads "William A. Gardner".

William A. Gardner  
President

Geologic Framework of Aquifers and Confining Units in the Kalispell Valley, Northwestern  
Montana

Larry N. Smith  
Montana Ground-Water Characterization Program  
Montana Bureau of Mines and Geology  
Montana Tech, Butte, MT 59701-8997  
larry@mbmgsun.mtech.edu, 496-4379 (v), 496-4451 (fax)

The Kalispell valley has contained large lakes since at least late Pleistocene times, making for a poorly exposed valley-fill stratigraphic record. The Kalispell valley also contains about 10,000 water wells, and many additional wells are being drilled each year. Knowledge of the stratigraphic framework of sediments and interpretations of the glacial/post-glacial history rely on mapping with data derived from well logs. As part of the Montana Ground-Water Characterization Program, maps of the depth and thicknesses of geologic units in the valley have been made by interpreting more than 7,000 water-well lithologic logs.

The distribution of aquifers in the valley are controlled by the stratigraphy of clay-rich and clay-poor sediment. The geologic framework of the valley can be summarized as (from oldest-to-youngest):

- Deep sand and gravel was deposited as pro-glacial outwash and pre-Late(?) Wisconsin alluvium across most of the valley. Near valley margins and in the delta region south of Creston and Kalispell, the sand and gravel unit is locally replaced by Pleistocene(?) lacustrine silt and clay (>51,700 BP), alluvial fans, or possibly older till.
- Late(?) Wisconsin till mantled the sand and gravel and bedrock knobs within the valley. The Flathead lobe of the Cordilleran ice sheet overrode older lacustrine sediment and possibly floated on a lake, depositing till mainly along valley margins and between modern drainages. The lobe is known to have been at the Polson moraine by ~15,000 B.P., but multiple advances and retreats may be recorded in the till unit.
- Glaciolacustrine silt, clay, and minor gravel infilled broad areas flanked by the till sheet and were inset into areas between recessional moraines (to a 945-m elevation). Glacier Peak tephra (11,200 B.P.) capped some glaciolacustrine deposits, indicating that retreat of the last ice from the valley was followed by expansion of "lake Kalispell" to an elevation of about 945 m.
- Surficial sand and gravel formed sheets along modern stream valleys, eolian blankets, outwash aprons (and fan deltas?) that emanated from canyons bordering the valley, and sinuous paleochannels in lacustrine silts and clays the modern delta. Fluvial erosion since about 11,200 B.P. lowered the lake sill by about 60 m.

Based on the presence of overlying and/or underlying clay-rich confining units, three aquifers can be recognized in the stratigraphic section:

- Deep sand and gravel aquifer, confined below till or glaciolacustrine silt and clay;
- Intermediate aquifer(s) of locally important sand and gravel units generally confined within the till or glaciolacustrine section; and
- Shallow sand and gravel aquifer(s) in post-glacial, coarse-grained sediment, generally unconfined.

## Hydrogeology and Ground-Water Chemistry of the Kalispell Valley, Northwestern Montana

John I. LaFave  
Montana Ground-Water Assessment Program  
Montana Bureau of Mines and Geology  
1300 West Park St.  
Butte, MT 59701  
johnl@mbmgsun.mtech.edu, 496-4306 (v), 496-4451 (fax)

Ground-water resources of the Kalispell valley in northwest Montana are being evaluated as part of the Montana Ground-Water Characterization Program. In 1996, water-level measurements were obtained from about 380 wells, and 80 wells were sampled for major ions, nitrate and trace metals. In addition, selected wells were sampled for tritium and radon. Most of the data were collected from the deep and intermediate aquifers within the valley fill and from the Precambrian bedrock aquifer which surrounds the basin.

Ground-water flow is generally away from the valley margins toward the axis of the basin and then south toward Flathead Lake. In many places hydraulic heads in the intermediate aquifers, which are localized units of sand and gravel within the glaciolacustrine or till confining beds, are close to those in the deep aquifer. This suggests a fair degree of hydraulic connection between the deep and intermediate aquifers within the valley fill. Potentiometric surface mapping also suggests that the Precambrian bedrock aquifer is hydraulically connected to the deep aquifer.

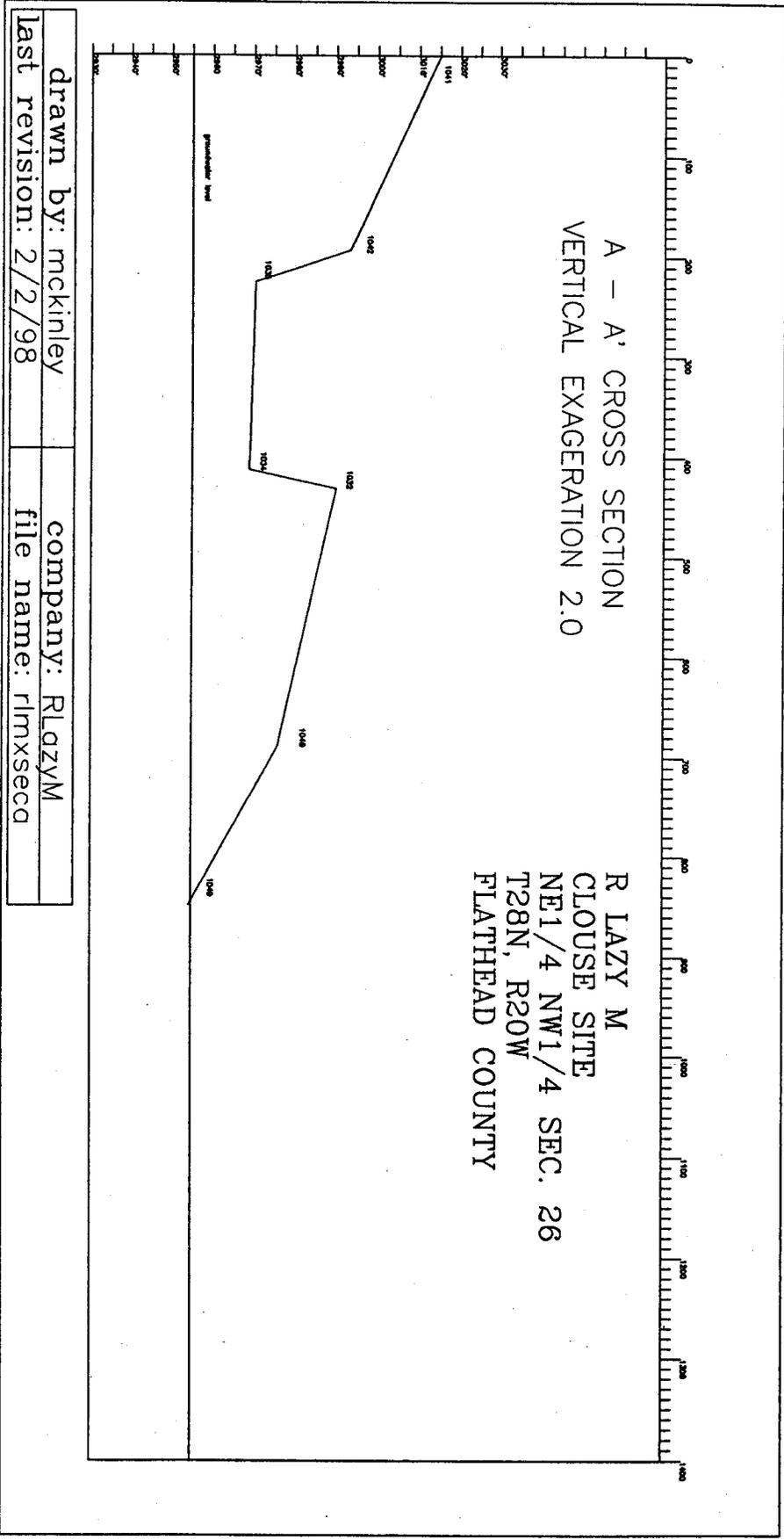
In 1996, seasonal ground-water fluctuations of about 10 feet were common in the deep sand and gravel and Precambrian bedrock aquifers. However, one well, completed in an intermediate aquifer near the northern margin of the valley, exhibited more than 50 ft of ground-water fluctuation. Water-level data, obtained to date, show that the 1997 spring runoff was a major ground-water recharge event.

The geology does not appear to be a significant control on ground-water chemistry. Water from all sampled aquifers is a Ca-Mg-HCO<sub>3</sub> type, characterized by low total dissolved solids (< 500 mg/L). Nitrate concentrations ranged from non-detectable to 8.2 mg/L as N; the average was less than 3.0 mg/L as N. Geology does appear to control the radon concentrations in ground water. In the deep and intermediate sand and gravel aquifers, the radon concentrations in 22 samples ranged from 160 to 1,870 pCi/L with an average concentration of 688 pCi/L (median = 630 pCi/L). In the Precambrian bedrock aquifer, the radon concentrations in 14 samples ranged from 800 to 8,360 pCi/L, with average of 1,872 pCi/L (median = 1,298 pCi/L). The EPA has proposed a maximum contaminant level for radon of 300 pCi/L for public water supplies.

Only three out eight samples from the deep sand and gravel aquifer contained detectable tritium. Two of the samples with detectable tritium had concentrations less than 2.0 tritium units (TU); the other, which was from a well along the northern margin of the valley, had a concentration of 15.9 TU. The results from the tritium sampling indicate that the deep sand and gravel aquifer is dominated by water recharged before 1953 (pre bomb), suggesting that the glaciolacustrine and till confining beds provide reasonable geologic protection to the aquifer.

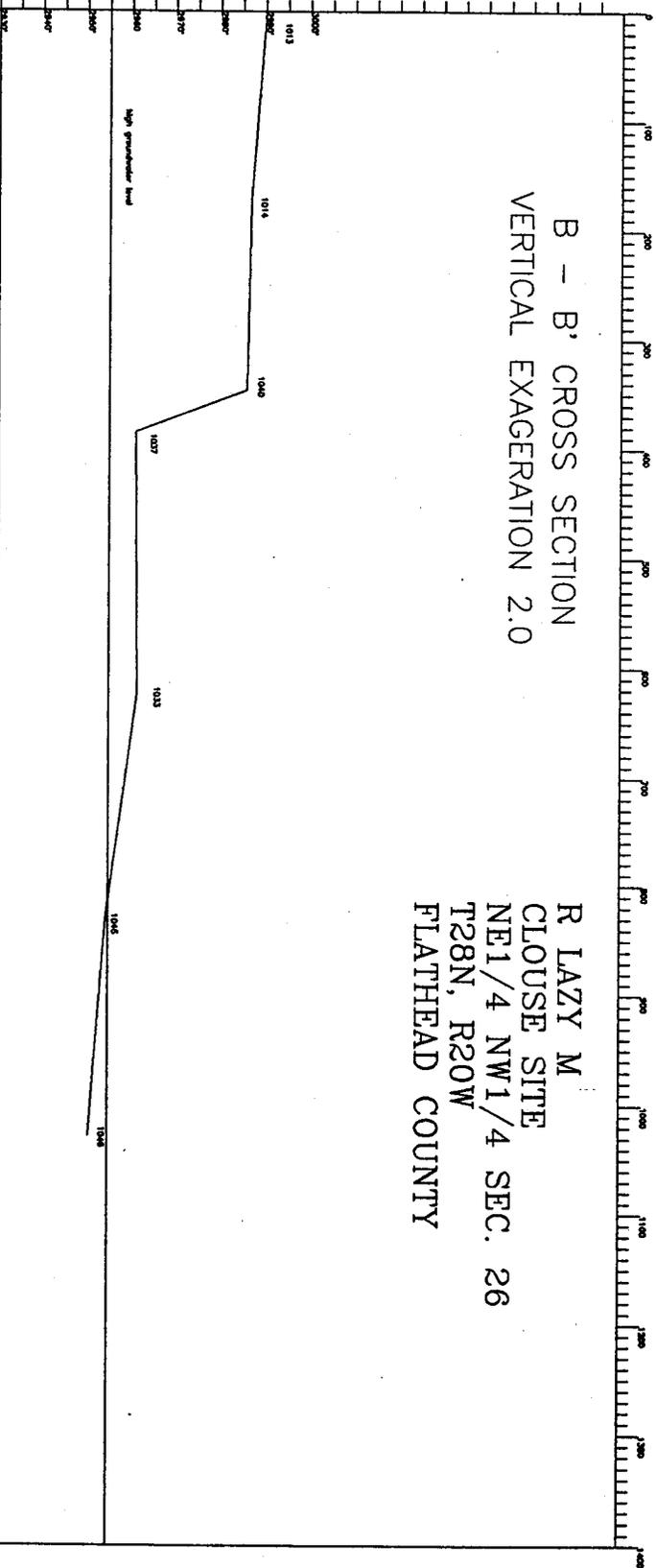
Exhibit 5

Exhibit #5



B - B' CROSS SECTION  
VERTICAL EXAGGERATION 2.0

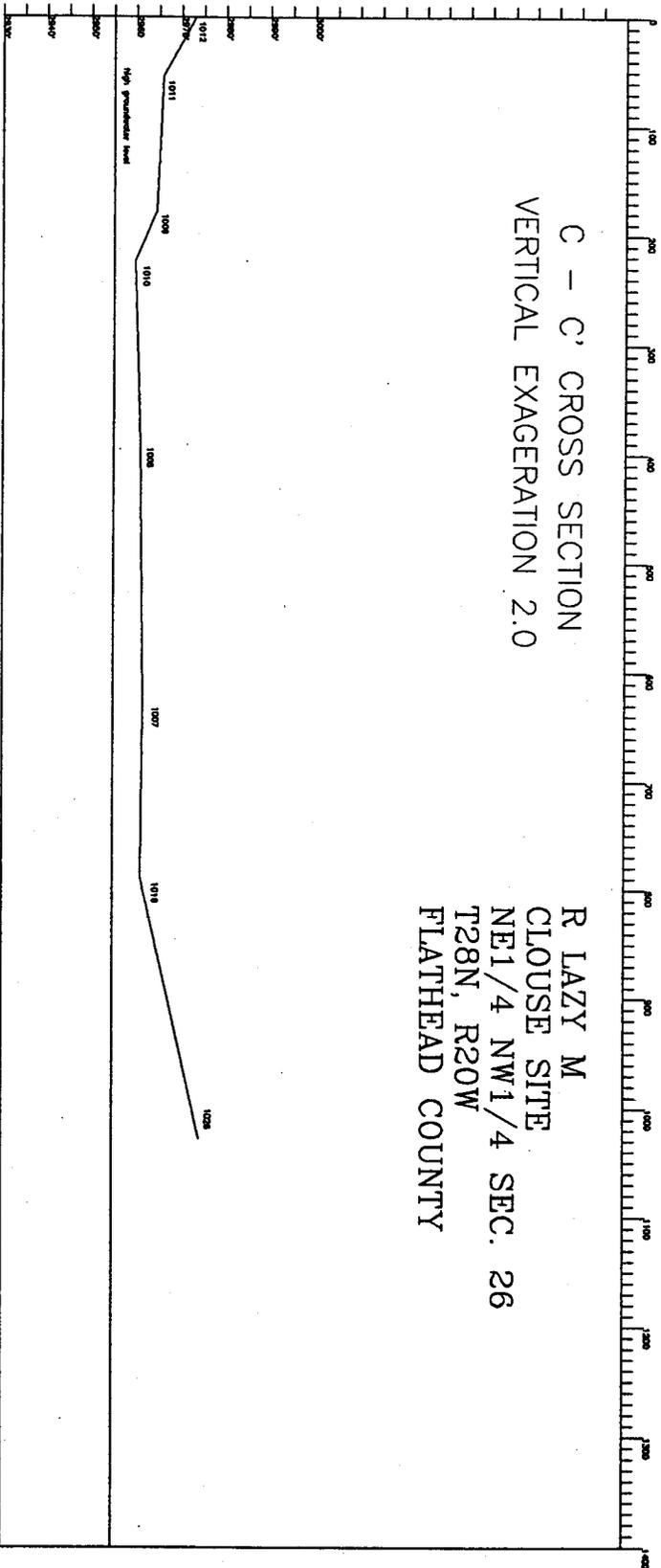
R LAZY M  
CLOUSE SITE  
NE1/4 NW1/4 SEC. 26  
T28N, R20W  
FLATHEAD COUNTY



drawn by: mckinley	company: RLazYM
last revision: 2/2/98	file name: rlmxsecb

C - C' CROSS SECTION  
VERTICAL EXAGGERATION 2.0

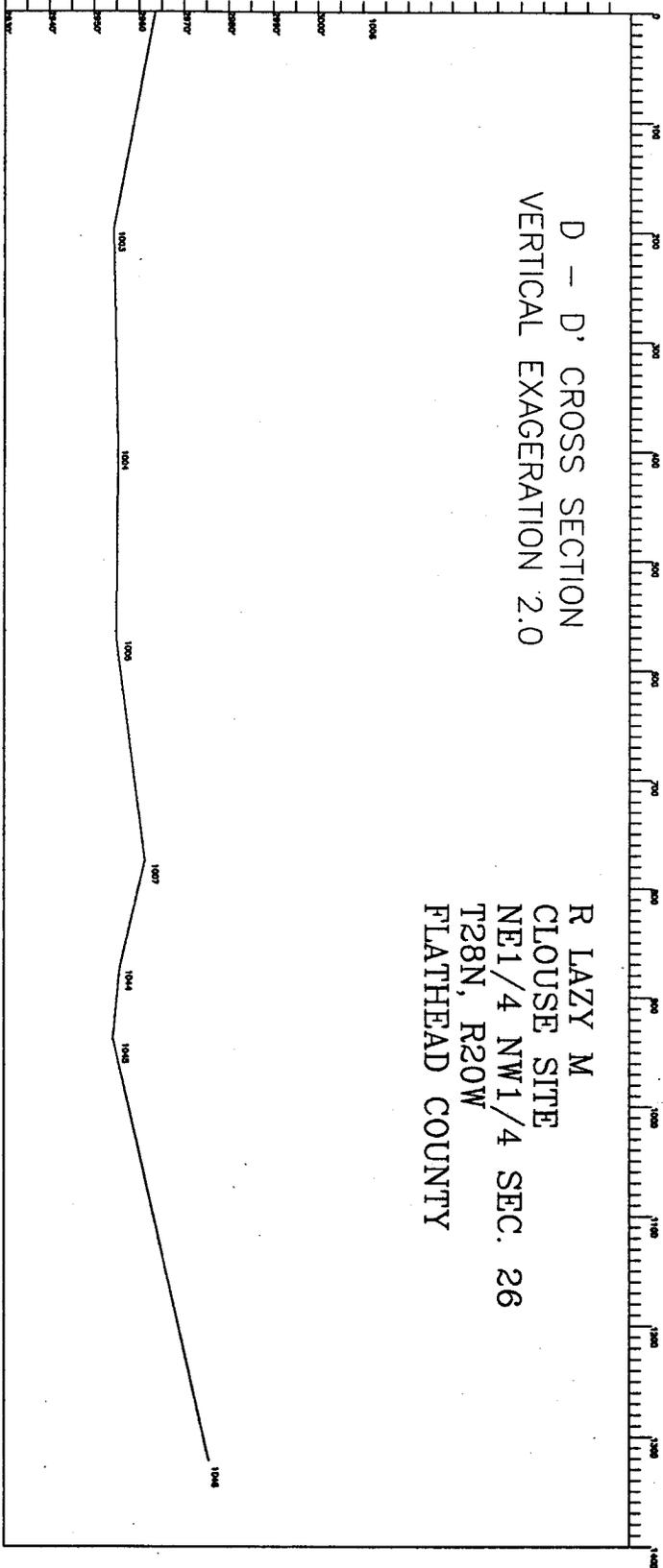
R LAZY M  
CLOUSE SITE  
NE1/4 NW1/4 SEC. 26  
T28N, R20W  
FLATHEAD COUNTY



drawn by: mckinley	company: Rlazym
last revision: 2/2/98	file name: rlmxsecc

D - D' CROSS SECTION  
VERTICAL EXAGGERATION 2.0

R LAZY M  
CLOUSE SITE  
NE1/4 NW1/4 SEC. 26  
T28N, R20W  
FLATHEAD COUNTY

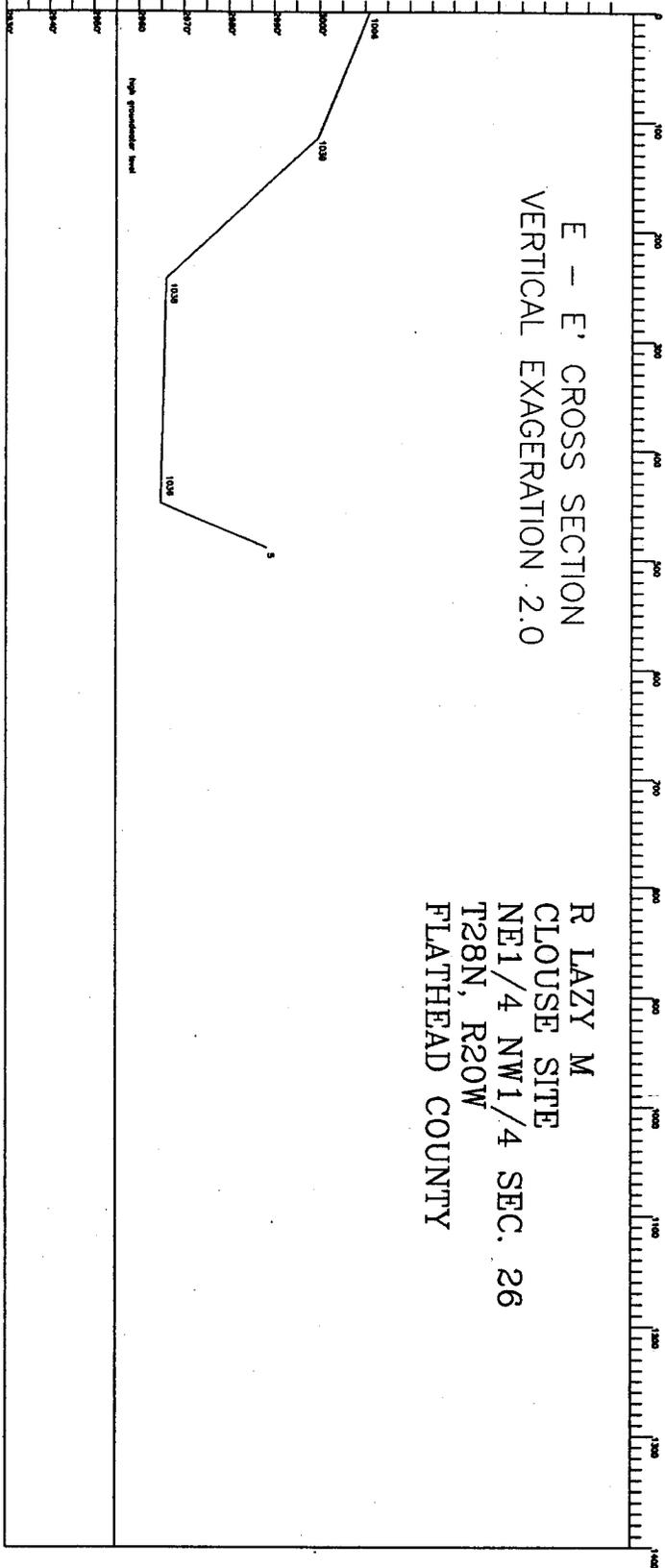


drawn by: mckinley  
last revision: 2/2/98

company: Rlazym  
file name: rlmxsecd

E - E' CROSS SECTION  
VERTICAL EXAGGERATION 2.0

R LAZY M  
CLOUSE SITE  
NE1/4 NW1/4 SEC. 26  
T28N, R20W  
FLATHEAD COUNTY



drawn by: mckinley	company: RLazYM
last revision: 2/2/98	file name: rlmxsece

**RLAZYM CROSS SECTIONS  
CROSS SECTION A - A'**

FROM	ELEV	TO	DISTANCE
1041	3014.6	1042	193'4"
1042	2992.9	1035	35'0"
1035	2970.2	1034	187'5"
1034	2968.9	1032	18'10"
1032	2989.8	1048	257'4"
1048	2976.0	1049	156'8"
1049	2954.4		

**CROSS SECTION B - B'**

FROM	ELEV	TO	DISTANCE
1013	2990.0	1014	171'7"
1014	2986.8	1040	174'4"
1040	2986.0	1037	38'2"
1037	2960.9	1033	239'11"
1033	2961.6	1045	206'9"
1045	2954.4	1046	197'9"
1046	2851.5		

**CROSS SECTION C - C'**

FROM	ELEV	TO	DISTANCE
1012	2973.4	1011	53'11"
1011	2966.3	1009	124'1"
1009	2964.6	1010	46'4"
1010	2958.6	1008	165'7"
1008	2961.3	1007	236'0"
1007	2962.2	1016	163'11"
1016	2960.9	1026	238'8"
1026	2973.9		

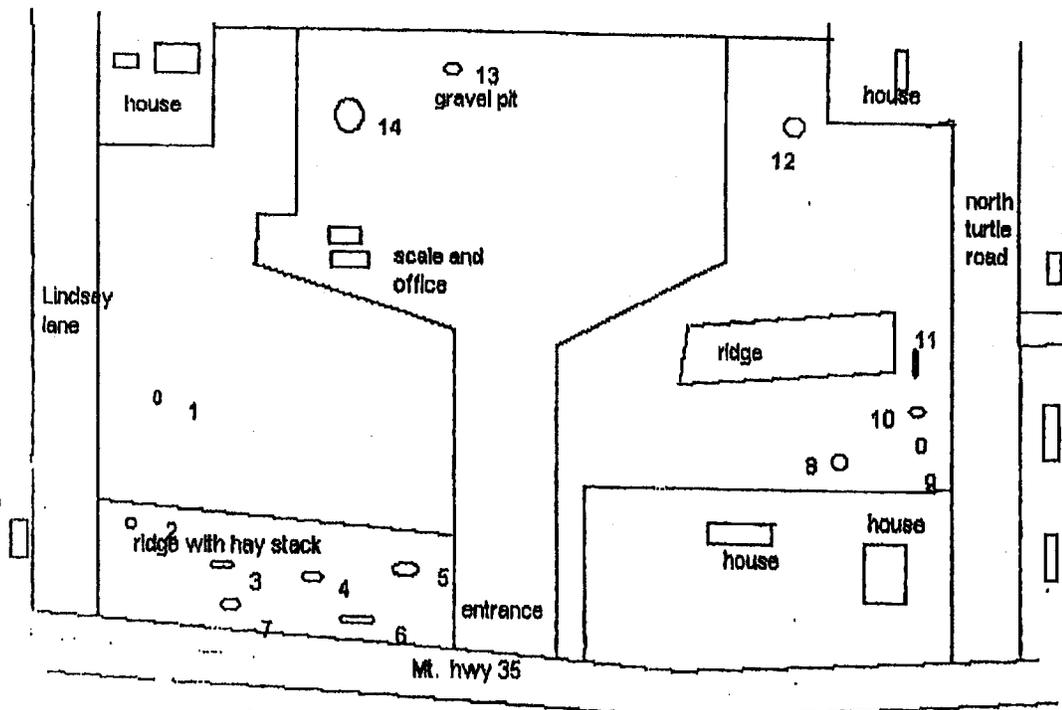
CROSS SECTION D - D'

FROM	ELEV	TO	DISTANCE
1002	2963.4	1003	197'7"
1003	2954.7	1004	199'9"
1004	2955.4	1005	175'9"
1005	2955.2	1007	201'9"
1007	2962.2	1044	98'9"
1044	2956.4	1045	64'3"
1045	2954.4	1048	384'4"
1048	2976.0		

CROSS SECTION E - E'

FROM	ELEV	TO	DISTANCE
1006	3011.9	1039	113'11"
1039	2998.7	1038	128'3"
1038	2967.0	1036	206'0"
1036	2965.2	1005	40'3"
5	2987.9		

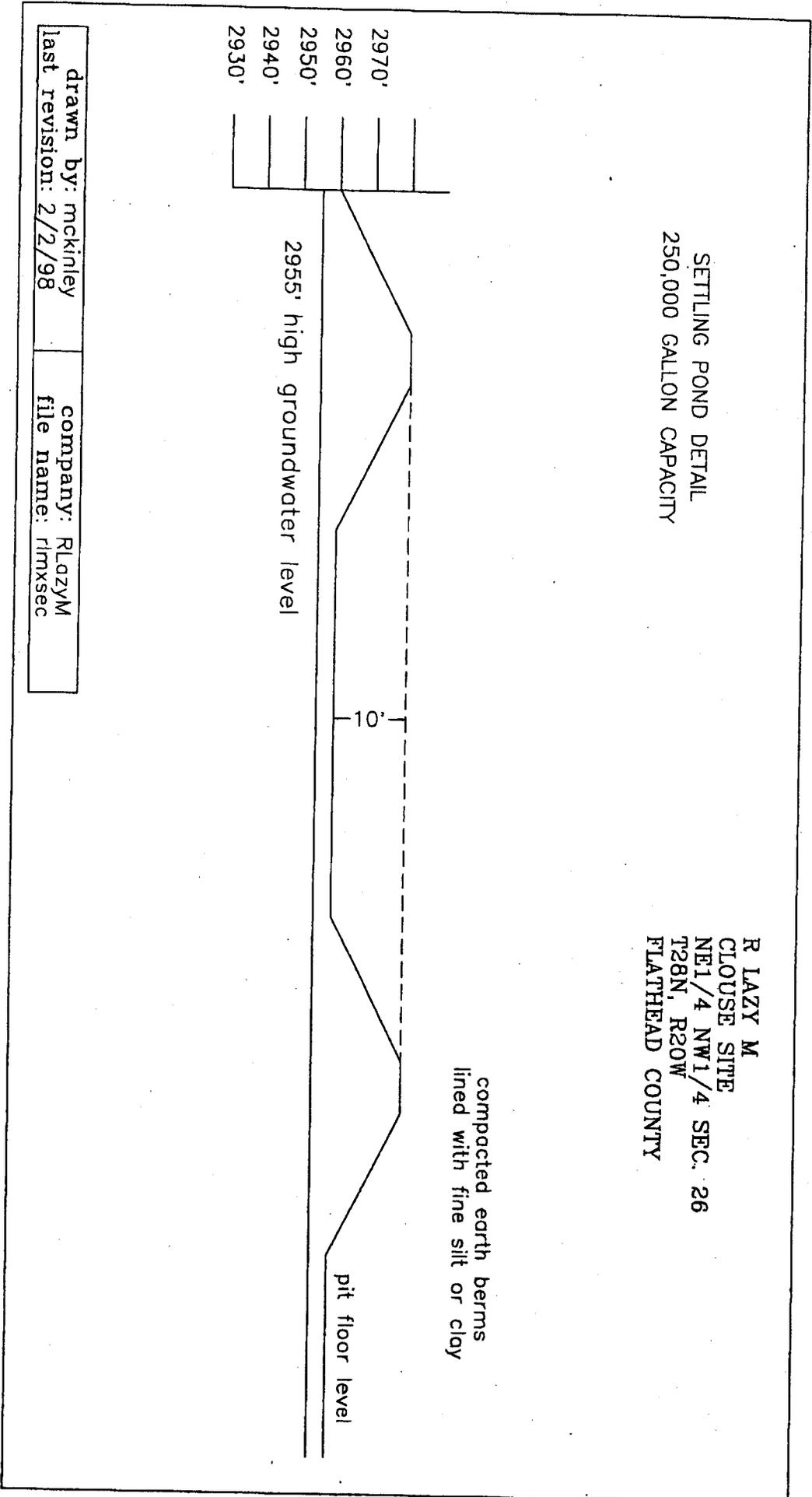
# Exhibit # 6



## RESULTS FROM TEST HOLES

- HOLE #1 - 14' deep 0-2' Blackdirt -- 10' clay -- 10'-14' same. Water appeared at 10' depth between clay & sand seam
- HOLE #2 - 0-1' Top Soil -- 1'-14' Sand & Gravel.
- HOLE #3 - 0-1' Top Soil -- 1'-3' Sandy with rock -- 3'-14' Sand & Gravel.
- HOLE #4 - 0-1' Top Soil -- 1'-14' Sandy with rocks.
- HOLE #5 - 0-1' Top Soil -- 1'-14' Nice sand (good masonry).
- HOLE #6 - 0-1' Top Soil -- 1-14' Gravel & glay binder (gravel OK).
- HOLE #7 - 0-1' Top Soil -- 1-14' same as #6.
- HOLE #8 - 0-1' Top Soil -- 1'-8' Good gravel -- 8'-14' Sandy silt.
- HOLE #9 - 0-1' Top Soil -- 1'-12' Red clay -- 12'-14' Sandy silt.
- HOLE #10 - 0-1' Top Soil -- 1'-14' Sand & Gravel.
- HOLE #11 - 0-1' Top Soil -- 1'-3' Clay silt -- Sand & Gravel.
- HOLE #12 - 0-1' Top Soil -- 1'-3' Clay silt -- 3'-14' Sand & Gravel.
- HOLE #13 - 0-13' Sand & Gravel -- 13'-14' Sandy silt.
- HOLE #14 - 0-13' Sand & Gravel -- 13'-14' Sandy silt.

Exhibit # 7



CONTINUOUS LINER OF 10 MIL. POLYETHYLENE SHEETING (VISQUEENE) PROTECTED WITH MIN. CUSHION 2 in. BELOW & 4 in. ABOVE LINER OF 1/4 in. MINUS SOIL OR SAND.

FUEL TANK LEGS SET ON TREATED WOOD OR CONCRETE PADS

BERM HEIGHT 12 in. ABOVE POTENTIAL SPILL LEVEL

COMPACTED BERM CONTAINING FUEL STORAGE AREA - (UNCLASSIFIED SOIL)

# FUEL STORAGE CONTAINMENT BERM SCHEMATIC SECTION

NO SCALE

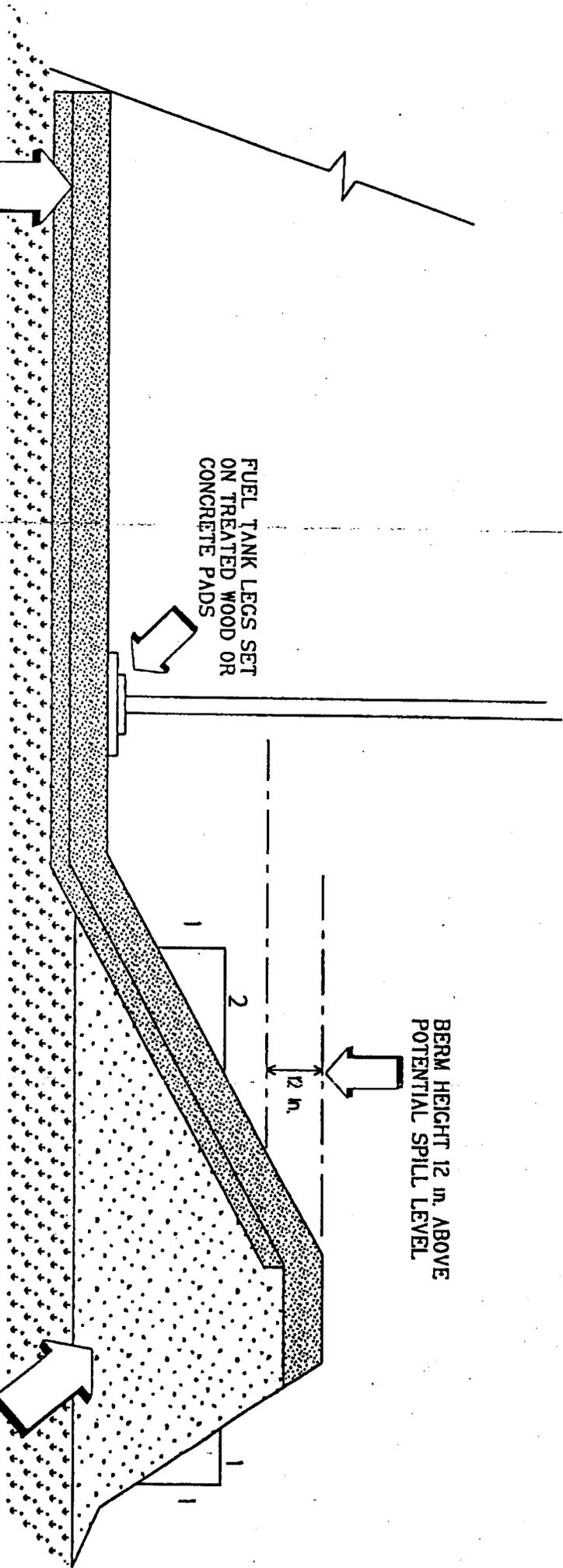


Exhibit #9

## SEED MIX GUIDELINES

The following recommended seed mixes contain species that are native to, or compatible with, the natural plant communities across Montana's plains, foothills, and intermountain valleys. These are common reclamation and forage species, so their seed should be available from local sources.

The attached Seed Mix Plant Characteristics sheet and Bunchgrass Options map are included to help you select the right mix for a site. Species used may vary due to site conditions, compatibility with surrounding vegetation, the postmining land use, or landowner preference. It may be appropriate to use different mixes on different parts of a site.

The Department does not recommend the use of crested wheatgrass or other highly competitive introduced grasses, unless they are compatible with the surrounding vegetation or appropriate for the postmining land use. Please contact the Department if you would like additional assistance in seed mix formulation or selection.

### BLUEBUNCH WHEATGRASS OPTION

Species <sup>1</sup>	#s PLS/A <sup>2</sup>
Pryor slender wheatgrass	3.5
Rosana western wheatgrass	2.5
Critana thickspike or Sodar streambank wheatgrass <sup>3</sup>	2.0
Secar bluebunch wheatgrass <sup>4</sup>	4.5
Alfalfa or Yellow sweetclover	0.5
Annual grain (optional) <sup>5</sup>	10.0

### GREEN NEEDLEGRASS OPTION

Species <sup>1</sup>	#s PLS/A <sup>2</sup>
Pryor slender wheatgrass	3.5
Rosana western wheatgrass	2.5
Critana thickspike or Sodar streambank wheatgrass <sup>3</sup>	2.0
Lodorm green needlegrass	3.5
Alfalfa or Yellow sweetclover	0.5
Annual grain (optional) <sup>5</sup>	10.0

### HARD FESCUE OPTION

Species <sup>1</sup>	#s PLS/A <sup>2</sup>
Pryor slender wheatgrass	3.5
Rosana western wheatgrass	2.5
Critana thickspike or Sodar streambank wheatgrass <sup>3</sup>	2.0
Durar hard fescue	1.0
Alfalfa or Yellow sweetclover	0.5
Annual grain (optional) <sup>5</sup>	10.0

### TALL WHEATGRASS OPTION FOR DRY<sup>6</sup> OR MOIST<sup>7</sup> SALINE-SODIC OR ALL MOIST<sup>7</sup> SURFACES

Species <sup>1</sup>	#s PLS/A <sup>2</sup>
Pryor slender wheatgrass	4.0
Rosana western wheatgrass	3.5
Critana thickspike or Sodar streambank wheatgrass <sup>3</sup>	2.5
Alkar tall wheatgrass	5.5
Yellow sweetclover	0.5
Annual grain (optional) <sup>5</sup>	10.0

<sup>1</sup>See the attached Seed Mix Plant Characteristics.

<sup>2</sup>#s PLS/A = pounds pure live seed per acre. Seeding rates are based on drill seeding a disturbed, harsh site with 40 pure live seed per square foot; other seeding rates may be proposed based on anticipated site and seedbed conditions. Increase drill seed rates by at least 50 percent for broadcast seeding. Use certified seed.

<sup>3</sup>Thickspike outperforms streambank east of the Continental Divide.

<sup>4</sup>Regardless of site location, use the bluebunch option on dry, hot, shallow, or coarse soils.

<sup>5</sup>Annual grains suitable for use are barley (spring seeding), oats (spring seeding), and wheat (fall or spring seeding).

<sup>6</sup>Highest seasonal water table greater than 3 feet below the reclaimed surface.

<sup>7</sup>Highest seasonal water table at or within 3 feet of the reclaimed surface.

## SEED MIX PLANT CHARACTERISTICS

**Alfalfa.** Introduced leguminous (nitrogen fixing) forb; good ease of establishment; adapted to a wide range of soil textures, but prefers loamy soils; dryland varieties have good drought tolerance; poor tolerance of flooding and high water table; fair salt tolerance; adapted to 12 inches plus precipitation; use Ladak 65 or Spredor 2 varieties.

**Bluebunch wheatgrass<sup>1</sup>.** Native bunchgrass; fair ease of establishment; adapted to a wide range of soil textures including shallow, gravelly, and rocky soils; good drought tolerance; poor tolerance of flooding and high water table; poor to fair salt tolerance; adapted to 8 inches plus precipitation; use Secar variety.

**Green needlegrass.** Native bunchgrass; fair ease of establishment; adapted to a wide range of soil textures, but prefers loamy to clayey soils; fair to good drought tolerance; fair tolerance of flooding and high water table; fair salt tolerance; adapted to 12 inches plus precipitation; use Lodorm variety.

**Hard fescue<sup>2</sup>.** Introduced bunchgrass; fair ease of establishment; adapted to a wide range of soil textures, but prefers loamy to clayey soils; good drought tolerance; poor tolerance of flooding and high water table; poor salt tolerance; adapted to 12 inches plus precipitation; use Durar variety.

**Slender wheatgrass.** Short-lived native bunchgrass; good ease of establishment; adapted to a wide range of soil textures, but prefers sandy loams; good drought tolerance; good tolerance of flooding and high water table; good salt and sodium tolerance; adapted to 10 inches plus precipitation; use Pryor variety.

**Streambank wheatgrass<sup>3</sup>.** Native sod-forming grass; good ease of establishment; adapted to a wide range of soil textures, but prefers loamy soils; good drought tolerance; fair tolerance of flooding and high water table; fair to good salt and sodium tolerance; adapted to 9 inches plus precipitation; use Sodar variety.

**Tall wheatgrass.** Introduced bunchgrass; good ease of establishment; adapted to a wide range of soil textures, but prefers loamy to clayey soils; fair to good drought tolerance; good tolerance of flooding and high water table; good salt and sodium tolerance; adapted to moist sites or 14 inches plus precipitation; use Alkar variety.

**Thickspike wheatgrass<sup>3</sup>.** Native sod-forming grass; good ease of establishment; adapted to a wide range of soil textures, but prefers loamy to sandy and granular clay soils; good drought tolerance; poor to fair tolerance of flooding and high water table; fair to good salt tolerance; adapted to 9 inches plus precipitation; use Critana variety.

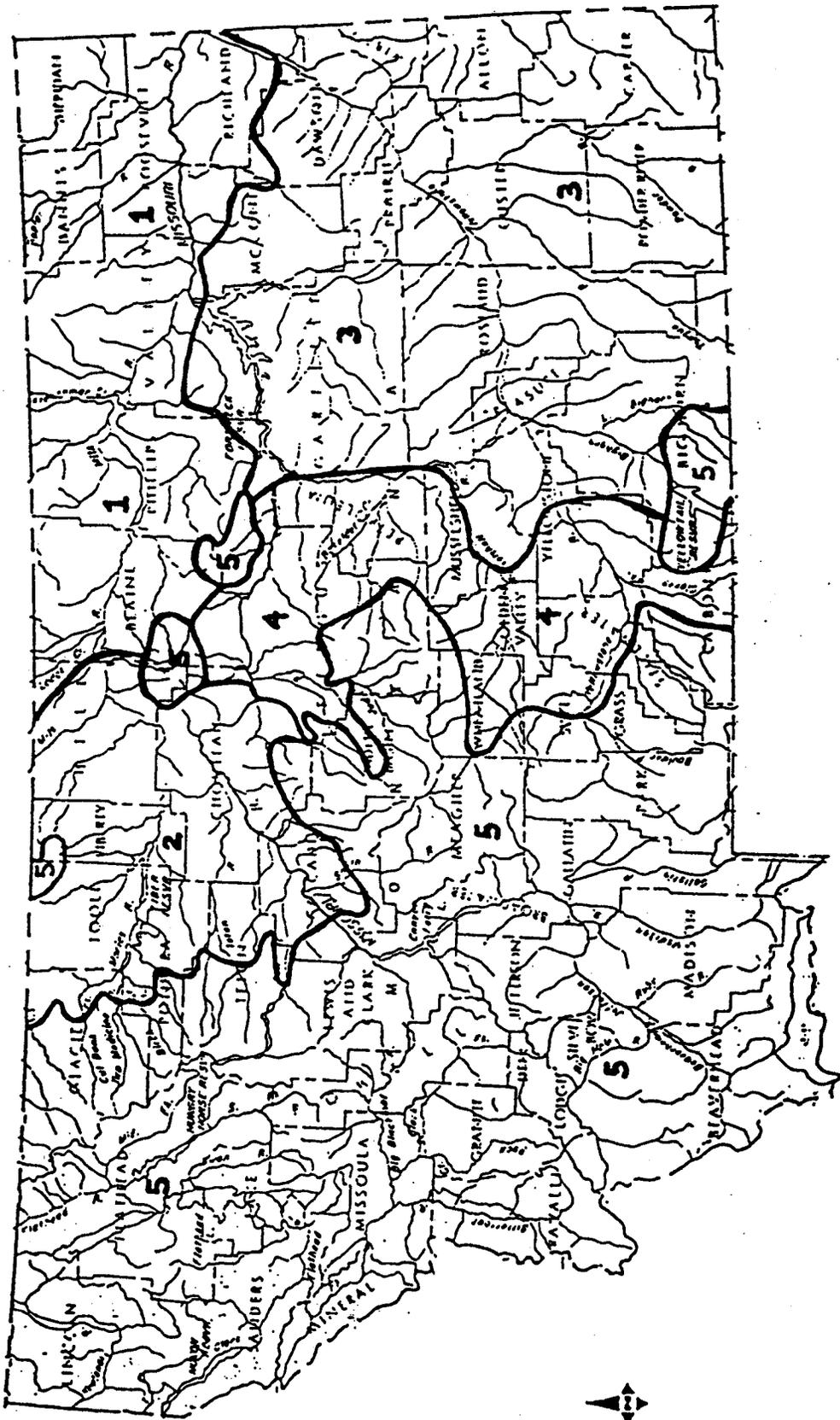
**Western wheatgrass<sup>3</sup>.** Native sod-forming grass; fair ease of establishment; adapted to a wide range of soil textures, but prefers loamy to clayey soils; good drought tolerance; good tolerance of flooding and high water table; good salt and sodium tolerance; adapted to moist sites or 12 inches plus precipitation; use Rosana variety.

**Yellow sweetclover.** Short-lived, introduced, leguminous (nitrogen fixing) forb; good ease of establishment; adapted to a wide range of soil textures; good drought tolerance; poor to fair tolerance of flooding and high water table; fair to good salt tolerance; adapted to 12 inches plus precipitation; use any variety.

<sup>1</sup>Whitmar beardless wheatgrass is similar to, and could be substituted for, bluebunch wheatgrass.

<sup>2</sup>Hard fescue is closely related to native Idaho fescue.

<sup>3</sup>Streambank, thickspike, and western are similar grasses.



**AREA**      **BUNCHGRASS OPTIONS**

- 1      Generally green needlegrass.
- 2      Generally green needlegrass and bluebunch wheatgrass.
- 3 & 4      Generally green needlegrass and bluebunch wheatgrass in the plains, and green needlegrass, bluebunch wheatgrass, and hard fescue in the uplands, foothills, and forested areas.
- 5      Generally bluebunch wheatgrass and hard fescue, with green needlegrass in some valleys and on some foothills.

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY  
PERMITTING & COMPLIANCE DIVISION  
INDUSTRIAL & ENERGY MINERALS BUREAU  
PO BOX 200901  
HELENA MT 59620-0901  
PHONE: 406 444-4970 FAX: 406 444-1923

Operator: R Lazy M Ent Inc  
Contract Number: RLM-601  
(Provided By The Department)

## LANDOWNER CONSENT FOR RECLAMATION

This agreement is made and entered into by and between the State of Montana, Department of Environmental Quality (DEQ) of Helena, Montana and Mike & Jacque Pitzen (landowner) in consideration for the issuance of a Reclamation Contract pursuant to the Opencut Mining Act (Title 82, Chapter 4, Part 4, MCA, hereinafter referred to as the "Act"). Landowner and DEQ hereby agree as follows:

1 - Landowner is the owner of certain land described as NE  $\frac{1}{4}$  NW  $\frac{1}{4}$ , Section 26, Township 28 N/R Range 20 W, Flathead County, Montana;

R Lazy M Enterprises, Inc.

2 - dba Creston Sand & Gravel (operator) proposes to conduct mining operations on the above-described land subject to the requirements of the Act;

3 - Landowner has read and understands the Mining And Reclamation Plan for the proposed mine, and has provided any comments, recommendations, map, or drawing on page two of this form;

4 - Landowner agrees to allow the operator, DEQ, or DEQ's agents or contractors in the event of default by the operator, to enter the above-described lands in order to complete reclamation in accordance with the Mining And Reclamation Plan approved by DEQ pursuant to the Act;

5 - Landowner agrees to require any purchaser of the above-described lands to agree in writing to grant consent to reclaim in accordance with this agreement or allow sufficient time for operator to reclaim prior to transfer of title;

6 - Landowner agrees that operator will be granted exclusive use to mine the area included in the Reclamation Contract, with the exception that operator may allow landowner or operator's subcontractors to remove minerals within the contracted area and that operator remains responsible for that mining and reclamation; and

7 - Landowner agrees to allow DEQ employees to enter the above-described lands for periodic evaluations until the bond or security required by the Act is fully released.

(Landowner, among the various commitments made and actions allowed in the Plan Of Operation, please be reminded that excess overburden, fines, and oversize, clean fill limited to soil, dirt, sand, gravel, rock, brick, and exposed-metal-free concrete, and on-site generated asphaltic pavement, metal, plastic, and tires may be disposed of on site. Other wastes may be disposed of on site only if operator obtains an appropriate solid waste management system license from the Department.

Also, please be advised that a site reclaimed to cropland is typically released after one crop has been successfully grown, and a site seeded or planted to perennial vegetation is typically released after two complete growing seasons or when site stabilization and revegetation success is achieved, whichever is longer. Landowner cooperation with appropriate site protection and management during vegetation establishment is appreciated.

If you have any questions or comments about the mining operation, reclamation, site release, or the opencut mining program, please contact the Department.)

LANDOWNER'S COMMENTS AND RECOMMENDATIONS FOR RECLAMATION, IF ANY: \_\_\_\_\_

MINED AREA WILL BE RESTORED AT 1' DROP  
IN 3' SLOPE WITH SANDY LOAM SURFACE AND  
SEEDED WITH PASTOR GRASS MIX PLUS  
SWEET CLOVER SO NO EROSION WILL OCCURE

MAP OR DRAWING, IF NEEDED:

Jaques Pitzen  
MIKE PITZEN  
LANDOWNER

Jaques Pitzen  
Mike Pitzen  
SIGNATURE

owner's  
TITLE, IF ANY

2/2/98  
DATE

Box 991  
ADDRESS

BIGFORK MT 59911  
CITY, STATE, ZIP

257-2828  
PHONE NUMBER

STATE OF MONTANA, DEPARTMENT OF ENVIRONMENTAL QUALITY

BY: \_\_\_\_\_

DATE \_\_\_\_\_

LANDOWNER CONSENT FOR RECLAMATION

STATE OF MONTANA  
DEPARTMENT OF  
ENVIRONMENTAL QUALITY  
Industrial & Energy Minerals Bureau  
PO Box 200901  
Helena MT 59602-0901

Contract No. RIM-001  
Operator: R Lazy M Enterprises, Inc.  
DBA Creston Sand & Gravel

THIS AGREEMENT is entered into between the State of Montana, Department of Environmental Quality (State) and Jim J. & Marti Jo Clouse (Landowner) in consideration for the issuance of a reclamation contract pursuant to the Opencut Mining Act (Title 82, Chapter 4, Part 4, MCA, the "act"). The landowner and the State hereby agree as follows:

1. Landowner is the owner of certain land described as NE 1/4 NW 1/4 of Sec. 26, T. 28 N/S, R. 20 E/W, Flathead County, Montana.
2. R Lazy M Enterprises Inc. (Operator) proposes to conduct mining operations on the above-described land subject to the requirements of the act. DBA Creston Sand & Gravel
3. Landowner has read and understands the proposed mining and reclamation plan for the proposed mine and has stated comments on this plan in the space provided on this form.
4. Landowner agrees to allow the Operator, or the State or its agents or contractors in the event of default by the Operator, to enter the above-described lands in order to complete reclamation in accordance with the mining and reclamation plan approved by the State pursuant to the act.
5. Landowner agrees to require any purchaser of the described property to agree in writing to grant consent to reclaim in accordance with this agreement or allow sufficient time for Operator to reclaim prior to transfer of title.
6. Landowner agrees that Operator will be granted exclusive use to mine the area included in the reclamation contract with the exception that Operator may allow landowner or Operator's subcontractors to remove minerals within the contracted area and that Operator remains responsible for that mining and reclamation..
7. Landowner agrees to allow employees of the State to enter the above-described lands for periodic evaluations until the bond or security required by the act is fully released.

Dated: December 10, 1997

Address: 5448 MT Hwy 35

LANDOWNER:  
James J. & Marti Jo Clouse  
Name

Kalispell, MT 59901

By: James J. Clouse  
(Signature)  
Marti Jo Clouse  
Title

Telephone: 406-755-7695

STATE OF MONTANA, DEPARTMENT OF ENVIRONMENTAL QUALITY

By: \_\_\_\_\_ dated \_\_\_\_\_



PERMITS  
HELENA MT 59620-0901  
Phone: (406) 444-2544

DEPARTMENT OF ENVIRONMENTAL QUALITY  
& COMPLIANCE DIVISION  
(406) 444-1923

**AMENDMENT TO MINED LAND  
RECLAMATION CONTRACT**

**CONTRACT NUMBER: RLM-001**  
**AMENDMENT NUMBER: 2**  
**SITE NAME: CLOUSE**

Contract No. RLM-001, a contract entered into by and between the Montana  
City and R-LAZY-M Enterprise, Inc., is hereby amended to include the  
county, or other modifications):  
clude installation of a concrete batch plant, a  
of gravel to be removed, to estimate a  
ase the amount of bond. The  
eration a

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY  
PERMITTING & COMPLIANCE DIVISION  
PO BOX 200901  
HELENA MT 59620-0901  
Phone: (406) 444-2544, FAX: (406) 444-1923

CONTRACT NUMBER: RLM-001  
AMENDMENT NUMBER: 2  
SITE NAME: CLOUSE

## AMENDMENT TO MINED LAND RECLAMATION CONTRACT

Mined Land Reclamation Contract No. RLM-001, a contract entered into by and between the Montana Department of Environmental Quality, and R-LAZY-M Enterprise, Inc., is hereby amended to include the following (acreage, legal description, and county, or other modifications):

1. The Plan of Operation and map are amended to include installation of a concrete batch plant, a pugmill, a wash plant and settling ponds, to increase the volume of gravel to be removed, to estimate a date of final reclamation, to increase the area to be mined and to increase the amount of bond. The revised map of 2/2/98 and cross sections are the current permit map.
2. A concrete batch plant will be operated year around, weather permitting. Hours of operation are 6 AM to 7 PM, Monday through Saturday.
3. A pugmill will be operated year around, weather permitting. Hours of operation are 6 AM to 7 PM, Monday through Saturday.
4. A wash plant will be operated year around, weather permitting. Hours of operation are 6 AM to 7 PM, Monday through Saturday and will recycle water internally within a series of settling ponds. No waste water will discharge from the site and make-up water will be supplied from a well drilled off the permit. The settling ponds will be located above the floor of the pit, at least three feet above the groundwater, estimated at 2955' M.S.L.
5. The quantity of material to be removed is increased from 150,000 to approximately 400,000 cubic yards.
6. The maximum depth to be mined will not change. At this time the high groundwater is estimated to be 2955'. Mining will not dig deeper than that level.
7. Topsoil piles will be located along the outside perimeter of the permit as mining expands. Soil piles will be smoothed and seeded with approved seeding mix and will provide some sight and sound buffer.
8. The total area to be mined will be increased from 8.5 to 33.7.
9. The mine will be reclaimed in December of 2008.
10. Bond is increased from \$10,900 to \$62,000.

The terms contained within said contract apply to these tracts of land and, unless specifically amended herein,

shall remain in full force and effect.

*R. Cecil McHenry*  
SIGNATURE

\_\_\_\_\_  
ADMINISTRATOR

**R Lazy M Enterprises, Inc.**  
FOR (OPERATOR)

\_\_\_\_\_  
DATE

**APPLICATION FOR AMENDMENT  
 TO MINED LAND RECLAMATION CONTRACT**

*Amendment # 2*

Name, address, & zip code of applicant (print or type): <i>R Lazy m Enterprises, Inc          DBA/ Creston Sand &amp; Gravel          5447 Highway 35          Kalispell, MT 59901</i>	This amendment application (no fee) must contain: 1. This form; 2. Amendment To Mined Land Reclamation Contract form; 3. Area description, plan information, and map as applicable (see Operator Responsibilities sheet); 4. Bond or rider (government entities exempt); 5. Landowner Consent For Reclamation form (N/A if operator-owned land); 6. Resident Notification Forms (if applicable, see form); and 7. Zoning Compliance Form (for sand and gravel mining only, and only if a different postmining land use is proposed).	
Phone number: <i>406-755-7605</i> Fax number: <i>406-755-7855</i>	Site name: <i>Clouse / Pitzen</i>	
Surface ownership of land to be affected (name, address, & zip code): <i>Jim Clouse                      Mike &amp; Jacque Pitzen          5448 Hwy 35                    5575 Hwy 35          Kalispell, MT                Kalispell, MT          59901                              59901</i>	Legal description: <i>NE 1/4 NW 1/4, Sec. 26, T. 28 N, R. 20 W</i>  County: <i>Flathead</i>	
Phone number: <i>Clouse (406) 755-7695</i> <del>Fax number:</del> <i>Pitzen (406) 257-2828</i>	Distance and direction from which nearest community: <i>7 miles N of Bigfork MT</i>	
Mineral ownership (name, address, & zip code): <i>Jim Clouse                      Mike &amp; Jacque Pitzen          5448 Hwy 35                    5575 Hwy 35          Kalispell, MT                Kalispell, MT          59901                              59901</i>	Check which of the following will be used on new area: <input checked="" type="checkbox"/> crusher <input type="checkbox"/> asphalt plant <input checked="" type="checkbox"/> wash plant <input checked="" type="checkbox"/> other (batch plant, building, scale, screen, etc.): <i>peg mill</i>	Estimated quantity of mineral or overburden to be removed from new area (cubic yards):  <i>400,000 +/-</i>  <i>approximately</i>
Phone number: <i>Clouse (406) 755-7695</i> <del>Fax number:</del> <i>Pitzen (406) 257-2828</i>	Number of acres to be mined in new area: <i>33.7</i> <small>(on site batch plant)</small>	Total number of acres under this amendment: <i>33.7</i>
Contractor(s) who will be working on site:  <i>Creston Sand &amp; Gravel</i>	Mineral to be mined: <i>Sand &amp; Gravel</i>  Date operation will begin: <i>In Progress</i>	Estimated maximum depth of mining: <i>Down 2955 MS</i> <small>Phase 1, 2 &amp; 3 2958</small> <i>Phase 4</i>
Name of individual who will be on site and familiar with the Plan Of Operation:  <i>R. Cecil McKinley</i>	APPLICANT AFFIRMS THAT APPLICANT HAS THE RIGHT AND POWER, BY LEGAL ESTATE OWNED, TO MINE THE LANDS HERETOFORE DESCRIBED. APPLICANT ALSO AFFIRMS THAT THE CONTENTS OF ALL ATTACHMENTS TO THIS APPLICATION BECOME A PART OF THE TERMS THEREOF.	

SIGNATURE AND TITLE

DATE *1-27-98*

*R. Cecil McKinley* President

FOR DEPARTMENT USE

Bond No.: \_\_\_\_\_ Bond Amount: *\$ 62,000.00*

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY  
PERMITTING AND COMPLIANCE DIVISION  
PO BOX 200901  
HELENA MT 59620-0901  
PHONE: (406)444-4970 FAX: (406)444-1913

## ZONING COMPLIANCE FORM FOR OPENCUT MINING

Compliance With Local Zoning Regulations  
Title 76, Chapter 2, And Title 84, Chapter 4

This document must be signed by an appropriate city/county government representative  
and accompany all applications for a Mined Land Reclamation Contract.

I/We, hereby declare that RLazy M Ent, Inc DBA <sup>CRESTON SAND + Gravel</sup> (applicant) has notified  
me/us that Applicant is proposing to conduct opencut operations in the NE 1/4 NW 1/4, Section  
26, Township 28 N/S, Range 20 EW, Flathead  
County. The proposed operation complies with No zoning  
County/City's approved zoning regulations, and is not located within an area zoned as residential.

St R. Lab

SIGNATURE OF COUNTY/CITY OFFICIAL

12-5-1997

DATE

Planner II

TITLE

Note: Lindsey Lane - Labrand + neighborhood plan is in process. Opencut Mining 9/96

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY  
PERMITTING AND COMPLIANCE DIVISION  
PO BOX 200901  
HELENA MT 59620-0901  
PHONE: (406)444-4970 FAX: (406)444-1913

### ZONING COMPLIANCE FORM FOR OPENCUT MINING

Compliance With Local Zoning Regulations  
Title 76, Chapter 2, And Title 84, Chapter 4

This document must be signed by an appropriate city/county government representative  
and accompany all applications for a Mined Land Reclamation Contract.

I/We, hereby declare that RLAZY ME & L INC DBA Creston Sand & Gravel (applicant) has notified  
me/us that Applicant is proposing to conduct opencut operations in the NE 1/4 NW 1/4, Section  
26, Township 28 N/S, Range 20 E/W, Flathead County  
County. The proposed operation complies with no zoning  
County/City's approved zoning regulations, and is not located within an area zoned as residential.

[Signature]  
SIGNATURE OF COUNTY/CITY OFFICIAL

11/17/97  
DATE

[Signature]  
TITLE