



Montana Department of  
**ENVIRONMENTAL QUALITY**

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Richard H. Opper, Director

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July 28, 2010

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Rex M., Rex W. & Ronald R. Redd, 821 Wicks Lane, Billings, MT 59105-4425

Ladies and Gentlemen:

To comply with the Administrative Rules of Montana, 17.4.607(2) and 17.4.609(2), the Department of Environmental Quality (Department) has prepared the enclosed Environmental Assessment (EA). The attached EA is for the land application of septage and graywater in Petroleum County, Montana. Land application would occur at this site on an as-needed basis.

The purpose of the EA is to inform all interested governmental agencies, public groups, and individuals of the action and to determine whether or not the action may have a significant effect on human health and the environment. The Department will not make a licensing decision until at least thirty (30) days after publication of the EA. A copy of this EA may be viewed on the Department's website at <http://deq.mt.gov/ea/SepticPumpers.mcp>.

If you wish to comment on this proposed action within the 30-day period, please do so in writing by mailing your comments to the Waste and Underground Tank Management Bureau, Solid Waste Program, P.O. Box 200901, Helena, MT 59620-0901, or by E-mail to [mailbox\\_wutbcomments@mt.gov](mailto:mailbox_wutbcomments@mt.gov).

If you have any questions or need additional information, please contact me at the Permitting and Compliance Division, Waste and Underground Tank Management Bureau, Solid Waste Section, (406) 444-1434 or e-mail [renhill@mt.gov](mailto:renhill@mt.gov).

Sincerely,

Renai Hill  
Environmental Science Specialist  
Waste & Underground Tank Management Bureau

Enclosure: EA - Heavy Water Haulers, Inc  
File: Petroleum County/Heavy Water Haulers, Inc /S-878

## **MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY**

Permitting and Compliance Division  
Waste and Underground Tank Management Bureau  
Solid Waste Management Section  
Metcalf Building  
PO Box 200901  
Helena, MT 59620-0901

### **ENVIRONMENTAL ASSESSMENT**

#### **DESCRIPTION OF PROJECT – SUMMARY OF ANALYSIS:**

Mr. Brian Tatman (Applicant) of Heavy Water Haulers, Inc., has submitted an application to the Department of Environmental Quality (Department) for the land application of septage and graywater in Petroleum County. This Environmental Assessment (EA) will document environmental issues related to the land application of the proposed wastes. The applicant proposes to land apply septage and graywater on the Tripp Land & Livestock Co. property in Petroleum County. The proposed land application site is located in a remote area approximately twelve miles southwest of the town of Winnett. Specifically, the site is located in the W  $\frac{1}{2}$  of the E  $\frac{1}{2}$  of the E  $\frac{1}{2}$  of Section 35, T13N, R26E, Petroleum County, Montana (Figure 1). The Tripp Land & Livestock Co. property has 40-acres available for land application, however, the applicant proposes to use only 20-acres. Land application will occur at this site on an as-needed basis. Pumpings will be collected from individual and commercial customers. The pumpings will be applied to the land using a dispersive mechanism and then incorporated into the soil using a disc or harrow within 6-hours of application.

#### **Benefits and Purpose of Project:**

The land application of domestic septage is an economical and environmentally sound practice in most areas in Montana and is a viable alternative to treatment at a wastewater treatment facility. A properly managed land application program can benefit from the reuse of the organic matter and nutrients in the waste without adversely affecting public health. The land application of domestic septage is considered the beneficial use of a waste product when the material is applied in accordance with the laws and rules governing land application.

#### **Site Geography and Climate:**

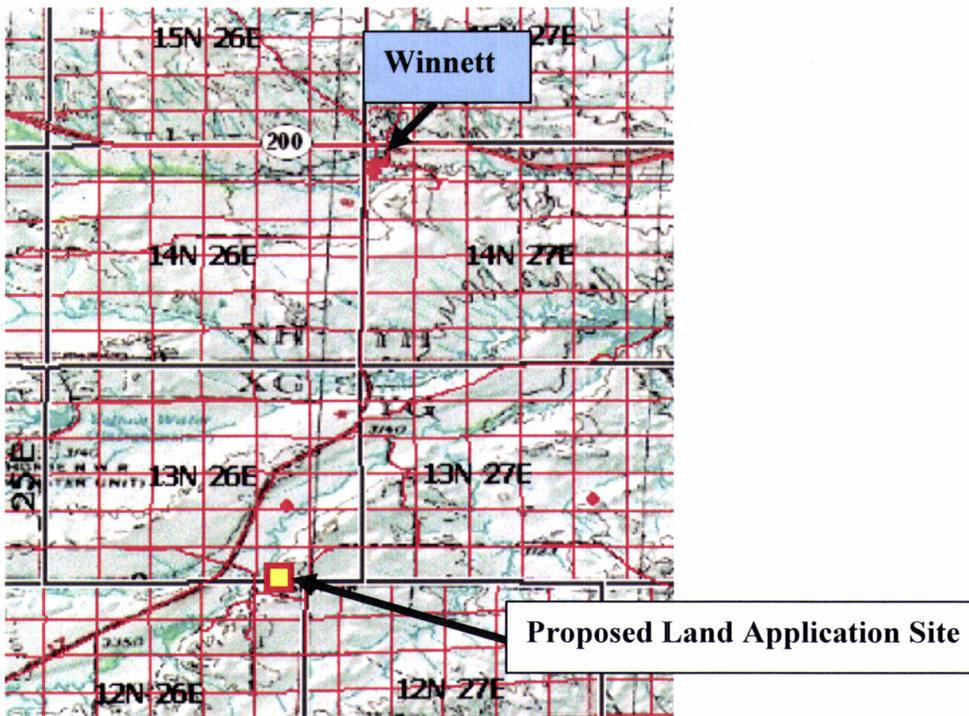
The proposed land application site is located approximately 12 miles south of Winnett, south of Highway 244. The Flatwillow Creek (state surface water) is  $\frac{1}{2}$  mile to the west of the property. The proposed site has slopes ranging from zero to 1 percent.

Historical precipitation records show the area receives approximately 12.71 inches of precipitation per year. Most precipitation falls during the months of May and June, while February is the driest month with an average precipitation of only 0.40 inches. For comparison, the average precipitation received during the month of February is close to what would be land applied per acre per year. (See Table 1). For the purpose of this analysis, most individual septic tanks are between 1,000- and 1,500-gallons, so waste from 19-28 septic tanks (depending upon their individual volumes) could be land applied on a per acre per year basis. Using a conservative approach, that waste from 24 septic tanks could be land applied per acre; each individual septic tank would contribute approximately 0.044-inches of liquid per acre. However, experience shows that most licensed pumpers will land apply, at the most, 4 tanks per day.

**Table 1: Monthly Climate Summary**

<b>WINNETT 5 NNE, MONTANA (249047)</b>													
<b>Period of Record Monthly Climate Summary</b>													
<b>Period of Record : 5/ 1/1942 to 10/31/1971</b>													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	Insuff icient Data												
Average Min. Temperature (F)	Insuff icient Data												
Average Total Precipitation (in.)	0.62	0.40	0.55	1.03	2.07	2.74	1.51	1.15	1.05	0.73	0.41	0.44	12.71
Average Total SnowFall (in.)	9.8	6.1	6.8	6.3	1.1	0.3	0.0	0.0	0.1	2.7	3.4	6.4	42.9
Average Snow Depth (in.)	4	4	2	0	0	0	0	0	0	0	0	2	1
<b>Percent of possible observations for period of record:</b>													
Max. Temp.: 0% Min. Temp.: 0% Precipitation: 97.9% Snowfall: 93.8% Snow Depth: 94.1%													
Max. Temp.: 99% Min. Temp.: 99% Precipitation: 99.4% Snowfall: 98.9% Snow Depth: 54.2%													

**Figure 1 – Site Location**



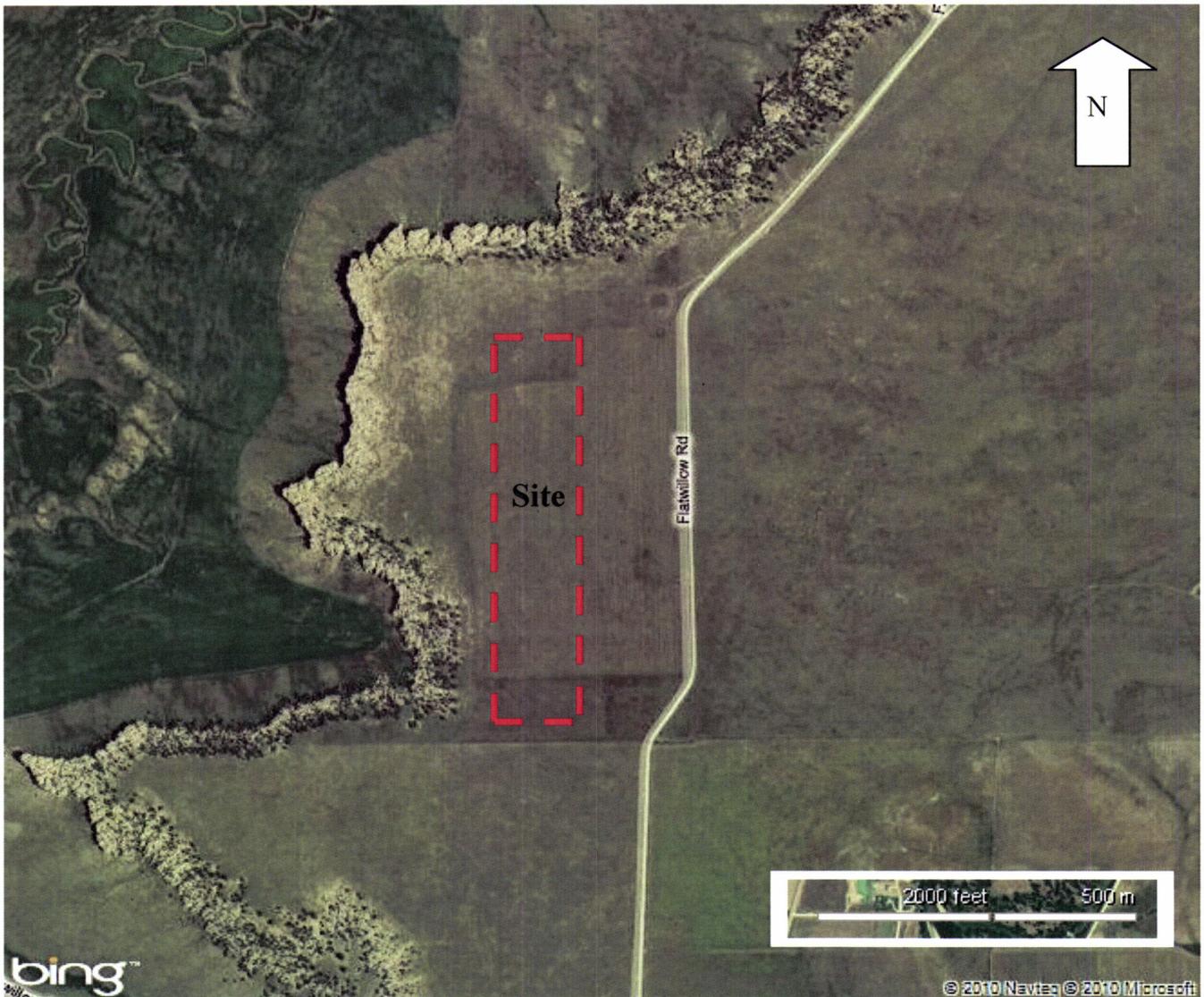
### Setback Requirements

The Administrative Rules of Montana (ARM) establishes minimum setback criteria for land application as follows:

<b>ARM Reference</b>	<b>Site Setback - Disposal Restrictions</b>
17.50.809(1)	Pumpings may not be applied to land within 500-feet of any occupied or inhabitable building.
17.50.809(2)	Pumpings may not be applied to land within 150-feet of any state surface water, including ephemeral or intermittent drainages and wetlands.
17.50.809(3)	Pumpings may not be applied to land within 100-feet of any state, federal, county, or city-maintained highway or road.
17.50.809(4)	Pumpings may not be applied to land within 100-feet of a drinking water supply source.
17.50.809(6)	Pumpings may not be applied to land with slopes greater than 6%.
17.50.809(8)	Pumpings may not be applied to land where seasonally high ground water is 6-ft or less below ground surface.
17.50.809(10)	All non-putrescible litter must be removed from the land application site within 6-hours of application.
17.50.809(12)	Pumpings may not be applied at a rate greater than the agronomic rate of the site for crop nitrogen requirement on an annual basis.
17.50.810(1)	Pumpings may not be applied to flooded, frozen, or snow covered ground if the pumpings may enter state waters.
17.50.810(3)(a)	Pumpings may not be applied to frozen or snow covered ground with slopes greater than 3%.
17.50.811(3)	Pumpings may be applied only if the person first performs one of the following vector attraction and pathogen reduction methods: <ul style="list-style-type: none"><li>• injection below the land surface so no significant amount remains on the land surface within one-hour of injection;</li><li>• incorporation into the soil surface plow layer within 6-hours of application;</li><li>• addition of alkali material so that the pH is raised to and remains at 12 or higher for a period of at least 30-minutes; or,</li><li>• management as required by 17.50.810 when the ground is frozen.</li></ul>

The 20-acre parcel used for land application will be divided into separate fields that will be rotated on an annual basis, so that parcels used one year will be inactive the next year. This rotation allows the vegetation or crop of choice to utilize the nitrogen and other nutrients added from the land application process.

**Figure 2: Proposed land application site boundaries**



As shown in Figure 2, the proposed site meets the minimum setback requirements as follows:

- is located greater than 500-feet from any occupied or inhabitable building
- greater than 100-feet from any state, federal, county, or city-maintained road
- and greater than 100-feet from any drinking water supply.

A 150-foot setback is required from the Flatwillow Creek that runs along the western and northern section of the land application site. The distance from the Flatwillow Creek and the application site is greater than the 150-foot setback requirement.

Site Operation and Maintenance:

Pumpings will be collected from individual and commercial customers. Land application will occur at the site on an as needed basis. In accordance with ARM Title 17, Chapter 50, Sub-chapter 8, wastes will not be land applied in excess of the annual application rate (AAR). The AAR is based upon the use of the nitrogen and other nutrients by the native grasses that require 75-pounds of nitrogen per acre

per year for continued production. This AAR volume is equal to approximately 1.06-inches of liquid per acre. Septage waste will be applied at a rate not to exceed the AAR of 28,846 gallons per acre per year.

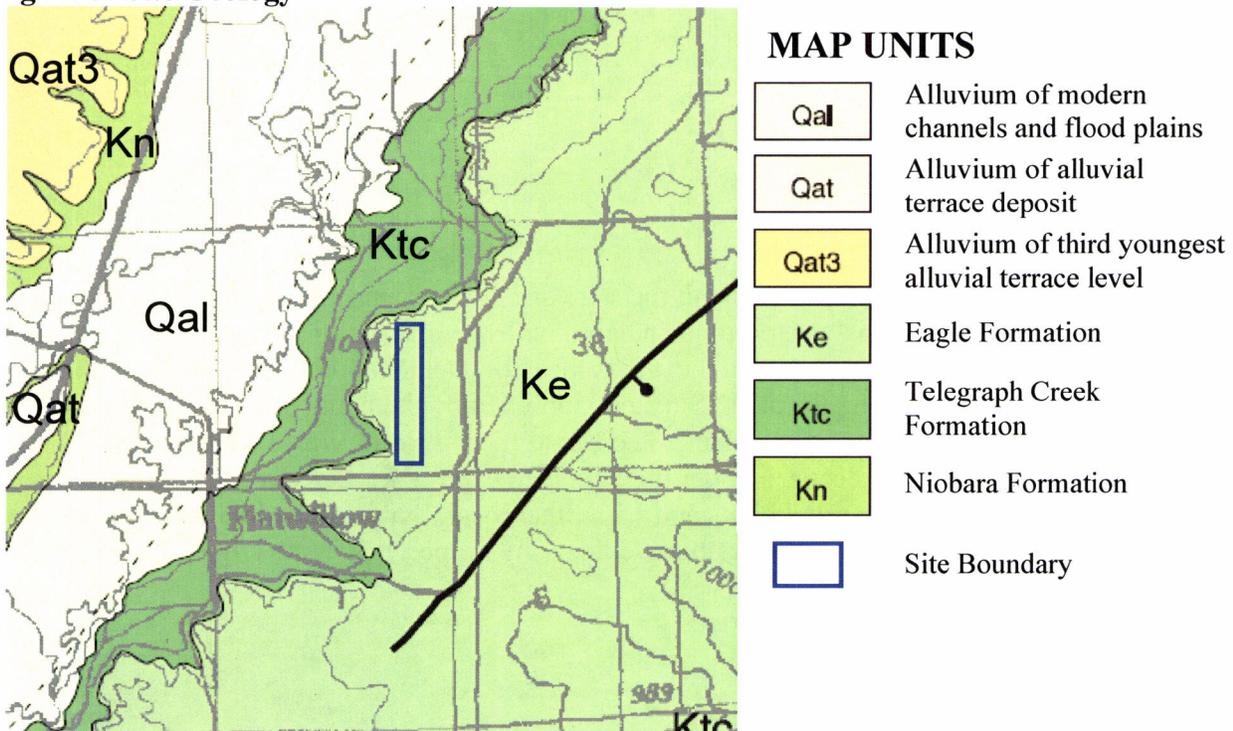
The septage and graywater will be land applied using a dispersive mechanism, such as a spreader bar or splash plate. The splash plate or spreader bar does not cause an aerosol of waste to be dispersed into the air, but rather causes the waste to be applied in a wide pattern, rather than a single, narrow, heavy stream. This is done to ensure that the material is applied evenly in a beneficial manner that does not exceed the AAR. In addition, the dispersive mechanism minimizes the potential for ponding or runoff by applying the material in a thin, even layer.

The septage and graywater will be land applied and incorporated into the soil. A disc or harrow will be used within 6-hours of application and all non-putrescible litter contained in the septage will be removed from the site within 6-hours of application. The licensee is required to maintain records of the volumes of waste being land applied. The Department requires the submittal of disposal records from all licensed pumpers on a semi-annual basis. In addition, Department staff regularly inspects land application sites for compliance with the site specific requirements and the laws and rules governing land application.

General Geology and Hydrogeology

The land application site is located on the Upper Cretaceous Eagle Sandstone (Ke) (Figure 3) on a plateau above Flatwillow Creek. The Eagle Sandstone is composed of white to yellow-tan, fine-grained, cherty sandstone. This sandstone is massive, commonly cross-stratified, and locally cliff-forming. The Eagle Sandstone is typically 200 to 300 feet thick in east central Montana. Underlying the Eagle Sandstone are marine shales of the Upper Cretaceous Telegraph Creek and Niobrara Formations.

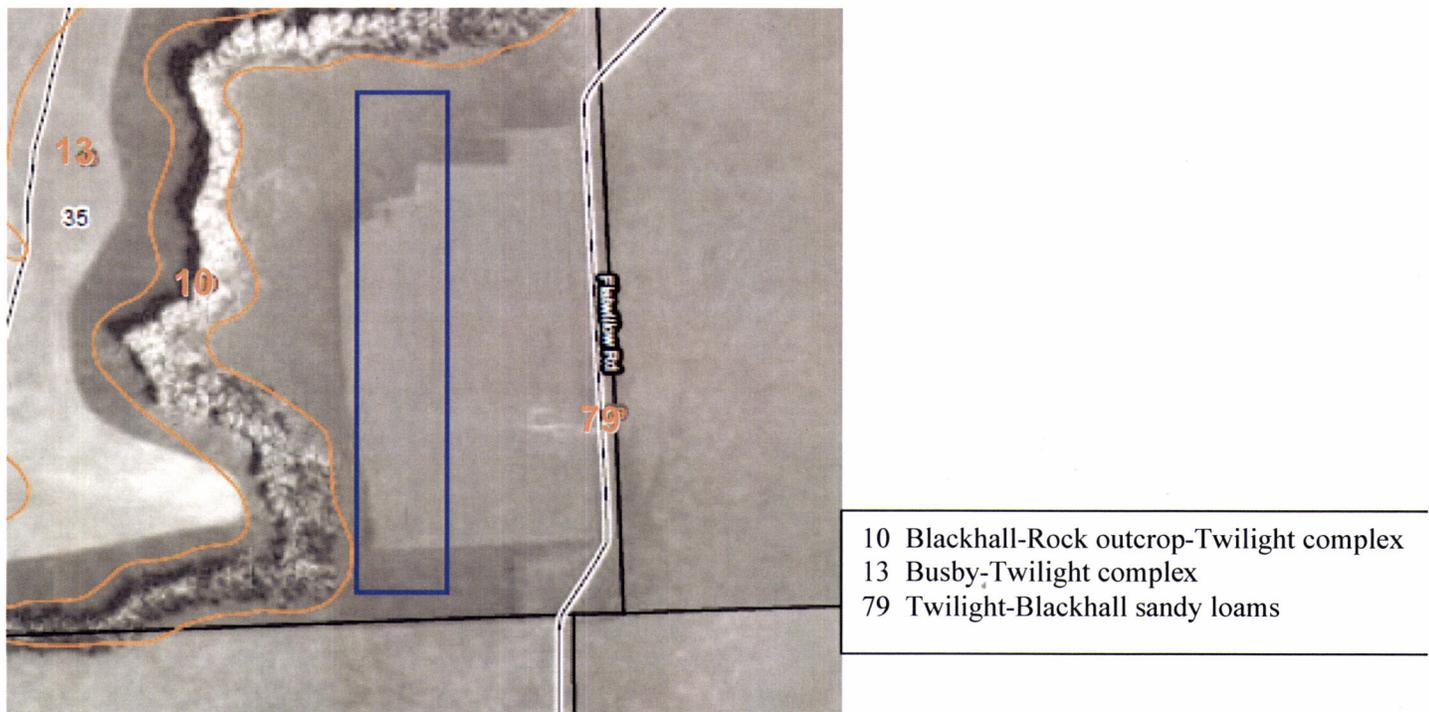
**Figure 3: Site Geology**



Wells in the area around the land application site are typically 180 to 260 feet deep and are completed in the Eagle Sandstone, or in the limestone or sandstone units of the Telegraph Creek Formation. These wells yield from 2 to 40 gallons per minute and have static water levels ranging from 40 to 186 feet below ground surface.

The soil type at the land application site is classified as the Twilight-Blackhall sandy loam, 2 to 15 percent slopes (Figure 4); however, all the slopes at the site are less than 6 percent. The Twilight-Blackhall soils are a sandy loam to fine sandy loam with shallow bedrock typically 20 to 40 inches below the surface. These soils are well drained with a very low to low available water capacity and high to moderately high permeability. The depth to water for the Twilight Blackhall soils is greater than 80 inches below the surface.

**Figure 4: Site Soils**



Roles and Responsibilities:

Licensed septic tank pumper's must comply with the state's septic pumper regulations. He/she is also responsible for obtaining any special use permits and abiding by all restrictions or ordinances enacted by the local government jurisdiction in which the site is located. A land application site must be first approved by the county in which it is located. Sites not approved by the county or local government authority cannot be approved by the Department. The Department's Solid Waste Section is responsible for ensuring activities licensed under the Septage Disposal - Licensure (SDL) law are in compliance with the septic pumper regulations and with other local, State and Federal laws and rules. Licenses issued pursuant to these regulations do not confer any property rights to a licensee.

## **ANALYSIS OF POTENTIAL IMPACTS**

### **Description and analysis of reasonable alternatives whenever alternatives are reasonably available or prudent to consider:**

The Department considered the following alternatives in the preparation of this EA:

**Alternative A – No Action:** Under the “no-action” alternative, the Department would not license the land application site as proposed because the Applicant chose to withdraw the application. As a result, the Applicant will be required to obtain the required approval for an alternative site.

**Alternative B – Approve the Site:** Approve the use of the land application site as proposed by the Applicant. Several factors support the viability of this option:

1. This site meets all of the requirements of the SDL law and Administrative Rules;
2. The site soils, slopes, depth to ground water, approvals, and setback requirements have been met;
3. The site is located on private property in a remote area; and,
4. All activities will be performed in accordance with an approved Operation and Maintenance Plan (O&M), so the effects on human health and the environment are minimized.

**Alternative C – Deny the Site:** Under this alternative, the Department would deny the land application site as proposed. The site fails to meet the requirements of the SDL and the Administrative Rules. As a result, the Applicant will be required to obtain the required approval for an alternative site.

### **BASIS OF THIS EVALUATION:**

Based on the information provided and Department’s research on the area surrounding the proposed land application site, the potential environmental impacts of Alternative B were evaluated for the proposed project. The results of the Department’s evaluation are summarized in Tables I and II and are provided in the Appendix.

### **FINDINGS:**

The Department finds that there would be little or no impacts to the physical and human environment if the septage and graywater are treated in a manner consistent with the rules and regulations.

Therefore, an EA is the appropriate level of analysis and an Environmental Impact Statement is not needed. This treatment option is a beneficial reuse of a waste.

### **RECOMMENDATION:**

The recommendation of the Department is to distribute the EA and request comments from the public regarding the proposed land application site.

### **EVALUATION OF MITIGATION, STIPULATIONS, AND OTHER CONTROLS ENFORCEABLE BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY OR ANOTHER GOVERNMENT AGENCY:**

The proposed land application site and O&M plan must meet the requirements of the SDL law, Air and Water Quality Acts and other Montana environmental laws and regulations as well as County ordinances. Compliance with these laws and regulations should minimize any adverse environmental effects. The Department’s approval is contingent upon the approval of the disposal site at the local and a complete application has been submitted and reviewed. The licensee will operate the site in accordance with the regulations and the approved O&M Plan. The licensee’s failure to operate within

the constraints of the approved O&M Plan will result in Department enforcement action which may include penalties and revocation of the site approval.

In accordance with ARM 17.50.809(12) and 17.50.816(6), the septage type waste may be applied at a rate not to exceed the calculated AAR. The annual rate calculation is determined to prevent the over application of nitrogen in excess of crop needs and its potential movement through the soil to groundwater.

**Other groups or agencies contacted or which may have over-lapping jurisdiction:**

Petroleum County Health Department

**Individuals or groups contributing to this EA:**

Mr. Brian Tatman/Heavy Water Haulers, Inc.

Mr. Martin Van Oort/Solid Waste Program Hydrogeologist

Montana Natural Heritage Program

Montana Historical Society State Historic Preservation Office

Natural Resource Information System

Montana Bureau of Mines and Geology

“Process Design Manual, Land Application of Sewage Sludge and Domestic Septage”, US

Environmental Protection Agency, EPA/625/K-95/001

“Fertilizer Guidelines for Montana Crops”, Montana State University Extension Service, Publication EB-161, January 2003

Porter, K.W., Wilde, E.M, 1999, Geologic map of the Musselshell 30' x 60' quadrangle, central Montana, Montana Bureau of Mines and Geology: Open-File Report 386, 13 p., 2 sheet(s), 1:100,000.

Montana Tech of the University of Montana, Montana Bureau of Mines and Geology, Groundwater Information Center, <http://mbmgwic.mtech.edu/>

United States Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey, <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>

**EA prepared by:**

Renai Hill - DEQ Permitting and Compliance Division, Waste and Underground Tank Management Bureau, Solid Waste Section, Septic Tank Pumper Program

Date: July 28, 2010

## APPENDIX

### **EVALUATION OF POTENTIAL ENVIRONMENTAL IMPACTS RELATED TO THE PROPOSED FACILITY**

This section evaluates potential environmental effects that may occur if the land application site is licensed. **Bolded headings I and II** corresponds to Tables 1 and 2. The number on each of the underlined resource headings corresponds to one of the resources listed in the tables. Generally, only those resources potentially affected by the proposal are discussed. If there is no effect on a resource, it may not be mentioned in the appendix.

Direct and indirect impacts are those effects that occur in or near the proposed project area and might extend over time. Often, the distinction between direct and indirect effects is difficult to define, thus in the following discussion, impact or effect means both types of effects.

Cumulative impacts are restricted to the net effects of the proposed project because no other known projects are proposed in this area. Secondary impacts are induced by a direct impact and occur at a later time or distance from the triggering action. No secondary impacts are expected.

**Table 1 - IMPACTS TO THE PHYSICAL ENVIRONMENT**

<b>PHYSICAL ENVIRONMENT</b>		Major	Moderate	Minor	None	Unknown	Attached
1. TOPOGRAPHY: Are there unusual geologic features? Will the surface features be changed?					✓		
2. GEOLOGY & SOIL QUALITY, STABILITY & MOISTURE: Are fragile, compactible, or unstable soils present? Are there special reclamation considerations?					✓		
3. WATER QUALITY, QUANTITY & DISTRIBUTION: Are important surface or ground water resources present? Is there potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality?					✓		
4. AIR QUALITY: Will pollutants or particulate be produced? Is the project influenced by air quality regulations or zones (Class I airshed)?					✓		
5. DEMANDS ON ENVIRONMENTAL RESOURCES OR LAND, WATER, AIR OR ENERGY: Will the project use resources that are limited in the area? Are there other activities nearby that will affect the project?					✓		
6. IMPACTS ON OTHER ENVIRONMENTAL RESOURCES: Are there other studies, plans or projects on this tract?					✓		
7. TERRESTRIAL, AVIAN, AND AQUATIC LIFE AND HABITATS: Is there substantial use of the area by important wildlife, birds, or fish?				✓			✓
8. VEGETATION COVER, QUANTITY & QUALITY: Will vegetative communities be permanently altered? Are any rare plants or cover types present?					✓		
9. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES: Are any federally listed threatened or endangered species or identified habitat present? Any wetlands? Any species of special concern?				✓			✓
10. HISTORICAL AND ARCHAEOLOGICAL SITE: Are any historical, archaeological, or paleontological resources present?					✓		✓
11. AESTHETICS: Is the project on a prominent topographical feature? Will it be visible from populated or scenic areas? Will there be excessive noise, light, or odors?					✓		
12. AGRICULTURE: Will grazing lands, irrigation waters or crop production be affected?				✓			✓

CUMULATIVE AND SECONDARY IMPACTS — The cumulative impacts from the proposed approval and licensure of the land application site are minor. The land application parcels will be rotated to facilitate the use of the nitrogen and other land applied nutrients for the production of native grasses. There are no recognized secondary impacts.

**Table 2 - IMPACTS TO THE HUMAN ENVIRONMENT**

<b>HUMAN ENVIRONMENT</b>		Major	Moderate	Minor	No	Unknown	Attached
1. SOCIAL STRUCTURES & MORES: Is some disruption of native or traditional lifestyles or communities possible?					✓		
2. CULTURAL UNIQUENESS & DIVERSITY: Will the action cause a shift in some unique quality of the area?					✓		
3. DENSITY & DISTRIBUTION OR POPULATION & HOUSING: Will the project add to the population and require additional housing?					✓		
4. HUMAN HEALTH & SAFETY: Will this project add to health and safety risks in the area?					✓		
5. COMMUNITY & PERSONAL INCOME: Will the facility generate or degrade income?					✓		
6. QUANTITY & DISTRIBUTION OF EMPLOYMENT: Will the project create, move or eliminate jobs? If so, estimate number.					✓		
7. LOCAL & STATE TAX BASE REVENUES: Will the project create or eliminate tax revenue?					✓		
8. DEMAND FOR GOVERNMENT SERVICES: Will substantial traffic be added to existing roads? Will other services (fire protection, police, schools, etc.) be needed?					✓		
9. INDUSTRIAL, COMMERCIAL, & AGRICULTURAL ACTIVITIES & PRODUCTION: Will the project add to or alter these activities?					✓		
10. ACCESS TO & QUALITY OF RECREATIONAL & WILDERNESS ACTIVITIES: Are wilderness or recreational areas nearby or accessed through this tract? Is there recreational potential within the tract?					✓		
11. LOCALLY ADOPTED ENVIRONMENTAL PLANS & GOALS: Are there state, county, city, USFS, BLM, tribal, etc., zoning or management plans in effect?					✓		
12. TRANSPORTATION: Will the project affect local transportation networks and traffic flows?					✓		

**CUMULATIVE AND SECONDARY IMPACTS** — There are no cumulative impacts recognized from the Applicant's use of the proposed land application site. There are no recognized secondary impacts.

## **I. POTENTIAL IMPACTS OF THE PROPOSED LAND APPLICATION SITE ON THE PHYSICAL ENVIRONMENTS (See Table 1)**

### **7.0 Terrestrial, Avian, and Aquatic Life and Habitats**

There are no wetlands or permanent surface water bodies located on the proposed site. Because no continuously active aquatic systems exist within the boundary of the proposed site, it is unlikely that there is any significant aquatic life or habitat anywhere on the site. Therefore, the impact to aquatic species is negligible. There was no intensive survey performed to study the presence of or impact to terrestrial or avian species within the land application site. However, there is adequate acreage of similar habitat available in the vicinity of the site to accommodate any species that may be forced to relocate. Consequently, any terrestrial or avian species will likely relocate to the adjacent locations.

### **9.0 Unique, Endangered, Fragile, Or Limited Environmental Resources**

A search of the Montana Natural Heritage Program indicated the Greater sage Grouse, Long-billed Curlew, Burrowing Owl, Sage Thrasher, Loggerhead Shrike, Brewer's Sparrow, Grasshopper Sparrow, McCown's Longspur, and Chestnut-collared Longspur are listed as sensitive within a 5-mile radius of the site. There are no wetlands or permanent surface water bodies located on the proposed site. In addition, no intensive site survey was conducted to study the presence of or impact to sensitive, unique, endangered, or fragile species within or adjacent to the proposed land application site. Therefore, due to the sparse development and human population adjacent to the proposed site, there is adequate acreage of similar habitat available in the vicinity to accommodate any species that may be forced to relocate.

### **10.0 Historical and Archaeological Site**

A cultural resource file search was conducted for the site. Records indicate there have been no previously recorded sites within Section 35, T13N R26E. The State Historic Preservation Office feels that there is a low likelihood cultural properties will be impacted and therefore a cultural resource inventory is unwarranted at this time. However, if cultural materials are inadvertently discovered during this project, the State Historic Preservation Office will be contacted and the site investigated.

### **12.0 Agriculture**

Agricultural activities in the area consist primarily of grazing lands. The pumpings from the pumper business will be land applied to the ground surface not exceeding the AAR for those wastes. At this site, septage type waste will be applied at a rate not to exceed 28,846 gallons per acre per year. This will ensure that over application does not occur and that the native grass grown on the site can use the nitrogen being land applied. Land application sites are rotated on an annual basis to facilitate the production of crops/grasses that will utilize the nitrogen and other nutrients contained in the waste. The impacts on agricultural production due to the proposed land application of septage type waste at this site will be minor.