

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Permitting and Compliance Division
Waste and Underground Tank Management Bureau
Solid Waste Section

**Response to Public Comments Received for the
Proposed Land Application Site – Cummings Property**

March 26, 2010

Mr. Kelly Dale Brown of Browns Septic Services Inc., submitted an application for a new land application site in Ravalli County. Specifically, Browns Septic Services proposes to land apply septage and grease trap type wastes on the Edward Cummings property in Ravalli County located in the N ½ of the SE ¼ and the N ½ of the S ½ of the SE ¼ of Section 8, T9N, R20W and the S ½ of the N ½, the N ½ of the NW ¼, and the S ½ of Section 9, T 9N, R20W. The Cummings property has 120-acres available however, only 75-acres will be used for the land application (see attached site map). Land application will occur at this site on an as-needed basis.

The Department of Environmental Quality (Department) published an Environmental Assessment (EA) of the proposal on October 8, 2009, and a 30-day public comment period was initiated, then extended until November 23, 2009. A Supplemental EA was published on December 22, 2009, and a 15-day public comment period was initiated, then extended until January 20, 2010. Approximately 80 members of the community attended a public meeting held by the Department's Solid Waste Program in the Family Center of the St. Mary's Mission on January 20, 2010. During the meeting, the Department provided information about the following:

- process for selecting a land application site;
- land application requirements;
- site setbacks and restrictions;
- vector attraction and pathogen reduction requirements;
- types of waste proposed for land application;
- biosolids verses domestic septage;
- how septic tanks and drainfields function;
- nitrogen requirements of the proposed site and calculated annual application rates (AAR); and,
- land application methods.

In addition, the Department showed photographs of other land application sites in northwestern Montana, addressed previous comments, and answered questions about the proposal. Written comments were collected during the meeting.

The Department received 97 written comments on the proposed land application site during the public comment periods. Comments received that are outside the context of the regulatory purview of the Department's Septic Tank Pumper (STP) Program are not addressed here. Comments with similar content that are within the scope of this proposed action have been summarized and combined for the purpose of providing an inclusive response to comparable issues. The response is provided in the context of the proposed license action - that is, whether or not the proposal meets the requirements of the STP laws and rules. If the proposal meets the minimum requirements of the laws and rules, the site must be approved by the STP Program. However, the Department may impose additional license conditions or restrictions to protect human health and the environment.

The Department's responses to the comments received during the public comment period are organized as follows:

- I. Site Selection Criteria – setbacks, slopes, and soils
- II. Traffic Impacts
- III. Surface Water Impacts
- IV. Ground Water Impacts
- V. Wildlife Impacts
- VI. Environmental Assessment (EA) and Supplemental EA
- VII. Site Operation and Management
- VIII. Miscellaneous
- IX. Conclusions and Recommendations

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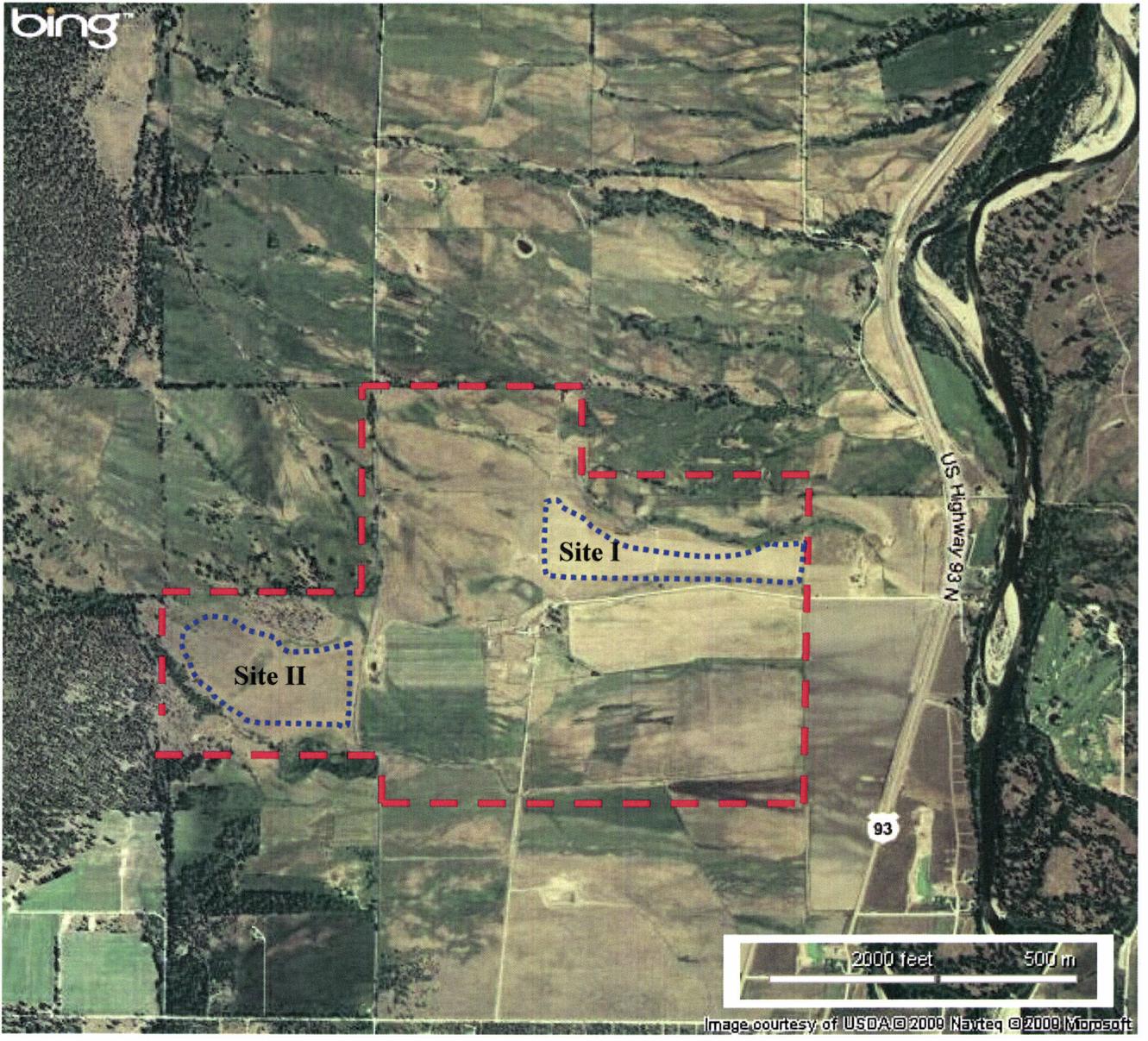


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I. Site Selection Criteria – setbacks, slopes, and soils

I.1 Comment:

Several commentors felt that the site was located too close to local creeks, the Bitterroot River, a residential development, and Highway 93, as well as too close to properties that may potentially be developed for residential or commercial use in the future.

I.1 Response:

Comment noted. Land application sites must meet specific minimum criteria in order for a site to be considered for land application. In accordance with the Administrative Rules of Montana (ARM) Section 17.50.809, the following restrictions apply:

- *Pumpings may not be applied to land within 500 feet of any occupied or inhabitable building;*
- *Pumpings may not be applied to land within 150 feet of any state surface water, including ephemeral or intermittent drainages and wetlands;*
- *Pumpings may not be applied within 100 feet of any state, federal, county or city maintained highway or road;*
- *Pumpings may not be applied to land within 100 feet of any drinking water source;*
- *Pumpings may not be applied where ponding or runoff of septage is likely to occur;*
- *Pumpings may not be applied to land with slopes greater than 6%, or on slopes greater than 3% when the ground is frozen or snow covered;*
- *Pumpings may not be applied to land where less than six feet separate the land surface from seasonally high ground water;*
- *Pumpings may not be applied at a rate greater than the agronomic rate of the site for nitrogen on an annual basis; and,*
- *Pumpings may not be applied to land where a threatened or endangered species or its designated critical habitat is likely to be adversely affected;*

The land application site complies with the above restrictions as follows:

- *The land application site is located more than 500-feet away from an occupied or inhabitable building on or adjacent to the property;*
- *The Bitterroot River is located more than ½-mile from the site. Additionally, the creek north of Site I is more than 150-feet away from the proposed land application site;*
- *The land application site is located more than 1800-ft from Highway 93;*
- *There is no drinking water source located within 100-feet of Site I or Site II;*
- *Pumpings will be land applied using a spreader bar or a splash plate in a manner that prevents ponding or runoff of septage. In addition, before any land application activities commence, a berm will be constructed on the north ridge of Site I between the application area and the creek to ensure that run-off from the site does not enter the creek;*
- *Areas within Site I and Site II that exceed the maximum allowable slope will be staked to ensure that land application does not occur in those areas;*
- *Seasonally high ground water was not encountered at a depth less than 6-feet below land surface;*
- *Septage will be applied at an Annual Application Rate (AAR) not to exceed 28,846 gallons per acre per year; and,*
- *There were no threatened or endangered species or critical habitats identified at the site.*

The proposed Cummings land application site meets these minimum requirements. When or if development occurs on adjacent properties, the site setbacks will be reviewed to ensure any new requirements are being met.

I.2 Comment:

One commentor noted that a Cummings family home exists between the two sites, within 500 feet of Site II

I.2 Response:

Comment noted. The distance between the application sites and the residence in question far exceeds the 500-foot setback requirement. Several fields are between the application sites and the residence.

I.3 Comment:

One commentor pointed out that Site I is adjacent to Shearbrook Lane, a county maintained road.

I.3 Response:

Comment noted. The 100-foot setback requirement from Shearbrook Lane has been met at this site.

I.4 Comment:

One commentor stated their surprise at the Department's consideration of the proposal to land apply raw septic system sewage in what appears to be significant volumes near ground and surface water, as well as occupied dwellings, without at least requiring primary treatment. Another commentor questioned what the term "septage" actually referred to and believed that the State should inform the public about the specific pollutants in the waste that will be applied to the Cummings property.

I.4 Response:

Comment noted. Septage is not considered raw sewage. Raw sewage is portable toilet wastes, black water from recreational vehicles, sewage from homes tied to a local wastewater treatment plant. Septage removed from a septic tank is not raw sewage because it has undergone primary treatment by the bacteria that live in the septic tank. This primary treatment process is similar to the digestion that takes place at a waste water treatment facility, but obviously at a much smaller scale. 75-10-1201(7), Montana Code Annotated (MCA) defines "septage" as liquid or solid material removed from a septic tank, cesspool, portable toilet, or similar treatment works that receives only domestic sewage.

The required management practices are protective of public health and the environment because they establish minimum requirements for operations at the land application site. Land application sites must meet specific criteria prior to being approved. These include minimum setbacks from seasonally high ground water, any occupied or inhabitable buildings, drinking water source, any state surface water, including ephemeral or intermittent drainages and wetlands, any state, federal, and county or city maintained highway or road. Restrictions include but are not limited to crop harvesting, animal grazing, and public access restrictions to the application site.

The following table provides a comparison of the chemical and physical characteristics of septage versus sewage sludge.

CHEMICAL AND PHYSICAL CHARACTERISTICS OF DOMESTIC SEPTAGE VS. SEWAGE SLUDGE

Parameter	Concentration mg/kg (dry weight basis)		
	Domestic Septage ¹	Sewage Sludge ²	Pollutant Concentration Limit (PCL) ³
Arsenic	4	10	41
Cadmium	3	7	39
Chromium	14	120	1200
Copper	140	740	1500
Lead	35	130	300
Mercury	0.15	5	17
Molybdenum	—	4	18
Nickel	15	43	420
Selenium	2	5	100
Zinc	290	1200	2800
Nitrogen as N	2%	2 - 7%	—
Phosphorus as P	< 1%	1 - 3%	—
pH	6 - 7	5 - 8	—
Grease	6 - 12%	5 - 10%	—
Biochemical Oxygen Demand (BOD ₅)	6,480 mg/l	2000mg/l ⁴	—
Total Solids (as normally spread)	3.4%	3 - 35%	—

Notes:

- 1: Domestic septage characteristics are from Field Guide to Septage Treatment and Disposal.
- 2: Sewage sludge characteristics are from the National Sewage Sludge Survey, and Wastewater Engineering: Treatment/Disposal/Reuse.
- 3: Pollutant Concentration Limits are from Table 3 of the Standards for the Use or Disposal of Sewage Sludge (40 CFR Part 503). These regulatory limits apply to sewage sludge, not domestic septage, but is used for comparison purposes here. Sewage sludges meeting these limits can be used without tracking the cumulative amount of metals applied to the land.
- 4: BOD₅ varies greatly among sewage sludges.

I.5 Comment:

A few commentors expressed a concern about the proximity of the site to the local business district and is visible from US Highway 93.

I.5 Response:

Comment noted. As noted in an earlier response, ARM 17.50.809 provides the minimum setback requirements between land application sites and residences. The site far exceeds the 500-foot setback requirement. Further, the land surface of Site I is on an elevated plain which cannot be seen from the highway. Site II is surrounded by trees on the south, west, and north sides of the field. The east side of Site II faces additional fields with grazing cattle and cannot be seen from the highway or Kootenai Creek Road.

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Chromium	14	120	1200
Copper	140	740	1500
Lead	35	130	300
Mercury	0.15	5	17
Molybdenum	—	4	18
Nickel	15	43	420
Selenium	2	5	100
Zinc	290	1200	2800
Nitrogen as N	2%	2 - 7%	—
Phosphorus as P	< 1%	1 - 3%	—
pH	6 - 7	5 - 8	—
Grease	6 - 12%	5 - 10%	—
Biochemical Oxygen Demand (BOD ₅)	6,480 mg/l	2000mg/l ⁴	—
Total Solids (as normally spread)	3.4%	3 - 35%	—

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I.6 Comment:

The ground slopes at Site I down along the length of the north edge of the site, thus, the runoff from this site will go into this ditch which will discharge into the Bitterroot River. Per photographic evidence, (exhibit: foam on ditch to be supplied at a later date) it appears that there is already a runoff of some form coming from this land, which is making it's way to the Bitterroot River.

I.6 Response:

Comment noted. Slopes on land application sites are not allowed to exceed 6%. The Department preliminarily determined that the slopes were acceptable based on visual observations during sites visits and estimation of slopes from U.S. Geological Survey topographic maps. Based on public comments, during a subsequent site visit the Department measured slopes in several areas of the sites. At Site I the steeper sloping areas along the edges of the field will not be used for land application. At Site II the western portion of the site was determined to have a slope between 6-8% and will not be used for land application. The areas at Site I and Site II with unacceptable slopes have been marked by the Department and conditions placed on the license prohibit land application in those areas.

I.7 Comment:

A few commentors questioned how the coarse nature of the shallow topsoil make the site suitable for land application and how the U.S. Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS) Soil Survey information can be used to augment the Department's decision and locate the proposed activity elsewhere.

I.7 Response:

Comment noted. The Department's observations of the soils at the site did note the coarse nature of the soils. The topsoil at Site I is slightly thicker than what is described as the typical pedon in the USDA-NRCS Soil Survey for the area and contains a significant fraction of silt. The subsoil consists of a well graded sand (fine to coarse) with some gravel and cobbles. At Site II the soils are more variable across the site. The topsoil is thicker along the east boundary and the subsoil contains more silt and clay. The topsoil on the west boundary is thinner and contains more cobbles. However, because the slope on the western portion of Site II exceeds the maximum slope allowed for land application, that portion has been excluded from use.

The septage wastes are land applied using an approved dispersive mechanism that causes the wastes to be applied in a fan-like shape. Further, the truck will be in motion during the land application activity, so wastes are not just dumped in one spot and allowed to puddle, pond, or run-off, but to slowly infiltrate into the soil. The waste is typically applied in straight "runs", where the operator opens the valve and then drives in a straight line until the tank is empty. Subsequent runs are offset from each other to spread the septage evenly over the land application area and to prevent over-application. Using this technique, the septage is absorbed by the soil and the solid organic material acts like a bulking agent, similar to compost, to provide additional fine fractions to existing soils.

In our review for the site, the Department included all available USDA-NRCS soil survey information for the area. In most cases the Department relies on the USDA-NRCS soil survey data for information on the soils at a site. However, in this case, the Department considers the site specific information obtained from the test pits on site to be more reliable than the general information contained in the soil survey data. The Department does not use the USDA-NRCS ratings for suitability as a determinative source in its decision making regarding the land application of domestic septage, but uses the basic soil information along with professional scientific judgment on a site-specific basis.

I.8 Comment:

A few commentors asked whether alternative sites exist in the eastern part of the Bitterroot Valley, or on State Lands which have fewer small surface water bodies, less steep topography, and greater separation from the Bitterroot River.

I.8 Response:

Comment noted. The pumper business is responsible for finding its own land application site. Some businesses have contacted State Agencies and have gone through the site approval process and do land apply on land managed by the State of Montana. However, it remains the responsibility of the applicant to secure a location and provide the information to the local, county, and state officials for approval. Information on a proposed site is first presented to the County Health Officer or their designated representative (County Sanitarian) for review and approval. Once a site is approved by the County, the application is then forwarded to the Department. Sites that do not meet local requirements are typically denied at the local level. Sites that do not meet the minimum state requirements are denied at the state level. Approval for use of this site was provided by the Ravalli County Health Department before it was sent to the state for review and approval. This site meets all local and state requirements. While alternative sites may exist, the Department's review was specific to the applicant's proposal.

I.9 Comment:

When the state of Montana does not offer its state lands for dispersal when there are adequate state lands on the east side in the Sapphire Range, many miles from the Bitterroot River. In some instances it is 200 feet or more from small amounts of water if any. Lands are actually in a rural, remote location with little human contact. If this was done, the State of Montana would receive the revenue for this action, rather than a private individual. It has also been discovered that the State of Montana land site commonly known as "Softrock" has previously been used as a land application site. Why was this discontinued?

I.9 Response:

Comment noted. It is not the responsibility of the Department to find disposal sites for pumper businesses. It is the responsibility of the pumper business to find disposal sites. Many of these businesses do land apply on State owned land throughout Montana. The pumper business must contact the State Agency that owns the land and get written permission via the New Disposal Site Application form. The same review process would be taken i.e. the County Health Officer or their designated representative (County Sanitarian) who would approve or deny the site. If approved then it would be mailed to the Department for review and action. The land known as "Softrock" may have been used by a pumper no longer in business and no other pumpers applied for the use of the site.

I.10 Comment:

One commentor noted the proposed activity did not offer any sort of reclamation plan and that the application of additional nitrogen is not enough to improve the currently marginal vegetative cover on site because the soils are highly acidic and the reason why plant growth is marginal.

I.10 Response:

Comment noted. Reclamation of the site is not required. Septage is applied to restore organic material in the soil and provide nutrients for plant growth. The land application of septage has been used in areas across the state to reclaim and revegetate land at strip mines, clear-cuts, and other severely eroded sites. The application of the alkali-stabilized waste provides an added benefit to existing soils by adding the alkali-materials necessary to neutralize the acidic soils necessary for successful vegetative growth.

II. Traffic Impacts

II.1 Comment:

Some commentors said that the additional truck dump traffic will be detrimental to Highway 93 and will cause huge maintenance costs.

II.1 Response:

Comment noted. At the present time, more than seven local septic tank pumper businesses servicing the thousands of septic tanks in the area travel US Highway 93 on a daily basis. The one pumper business proposing to use this land application site will not cause a significant increase in traffic on the highway that he already travels on a daily basis.

III. Surface Water Impacts

III.1 Comment:

Several commentors felt that the site will impact the nearby creeks and drainages that flow to the Bitterroot River

III.1 Response:

Comment noted. A berm will be constructed on the north ridge of Site I between the application area and the creek to ensure that run-off from the site does not enter the creek. Further, the minimum setback from any state surface water body for land application is 150-feet. The Department has marked the setbacks with wooden stakes and/or flags to ensure that land application will not occur within 150-feet of any of the surface water feature on-site. Mr. Cummings has placed large boulders and tires at Site II for each staked/flag point.

Finally, all land application requires the use of a dispersive mechanism to ensure that pumpings are applied in a manner that prevents ponding or runoff of septage. Therefore, based on the minimum setbacks and additional protections, the Department considers it unlikely that septage will runoff and contaminate any surface water body in proximity of the site. During routine Department inspections, any sign of runoff or application outside of the permitted areas will be noted as a violation. Violations require immediate correction by the pumper. Failure to prevent runoff can result in closure of a land application site. The Department believes the site will be managed in a manner to prevent potential impacts to surface water.

III.2 Comment:

A few commentors expressed concerns about the fate of excess irrigation waters if the site is irrigated.

III.2 Response:

Comment noted. Flood irrigation of land application sites is prohibited. Further, sprinkler irrigation is not allowed on a active land application sites. Irrigation of land application sites may resume only after land application within a specific area has been halted and the site is rotated out of use and becomes inactive. Irrigation may then be used to promote the growth of vegetation that will utilize the nutrients added to the site through the land application process.

III.3 Comment:

A few commentors believe that some type of surface water testing is necessary to ensure land application is not contaminating local surface waters, including the Bitterroot River.

III.3 Response:

Comment noted. There are no requirements for surface water sampling in the septic pumper laws or rules. The setback requirements in the Administrative Rules were designed to ensure runoff from land application does not occur and would therefore not impact surface waters. Adherence to the procedures and established setbacks for land application should prevent runoff from occurring. The Department can establish additional requirements, including the requirement to perform monitoring,

to ensure land application has not impacted surface water bodies. Monitoring would target fecal coliform; however, given existing land-use and surface water encroachment, it is likely that the target analyte would be detected in the baseline and upstream samples. Based upon setbacks and the additional protection of the berm, the Department believes that surface water testing is not necessary at the present time. Failure to prevent runoff from the site, or evidence that application has occurred outside the permitted areas, will be noted as a violation. Violations require immediate correction that may include the collection and analysis of surface water samples to ensure surface water bodies have not been impacted by the land application activity.

III.4 Comment:

A few commentors noted the existence of livestock and irrigation ponds on the site, especially those located in close proximity to Site II.

III.4 Response:

Comment noted. The landowner has constructed several small ponds on the property. These ponds were considered in the EA. Land application is not allowed and will not occur within 150-feet of these water bodies.

It was noted during several visits to the property that cattle were fenced off in individual fields and were not being allowed to roam the entire property at will. Only 3.5 acres is needed for land application on an annual basis. The landowner has adequate acreage of similar habitat available to graze livestock on this property. Livestock will not be allowed to graze the site until 30-days after the last application.

III.5 Comment:

A few commentors were concerned about the potential nitrification of waters from the site entering the Bitterroot River and felt that the hydrologic connection between the site and waters connected to the River would impact water quality.

III.5 Response:

Comment noted. The land application of septage will provide a source of nitrogen to the soils. However, the septage will not be applied in excess of 28,846 gallons per acre per year. This maximum AAR is designed to ensure that over-application in excess of the maximum nitrogen requirement does not occur and nitrogen does not get flushed through the soil profile. The crop of choice, native grasses, will be grown during alternating years to ensure the nitrogen applied through the land application process one year is utilized by vegetation the following year. In addition, there are no wetlands or permanent surface water bodies located on the proposed land application sites that are hydraulically connected to other surface water features in the area. All setback requirements will be maintained to be sure the surface water features outside the active land application area are not impacted.

IV. Ground Water Impacts

IV.1 Comment:

Several commentors expressed concerns that waste and/or chemical constituents contained in the septage will leach through the soil into the aquifers and contaminate the wells used for domestic water, especially in wells on North Kootenai Creek Road south of the site.

IV.1 Response:

Comment noted. As long as the septage is applied at the permitted rate, the liquid portion will be absorbed into the soil and utilized by the vegetation as a source of moisture. The septage will be further degraded by exposure to the sun and the atmosphere, will be absorbed and oxidized by elements in the soil zone, and will biodegrade as the subsurface microorganisms use the material as

an energy source. These mechanisms make it extremely unlikely that any measurable quantity of contaminants from septage at the land application site will reach any downgradient wells or the Bitterroot River. Further, based on the available data, the direction of groundwater flow beneath the Cummings property was determined to be towards the east. The groundwater beneath the land application sites would flow east beneath US Highway 93 towards the Bitterroot River. The direction of groundwater flow places all existing domestic wells along North Kootenai Creek Road cross-gradient from the land application site, meaning that water from beneath the site would not flow to these wells. Groundwater from beneath the site will flow towards the east under properties located directly between the site and the Bitterroot River. Based on conservative assumptions regarding groundwater flow, an estimate of the minimum travel time for groundwater to flow from Site I to the Bitterroot River is on the order of a few decades. This estimate does not include the additional time it would take for water to flow from the surface through the unsaturated zone to the water table.

IV.2 Comment:

One commentor said that the addition of alkaline material (lime) to reduce the levels of pathogenic organisms will not eliminate all of the pathogens, thereby allowing pathogenic organisms to survive and potentially enter into and contaminate the ground water and local aquifer.

IV.2 Response:

Comment noted. The Department disagrees. The licensee will add lime to alkali-stabilize the wastes before land application. The alkali stabilization of septage in accordance with the requirements of the rule is a proven method that destroys and prevents the recolonization of pathogenic bacteria. Also, regardless of the potential contaminant, the Department would not license a site where a groundwater impact was likely.

IV.3 Comment:

Some commentors expressed concerns that information from newer wells in the vicinity was not used in the development of the EA.

IV.3 Response:

Comment noted. The Department carefully reviewed available groundwater and well information for the twelve sections including and surrounding the site. Groundwater well information was obtained from the Montana Bureau of Mines and Geology, Groundwater Information Center (GWIC) database. This is the most comprehensive database of water well information available in the State of Montana and is estimated to contain 50-60% of all water wells in the state. Wells for which information has not been submitted to GWIC and recently installed wells which have not yet been entered into the GWIC database would not be included. While all of the 186 wells in this database for the area surrounding the site were included in the Department's analysis, for the purpose of presentation, only those wells that could be accurately located to a specific parcel were included in the "Nearby Wells" figure. The Department believes that the information from the wells used in the analysis is representative of the area and is therefore satisfied with the assessment and conclusion.

IV.4 Comment:

Several commentors expressed concerns about the accuracy of the test pit investigation performed by the Department in November when groundwater levels are typically deeper than in the spring and summer from runoff and irrigation. In addition, the description of the mottling in the subsurface and the presence of the Aspen trees are both indicative of high groundwater.

IV.4 Response:

Comment noted. The test pits were excavated to investigate the soils at the land application sites and to look for any signs that seasonally high water tables had occurred in the past. The Department is aware that high water occurs in the spring and did not expect to encounter a high water table in the

test pits at the time they were excavated. The test pits were not excavated to investigate groundwater flow at or downgradient of the site. The Solid Waste Program hydrogeologist, septic tank pumper specialist, and the Ravalli county sanitarian all observed and analyzed the soils present in the test pits at the time of the excavation. There was no evidence that indicated the presence of a seasonally high water table.

Soils described as "moist" do not indicate seasonally high groundwater. Moist soils are most commonly the result of the infiltration of precipitation trapped in the soil. Soils described as moist do not contain any "free water", but rather the water is bound to the soil particles. A soil described as moist is typical of that found in a watered garden, cool and damp to the touch, but without any water that can be extracted when the soil is compressed in your hand. In geologic descriptions, soils with free water are described as "wet" or "saturated".

The "mottling" described in the test pits is simply color variation in the soil. The mottling of the soil described in the pits at Site I was due to the presence of the decomposed cobbles. Lighter colored minerals in the cobbles had decomposed to form lighter colored areas of soil, and cobbles containing iron rich minerals had decomposed to form orange tinted areas of soil. The mottling described was not indicative of alternating wet/dry conditions, but an artifact of the variable source material that had weathered to produce the soils observed at the site.

A soil percolation (perc) test was not performed on the test pits at the site because the test is not part of the requirements for new land application sites. Rather, perc tests are required to test the subsurface infiltration rates for septic tank drain fields, not the surface infiltration rates which are relevant to land application of septage. The information available from the Soil Conservation Service for the soils at the site describes the permeability of the soils in adequate detail to assess their suitability for the land application of septage. Additionally, the Department examined the soils when the test pits were excavated. The soils are sandy with silty topsoil and contain very little clay. These coarse-grained soils are well drained, meaning that they have adequate capacity to absorb properly applied septage without causing ponding or runoff.

The Aspen trees noted in the photographs of Site II are located along Brooks Creek, which runs along the south side of Site II. Aspen trees require more water than conifers. However their presence does not necessarily indicate a water table within 6 feet of the surface. In this specific case, the Aspen trees noted in the photographs are located along a perennial stream that likely provides the trees the water they need.

IV.5 Comment:

Some commentors expressed a concern that the septage will contain pharmaceuticals that will be land applied.

IV.5 Response:

Comment noted. The Department considers the potential volume of pharmaceuticals present in the septage proposed to be applied at this site to be small compared to the potential volume of pharmaceuticals already being released in the Bitterroot valley in the discharge from wastewater systems. At the present time, there is no requirement for individual septic systems that discharge effluent to groundwater, or for wastewater treatment plants that discharge effluent to groundwater or the Bitterroot River, to test or treat for pharmaceuticals. Although pharmaceutical and personal care products in wastewater effluent and septage wastes are an international hot topic, they are not currently regulated by the federal government or the State of Montana.

IV.6 Comment:

One commentor noted that some of the wells cited in the EA documents are in areas of high ground water and show the proximity of high ground water to the proposed sites.

IV.6 Response:

Comment noted. The wells that had water levels within 6 feet of ground surface were located closer to the river and at a lower elevation than the land application sites. Therefore, in the Department's analysis, it was considered unlikely that a high water table was present at either land application site. Additionally, because the Department received comments to the original EA noting concerns about high water tables, six test pits were excavated at the sites to look for evidence of shallow groundwater. The test pits showed no evidence of shallow groundwater nor of the occurrence of historical shallow groundwater.

V. Wildlife Impacts

V.1 Comment:

A few commentors asked if the Montana Department of Fish Wildlife & Parks (FWP) was notified of the proposal.

V.1 Response:

Comment noted. Copies of the EA's were sent to other agencies for comment, including the Ravalli County Sanitarian, Ravalli County Health Officer, Ravalli County Commissioners, Montana Department of Fish, Wildlife & Parks, Montana Natural Heritage Program, Montana Historical Society State Historic Preservation Office, Natural Resource Information System, Environmental Quality Council, and the Documents Section of the State Library.

V.2 Comment:

Several commentors expressed concerns about the impact to wildlife that range on and migrate through the area.

V.2 Response:

Comment noted. The residential development and expansion of US Highway 93 into the historic habitat areas and through existing migration routes do not appear to have had an adverse affect on wildlife in the area. The Department believes that the proposed land use will not negatively impact wildlife populations. Grazing animals tend to avoid septage land application sites for a number of reasons – the presence of the human scent and human activity, to name a few. In addition, based upon the volume proposed for land application, a maximum of 3.5-acres will be used per year for land application. There is adequate acreage of similar habitat available in the vicinity of the property to accommodate any species that may be forced to relocate. Further, the Montana Natural Heritage Program indicated the lack of any species of concern within a five-mile radius of the site.

Septage will not be dumped directly into the nearby creek or the Bitterroot River. If that was the case, local wildlife and their food sources would likely be affected. The pumpings will be applied in a manner that prevents over-application, ponding, and run-off. In addition, the Department's mission is to protect, sustain, and improve a clean and healthful environment to benefit present and future generations. The approval of a septage land application site that meets the minimum requirements of the laws and rules of Montana, which is operated in accordance with those laws and rules, would not cause harm to the wildlife and human population in the area.

V.3 Comment:

One commentor noted the abundance of wildlife that winters on the property and stated that FWP and other wildlife officials are just now beginning to study what diseases the elk may be carrying that may be transmitted to livestock. The commentor believes that the relocation of disease-carrying terrestrial

wildlife species to adjacent locations may lead to transmission of diseases that may endanger the human population. Additionally, the commentor expressed a concern regarding the landowner's irrigation practices that provide feeding grounds for water fowl.

VI.3 Response:

Comment noted. The Department is not aware of any current studies that show the elk in the area are carrying diseases that are transmittable to livestock. The terrestrial wildlife species that use the site as winter range will naturally relocate to adjacent areas either on or off the current property, as a result of the increase in human activity on the site. There are no plans to purposefully relocate any of the wildlife to other adjacent properties.

The irrigation practices referred to by the commentor will be halted. Prior to the commencement of land application activities at Site I or Site II, the landowner will remove surface water features that promote the ponding of water in the land application site

VI. Environmental Assessment (EA) and Supplemental EA

VI.1 Comment:

One commentor stated that neither of the documents show proof that the county first approved this site. The commentor goes on to state that although the EA may recommend an action, does the local county commission have a final say in the approval or denial? If not, do they have an advisory or regulatory role? Nor do the short times identified in either document allow for adequate time for the county decision makers to properly post notice of this request so that public input on a county level may be garnered.

VI.1 Response:

Comment noted. The local County Health Officer or their designated representative (County Sanitarian) approves or denies a land application site based upon local site conditions and/or zoning restrictions. The Ravalli County Sanitarian received and reviewed the New Disposal Site Application Form on September 3, 2009. During the review process, the County representative had the opportunity to approve or deny the site. The document was sent to the Department certified by a signature from the County Sanitarian that Site I and Site II on the Cummings property meet local and State laws and rules.

There is presently no mechanism in State law that requires the approval or denial of a site by a local county commission. However, the EA was sent to the Ravalli County commissioner's office for their review and comment during the public comment period. The Department did not receive any comments from the Commissioners.

VI.2 Comment:

The supplemental information on the EA regarding the proposed use of Ed Cummings' land for application of septage was very helpful. It is also obvious that locations for disposal of septage are needed in this valley until such time as a treatment plant is constructed.

VI.2 Response:

Comment noted. The Department agrees.

VI.3 Comment:

There is nothing in the proposal that says what the existing or planned land use is at the site. This is important. If it's hay land or pasture or forest (at times this property has been hayed or grazed), it means some vegetation could be available to take advantage of the nutrients in the sewage. If it is bare, mineral soil, which is present on some of this ranch, then there will be fewer options for natural attenuation of potential pollutants such as nitrogen or phosphorus.

VI.3 Response:

Comment noted. Crops being grown on Site I and Site II will range from native grasses to oats. The areas for land application within each site will be rotated in and out of use to ensure the nutrients contained in the septage are utilized by vegetation grown on the site. If necessary, the landowner will seed the areas to ensure that an adequate stand of vegetation develops to use the nutrients applied. The property may also be grazed, but grazing is not allowed until 30-days after application of the material.

VI.4 Comment:

One commentor noted that they did not receive a copy of the EA, therefore the site should be denied.

VI.4 Response:

Comment noted. The Montana Environmental Policy Act (MEPA) allows state agencies to establish their own policies for the dissemination such documents. The EA was sent to all property owners with a contiguous boundary to the Cummings property. Copies were also sent to other agencies for comment. These included the Ravalli County Sanitarian, Ravalli County Health Officer, Ravalli County Commissioners, Montana Department of Fish, Wildlife & Parks, Montana Natural Heritage Program, Montana Historical Society State Historic Preservation Office, Natural Resource Information System, Environmental Quality Council, and the Documents Section of the State Library. Every effort was made to notify and involve interested parties and, although we regret that this particular commentor was not notified directly, the Department believes that the amount of publicity and scrutiny this license application has received demonstrates that our goal for a high level of public engagement was accomplished.

VI.5 Comment:

One commentor asked why the detailed USDA-NRCS soil maps were not used in the Department's analysis and what was the source of the site geology map on page 8 of the EA.

VI.5 Response:

Comment noted. The detailed USDA-NRCS soil maps and associated soil data were used in the analysis. However, those maps were not presented as figures in the EA. The soil map used in the EA was created from these maps by Department scientists as a simplified graphical representation of the complex data involved in the analyses. The site geology map in the EA was created by the Montana Bureau of Mines and Geology, and adapted by the Department to show the property boundaries and groundwater flow direction.

VI.6 Comment:

One commentor stated that within the last ten years, the landowner was informed by the Army Corps of Engineers that he had created a wetland on his property. This issue is not addressed in the EA.

VI.6 Response:

Comment noted. The Department's EA was performed for those areas specific to the proposal, not for the entire parcel of land owned by Mr. Cummings. The laws and rules prohibit land application in wetlands. No wetlands were identified in Site I or Site II, therefore no application will occur in a wetland.

VI.7 Comment:

One commentor stated that the Stevensville Wye area north was not developed in anticipation of the proposed land application activity and would thus impact users of the area. In addition, income and property values will be drastically devalued if the site is approved.

VI.7 Response:

Comment noted. At the present time, Montana has over 154 active land application sites, 2 of which are within Ravalli County. Many of the application sites in the state are in close proximity to residential areas. When sites are managed in accordance with the regulations there are no violations found during site inspections performed by local or Department inspectors. Complaints called into the Department must be validated with an inspection. During the inspection if violations are found and not corrected, the Department may take enforcement action that could include monetary penalties and revocation of the site.

The Department is not aware of any drastic reduction in income or property values near land application sites anywhere in the State of Montana. Pumpings from septic tanks are being used as a supplement to commercial fertilizers throughout the United States. Income and property values adjacent to farms and ranches have not been affected by this properly managed practice. The pumpings being added to this property are being used as a fertilizer – a common practice at many farms and ranches in Montana.

VI.8 Comment:

One commentor believes that the agricultural production in the area will be impacted by the site.

VI.8 Response:

Comment noted. The Department disagrees. ARM 17.50.811 outlines the restrictions for the use of food, feed, and fiber crops. The landowner plans to grow native grasses on the land application areas. Grazing is not permitted until 30-days after application of the septage.

VI.9 Comment:

One commentor believed that the site was too close to the Bitterroot Selway Wilderness Area.

VI.9 Response:

Comment noted. The sites are situated on private property. Public access to recreational or wilderness activities in the Bitterroot-Selway Wilderness Area is not provided through this property.

VI.10 Comment:

One commentor stated that the property is contiguous to a voluntary zoning district and to U.S. Forest Service (USFS) properties, thus affecting property owned by the people of the United States. To date, it is unknown what the USFS will do with this adjacent property as it is the site of the Kootenai Creek Wildfire of 2009. Controlled logging and other projects may occur in an attempt by the USFS to deal with the burned area.

VI.10 Response:

Comment noted. The proposed land application sites conform to the minimum setback criteria provided in ARM 17.50.809. The areas proposed for land application are located on private property. There is no zoning that restricts the proposed use. Activities on the contiguous properties do not impact the private property subject to the analysis.

VI.11 Comment:

One commentor felt that neither the EA nor the Supplemental EA adequately addressed the potential health hazards.

VI.11 Response:

Comment noted. The U.S. Environmental Protection Agency (EPA) has established regulations for the management of sewage sludge (biosolids) and domestic septage (40 CFR Part 503). During the development of these regulations, research and testing were conducted to ensure land application of septage would not cause public health or environmental issues. The State of Montana has established

regulations for the land application of septage (Title 75, Chapter 10, Part 12 MCA and ARM Title 17, Chapter 50, Subchapter 8). The regulations in 40 CFR Part 503 were used during the development of the state laws and rules regulating septage land application. As with the EPA regulations, the required management practices for land application in Montana were developed to protect public health and the environment from the reasonably anticipated adverse effects of the pollutants in septage.

VI.12 Comment:

One commentor noted that the EA indicated that the site is fenced. However, during the Department's November, 2009, inspection, Department personnel should have noticed that the site locations are not fenced independently of the remainder of the Cummings Property.

VI.12 Response:

The EA and Supplemental EA addresses only the areas proposed for land application, not the entirety of the Cummings property. It was also noted during several visits to the property that cattle were fenced off in individual fields and were not being allowed to roam the entire property at will.

VI.13 Comment:

A few commentors felt that an Environmental Impact Report should be prepared for the site.

VI.13 Response:

Development of a complete Environmental Impact Statement (EIS) is not necessary for this type of activity. The land application of septage is an accepted and proven method used to manage such wastes. When reviewing and regulating any land application site, the Department uses the criteria set forth in Title 75, Chapter 10, Part 12, MCA, and ARM Title 17, Chapter 50, Subchapter 8. Each site is reviewed individually, regardless of who will be using the site. Annual application rates for septage type waste are required for each site and depend upon the crop or vegetation grown on the site. The maximum application rate ensures the amount of nitrogen being applied will meet the uptake requirement of the crop or vegetation at the site.

VI.14 Comment:

The EA says the property is off Butler Creek Road, when it is actually off Shearbrook Lane. Butler Creek is the name of a road in Missoula County with a similar facility. Why the mistake?

VI.14 Response:

Comment noted. The Department realized the error after the Supplemental EA had been mailed out. However, the site specific information provided (Section, Township, and Range) was correct. The Supplemental EA was mailed to those individual originally listed on the EA and those individuals who commented on the EA. However, in light of the publicity received, the majority of individuals in the area, and all who commented were well aware of the property location. We apologize for any confusion this may have caused.

VI.15 Comment:

It appears the site will be visible from North Kootenai Road. Is that addressed in the EA?

VI.15 Response:

Comment noted. Line of site is not a requirement of the EA. Many septage land application sites in Montana are visible from county, state and federal roads. There is no requirement in state law or rule to construct a visual barrier between public roads and such sites.

VI.16 Comment:

I have been looking for the Supplemental Environmental Assessment for the Cummings/Brown Septic permit on the web site you provided, and I have not been able to locate it. Can you let me know if I

am looking in the wrong place, or when will it be updated with your December 22, 2009, letter of additional information.

VI.16 Response:

The Department's servers were being upgraded and it created some problems with the website. The Department's Information Technology staff worked diligently to correct the problem although the site was down for one day. Those that contacted the Department were e-mailed a copy of the Supplemental EA. We apologize for any inconvenience this may have caused.

VI.17 Comment:

One commentor believes that the Department should require the septic pumper business to install groundwater monitoring wells to monitor the migration of pollutants from the land application sites.

VI.17 Response:

Comment noted. There are no requirements for the installation or monitoring of groundwater monitoring wells in the septic pumper laws or rules. Adherence to the procedures for land application at AAR's that do not exceed the maximum volume should prevent the migration of pollutants from land application sites. The Department can establish additional requirements, including the requirement to perform monitoring, to ensure land application has not impacted groundwater. However, the Department believes that groundwater testing is not necessary at the present time. Failure to comply with the requirements for land application will be noted as a violation. Violations require immediate correction that may include the collection and analysis of groundwater samples to ensure that the groundwater has not been impacted by the land application activity.

VI.18 Comment:

One commentor believes that while other alternatives are available to the pumper business, this proposal appears to utilize the third-world approach of dumping raw sewage on the ground.

VI.18 Response:

Comment noted. As stated earlier, septage is not raw sewage. While septic tank pumper businesses do have several options for disposal, those options depend on what is available in the local area. The available options include the transport to a wastewater treatment plant that can accept it, a dewatering facility, a landfill, or a land application site. The wastewater treatment facilities in Victor and Stevensville do not currently accept these wastes because their capacity is limited and the facilities would have to be retrofitted to ensure the acceptance of such wastes does not impact the current permitted operations. Such a retrofit would be expensive and would be passed on to the respective communities in the form of a mill levy increase – an unlikely occurrence at the present time. The nearest facility that does accept septage is located in Missoula. However, the City of Missoula limits the amount of septic tank pumpings it takes per day. In addition, transport to this facility would result in additional environmental impacts and increased costs that will be passed on to the customer. Although the dewatered solids from a septic tank may be disposed of at a landfill, the liquids still require treatment. There is also no facility in the vicinity that accepts such solids. Another option is to have new residential developments, and older ones with aging septic systems, hook up to centralized wastewater treatment system. However, developers and homeowners commonly do not want to take on the extra expense associated with such connections. Since neither the Stevensville nor Victor wastewater treatment facilities accept septage, land application appears to be the only option available for the residents in the area outside of the Stevensville city limits.

VI.19 Comment:

One commentor asked what the duration of the Department's approval is for such a site.

VI.19 Response:

Comment noted. A septic tank pumper business is required to renew their license on an annual basis. The license is from January 1 to December 31 of the current year. The Department's approval for use

of the site by the applicant remains effective as long as the licensee maintains compliance with the laws and rules governing the operation and management of a land application site.

VI.20 Comment:

One commentor asked how the locations of the test pits were randomly selected.

VI.20 Response:

Comment noted. The Ravalli County Sanitarian, the Solid Waste Program's Hydrogeologist and the Solid Waste Program's Environmental Specialist determined the location and number of test pits excavated at each site. Test pit locations were randomly chosen within the areas proposed for land application based upon the professional judgement of the scientists and agreed upon by the team as reasonable and effective locations to obtain information about the variability within each location.

VI.21 Comment:

One commentor asked how Alternative A, where the Department does not license the site, differs from Alternative C, where the Department would deny the land application site.

VI.21 Response:

Comment noted. Alternative A, the 'no-action' alternative, occurs because the applicant withdraws the request for licensure, therefore, the Department takes no action. Alternative C, the Department's denial, is an action that results from inadequacies in the application, site, operations, etc. The two alternatives may have the same end result, but the process required to get there is very different, and both are plausible alternatives that must be considered.

VI.22 Comment:

One commentor said that by the Department stating the intent of their decision in the EA, they risk intimidating and/or circumventing the public from providing comment.

VI.22 Response:

Comment noted. The Department disagrees. EA's are circulated to the public for comment to prevent unexamined, unintended, and unwanted consequences that may result from a proposed Departmental action. Therefore, the overall premise of an EA is an approval of the applicant's proposal, and the EA is the document used to convey the results of the analysis to the public. If an applicant withdraws their application from consideration, no EA would be required because the Department would take no action on the application. If the Department denies an application, the denial is considered an administrative action that is not subject to an EA. However, if additional site restrictions are necessary to operate the site in accordance with the laws and rules, those restrictions are presented in the EA as license conditions. In addition, if the public comments gathered during the comment period reveal site deficiencies not identified in the EA, the Department may impose additional restrictions or deny the application.

VI.23 Comment:

One commentor requested the details of the Operation & Maintenance Plan.

VI.23 Response:

Comment noted. The applicant provides an Operation & Maintenance Plan, specific to each land application site, that identifies the site access controls, Vector Attraction and Pathogen Reduction (VAPR) methods, grazing/crop harvesting restrictions, and equipment to be used at the site. The site is monitored by reviewing disposal records and through the performance of site inspections. Site inspections can be conducted by the Department and the local health officer or the local health officer's designated representative. The inspections that are conducted are typically unannounced and the number of site inspections can vary from once a year to several times a year.

VI.24 Comment:

One commentor requested clarification of the term "constant failure".

VI.24 Response:

Comment noted. Constant failure refers to the licensee's continual failure to abide by the laws and rules and/or specific site restrictions or license conditions placed on the licensee by the Department. Constant failure would depend on the type and severity of the failure and this could be a one-time incident observed or it could be two separate incidents that are observed. A licensee's repeated failure to abide by the laws, rules, and specific license conditions may result in enforcement action being taken by the Department. The type, duration, and severity of the violation(s) are all factors that are considered when determining what action will be taken. The enforcement action may include financial penalties and revocation of the disposal site. In extreme cases, the septic pumper's license may be revoked.

VI.25 Comment:

One commentor asked if the current cover crop on the Cummings property is native grass which exists and requires 75 lbs. of nitrogen/acre, why wouldn't the addition of septage of a rate of 1.06 inches/acre be in excess to the sources of nitrogen that are already providing for the existing cover crop?

VI.25 Response:

Comment noted. The landowner will use the pumpings to augment existing soil conditions by adding organic matter and replacing commercial fertilizers currently used to ensure the production of the native grasses on site.

VI.26 Comment:

One commentor stated that the existence of viral contaminants and other bio-hazards in human waste and/or septic tanks has totally been ignored by both the original Environmental Assessment and the Supplemental Environmental Assessment as prepared, even though legal precedent has been established in a case in Georgia involving the sludge from a treatment facility.

VI.26 Response:

Comment noted. Domestic septage is not raw sewage nor is it sewage sludge. The case in Georgia results from sludge from a wastewater treatment facility. Domestic septage undergoes treatment by the bacteria that live in the septic tank - a process that is similar to biosolids digestion at a waste water treatment facility but obviously at a much smaller scale. The land application of domestic septage is covered by federal regulations and guidelines as well as state rules for soil and crop selection, soil criteria, site management, buffers and storage. When domestic septage is handled and land applied in accordance with the established regulations, there are no anticipated adverse environmental impacts. The U.S. EPA established regulations for the management of sewage sludge and domestic septage. The federal regulations were established using standards for land application based upon the reasonably anticipated adverse effects of such application. During the development of these regulations, research and testing were conducted to ensure land application would not create public health or environmental issues, including viral and bio-hazards. The Department used these same regulations in the development of state specific rules and laws for land application.

VI.27 Comment:

One commentor stated that the well located closest to Site I to the west is not 830 feet, but is west of the residence that measures 663 feet from the fence line on the eastern border of Site I and the eastern boundary of Site II is even closer to the well used by the landowner residence and buildings as displayed in same maps.

VI.27 Response:

Comment noted. The distance of 830 feet is from the edge of the proposed application site, not at the property line/fence. The distances between the land application sites and the well exceed the site minimum criteria in the rules that prohibit land application within 100-feet of a drinking water supply source.

VI.28 Comment:

The EA states the groundwater and soil assessment was conducted on November 11, 2009. However, the photos are dated as November 27, 2009. Which date is correct?

VI.28 Response:

Comment noted. The groundwater and soil assessments were conducted at the property on November 27, 2009. The Department apologizes for the confusion.

VI.29 Comment:

One commentor asked how the Department's research on the area surrounding the proposed land application site is adequate if the land owners adjacent that will be directly affected if this permit is granted were not personally contacted.

VI.29 Response:

Comment noted. The Department reviews such applications based upon physical/environmental site-specific aspects, i.e., site geology, topography, soils, and hydrogeology. The research is conducted from the perspective of the requirements of the rules related to such applications. Adjacent landowners are notified via the EA document and are provided a chance to comment on the proposed action.

VI.30 Comment:

One commentor stated that he understands there is an alternative method for proper, non-environmentally, non public health threatening disposal of these waste products and asks why the State of Montana has not pursued this alternative.

VI.30 Response:

Comment noted. It is our opinion that the proposed application is neither a threat to the environment or public health. Without knowing what alternative method the commentor is referring to, the Department cannot comment on specifics. However, if the applicant proposed an alternative, the Department would review the alternative in accordance with the laws and rules.

VII. Site Operation and Management

VII.1 Comment:

One commentor, familiar with the benefits of land application, noted that these benefits require that the landowner and/or pumper business remain diligent with site operations to ensure the benefits are realized rather than the problems from improper site management.

VII.1 Response:

Comment noted. The Department agrees that diligence is required on the part of the licensed septic pumper businesses to ensure the land application sites are properly managed so that the benefits of the application will be realized. The licensed septic pumper businesses know that if they fail to operate and manage the approved land application sites in accordance with the laws and rules, the Department may take enforcement action. Land application of such wastes is allowed because it provides a beneficial re-use of a waste product as long as the sites are operated in accordance with the laws and rules. However, when site operations fail to comply with the laws and rules and violations are noted, corrective action is required. If the licensee fails to correct the violations, the Department may seek further enforcement action, including license revocation, revocation of site approval, assessment of penalties, or judicial action.

VII.2 Comment:

Several commentors said that Browns Septic Service has no site use restrictions so that anyone can dump on the site. In addition, because they self-report their activities, there is very little direct governmental oversight.

VII.2 Response:

Comment noted. Only one pumper business submitted a request for use of this site, that is Browns Septic Service. The pumper business does not have the authority to allow other licensed businesses to use this site. If another pumper wanted to use this property, they would be required to go through the same process to obtain approval prior to such use, including approval by the property owner, the county health officer or sanitarian, and the Department.

Although the pumper businesses are self-reporting, the Department does perform periodic, unannounced site inspections. By law, each licensed pumper business must maintain disposal records. These records are reviewed on a semi-annual basis, and any inconsistent entries are flagged for follow-up by Department staff. The follow-up may include a phone call, a request to the local county authority to perform an inspection, or an inspection by Department staff. In addition, the public may file a complaint with the Department's Enforcement Division concerning the site operation and management. All complaints are investigated by Department staff.

VII.3 Comment:

One commentor pointed out an apparent inconsistency in the volume of waste proposed for land application at the site and asked what amount will be dumped.

VII.3 Response:

Comment noted. The pumper business estimated the land application of 100,000 gallons of septage type waste and 5,000 gallons of grease trap type waste at this property. The AAR is based upon the amount of nitrogen in the waste. For this specific proposal, only septage is used to determine the AAR because the grease trap waste contributes no measureable nitrogen. The AAR is determined using the formula: $AAR = N/0.0026$, where N equals the crop nitrogen requirement in pounds/acre/year. Native grasses will be grown that, based upon the nitrogen requirement for that particular crop, allows for a maximum annual application rate of 28,846 gallons per acre per year. Therefore, for the estimated total volume of 100,000 gallons of septage, a minimum of 3.5 acres would be required per year for the disposition of that estimated volume of septage. Each site will be divided into separate fields and rotated annually. The estimated volumes proposed for application are just that, projections for the upcoming year. The amount may be more or less, depending on the number of actual tanks pumped. The Department typically requests such information from applicants to ensure there is enough acreage to support the disposition of the wastes on site. In regards to this specific application, there is enough acreage to support the estimated volume.

VII.4 Comment:

Several commentors expressed concerns about the application of the wastes on frozen ground and the potential for run-off to the Bitterroot River.

VII.4 Response:

Comment noted. ARM Section 17.50.810 allows for the disposition of wastes on frozen ground only if the pumpings do not enter state waters, and if no other reasonable treatment method is available. Reasonable treatment method options include hauling the waste to a wastewater treatment plant or a septage storage, treatment, or dewatering facility that will accept the waste and that is within 25-miles of the point of generation. Pumpings may not be applied to the frozen or snow-covered sites or fields that have a slope greater than 3%. All land application sites are required to meet site-specific criteria in order for a land application to occur, regardless of whether the ground is frozen, snow-covered, or

not. The 150-foot setback from state surface water is in place for land application of septage type waste at Site I. In addition, an earthen berm will be constructed along the north ridge of Site I between the application area and the creek to ensure run-off does not occur at any time.

VII.5 Comment:

Some commentors expressed concerns about the presence of non-putrescible litter in the waste that is applied and the impact to the surrounding area if litter is not managed as required. What recourse do the local residents have if litter becomes an issue.

VII.5 Response:

Comment noted. ARM 17.50.809(10) requires the removal of litter from a land application site within six hours after application. When pumpings are first applied, the non-putrescible litter is saturated with liquids and will not be picked up by the wind and will not migrate into the creek and float to the river. If litter becomes a problem at land application sites, it would be a violation that requires corrective action. In addition, the Department may require the pumper screen the waste prior to application so that non-putrescible litter is removed prior to land application.

VII.6 Comment:

One commentor noted that the treatment recommended for these wastes is simply surface application with liming, but felt that plowing the wastes into the soil should be considered.

VII.6 Response:

Comment noted. The VAPR requirements contained in ARM 17.50.811 requires one of these methods: injection below the surface of the soil, incorporation into the soil surface within 6-hours of application, or adding alkali material so that the pH is raised to and remains at 12 or higher for a period of at least 30 minutes. Brown's Septic Service will add alkali material to the pumpings and then use a harrow to incorporate the wastes into the application area.

VII.7 Comment:

Several commentors expressed concerns about the potential for strong odors moving off-site from the land application site.

VII.7 Response:

Comment noted. The licensee will alkali-stabilize the wastes before land application and will use a harrow to incorporate the wastes into the soil. As long as the licensee adheres to the minimum VAPR requirements, there should be no strong odors off-site associated with the activity. The addition of the alkali material to the septage kills the bacteria in the waste, thus eliminating the putrefaction associated with the decomposition of such materials. Alkali-stabilization also prevents the recolonization by the putrefying bacteria. The soil bacteria will further degrade the wastes. Although the Department has no authority to regulate odors, the presence of strong odors off-site attributable to the land application of septage is typically an indication of improper site management to which we would respond.

Land application sites that use alkali-stabilization will have minimal odor emissions limited in proximity to the application area. During previous site inspections, inspectors have stood next to the pumper trucks as they were land applying their loads. When the septage is initially applied, an odor is usually detected. As the inspector walked through the wet application area only minor odors were detected, however such odors dissipate in a short period of time. By the time the inspection was completed, the odors associated with the land application were undetectable.

VII.8 Comment:

One commentor requested additional information on the liming process.

VII.8 Response:

Comment noted. Lime treatment controls the environment needed for the growth of pathogens. At pH levels greater than 12, the cell membranes of harmful pathogens are destroyed. The high pH also provides a vector attraction barrier, preventing flies and other insects from infecting the treated waste. Lime stabilization is a cost-effective option with lower capital costs than other treatment options. Other benefits include a reduction of hydrogen sulfide gas generation and a reduction in the leachability of metals in the septage. Based on the size of the septic tank, approximately 50-lbs of hydrated lime per 1000-gallons of domestic septage is needed. A slight excess of lime insures stabilization and costs very little. To insure adequate mixing of the lime and the septage, the hydrated lime must be added to the liquid septage. Although the logistics of the mixing may differ slightly for each individual pumper, the lime is typically added as the waste is being pumped so that the waste is fully treated and the required 30-minute time limit is often reached before the waste is land applied.

VII.9 Comment:

One commentor stated that survey markers with global positioning systems locations should be used to identify the 150-foot setbacks from creeks and ditches running through the property, rather than rock piles that can be easily moved.

VII.9 Response:

Comment noted. During routine inspections the Department may recheck the locations of the markers. Unauthorized movement of these markers would be grounds for the issuance of a violation to the pumper. The Department believes that rock markers are sufficient markers and that more permanent markers are unnecessary. The issuance of a violation, in the event the markers are moved, serves a sufficient deterrent to the pumper moving the markers.

VIII. Miscellaneous

VIII.1 Comment:

One commentor felt that the Department was not using its own guidelines nor the best publicly available data in the site assessment process.

VIII.1 Response:

Comment noted. The soil descriptions on the test pit logs were performed on site by a geologist trained in soil identification using ASTM D2488-00 "Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)". While this method differs in nomenclature from the USDA system, it is no less valid and the descriptions of the soils on the logs are accurate. The soil descriptions in the photo captions were qualitative in nature and directed at a non-technical audience and therefore, should not be considered technical descriptions. Exact measurements of soil horizons were not made because the pits excavated were not safe under OSHA requirements for human entry. Measurements were made from the top of the pit to the greatest accuracy possible. Given the natural variability in soils, small scale measurements were not considered vital in this soils investigation. Rather, greater interest was placed on the bulk textural qualities of the soils which would impact the movement of water in the subsurface, as well as any soil properties that would indicate the presence of seasonally high water tables.

The 2001 geologic map by Lonn and Sear was used in the analysis, however the earlier geologic map was chosen as the base for Figure 4 for clarity in presentation. The maps in the EA were produced using the software resources available to the authors, which do not include GIS applications. The authors took care in preparation of the figures to accurately represent and clearly present the information.

Land application will not occur over the entire area of Site I and Site II. Setbacks will be in place for slopes, surface water, and groundwater. The setback requirements were discussed however, they were not shown on the maps included in the EA or the Supplemental EA. Site I will be used for Winter application and Site II for Spring and summer application. Setbacks have been marked in the field using wooden stakes.

VIII.2 Comment:

One commentor provided references to the Georgia dairy farmer and court case regarding sewage sludge. The article "Risk of Illness Increases with Use of Sewage Sludge as Fertilizer (University of Georgia)" addressed pharmaceuticals being found in aquifers and milk that will also pass through meat products.

VIII.2 Response:

Comment noted. Again, it's important to note that a distinction exists between sludge and domestic septage because the article refers to sewage sludge. Sewage sludge, also known as biosolids, does not come from individual septic tanks, but from a variety of sources (residential and commercial) that are tied into a wastewater treatment facility. Biosolids are the solid, semi-solid, or liquid residue generated during the treatment of domestic sewage at a waste water treatment facility. Biosolids include, but are not limited to, domestic septage, scum or solids removed in primary, secondary, or advanced wastewater treatment processes, and material derived from sewage sludge. Biosolids are not regulated by the State of Montana, but are regulated by Federal Environmental Protection Agency (EPA) under 40 CFR Part 503. The EPA regulation requires analytical testing prior to land application.

Land application of sewage sludge has been practiced in many countries for centuries so that the nutrients (e.g., nitrogen, phosphorus) and organic matter in biosolids and septage can be beneficially used to grow crops or other vegetation. There are crops being grown all over the United States that are grown using biosolids and septage as a fertilizer. Consumers buy these fruits and vegetables daily. Wheat and other grains used to make breads, cookies, chips and other processed foods have also been grown using biosolids and septage as fertilizers. This also includes hay and other grains used to feed live stock.

VIII.3 Comment:

Several commentors noted the need for the construction of a waste waster treatment plant capable of handling the wastes or just requiring the septic tank pumper business to haul all the waste to the City of Missoula's wastewater treatment plant.

VIII.3 Response:

Comment noted. The Department agrees that upgrading or building an adequate wastewater treatment facility is the responsibility of the local government, not the State. Communicating such a need to the local and county officials would be a good starting point. However, a likely result would be an increase in local taxes to obtain the necessary money to fund such a facility.

Regarding the requirement to haul all such wastes to the City of Missoula Wastewater Treatment Plant (WWTP) for treatment or disposal, the Department has no authority to direct the septic tank pumper businesses to specific sites. The disposition of such wastes at the City of Missoula WWTP is the authority of the wastewater treatment plant, not the State of Montana. The Missoula WWTP was built and is paid for by the residences of the City of Missoula. The facility treats the sewage from the city sewer system. Because septage is anaerobic(without oxygen) in nature, while sewage is aerobic (oxygen-rich), most WWTP's in the state can manage only a small volume of septage wastes each day

because of the impact such wastes have on the overall treatment system. In the case of the City of Missoula WWTP, it will only accept 6,000 gallons of septage per day. At the present time, there are nine pumper businesses in Missoula County that rely on the City of Missoula WWTP. If Ravalli County residents are concerned about the lack of options for septage disposal in the county, the Department suggests local residents work with local and county officials to alleviate the problem and build a facility that can manage the septage waste.

IX. Conclusions and Recommendations

The Department's Solid Waste and Septic Tank Pumper Program believes that it has thoroughly reviewed the permit application and supplemental materials for the land application of septage and grease trap waste on the Cummings Property. The Solid Waste and Septic Tank Pumper Program has also reviewed and analyzed all written comments provided during the public comment period, as documented herein. Based on the review of all the materials and comments submitted, the Department believes that a license that meets the requirements of the laws and rules for solid waste management and is protective of human health and the environment can be issued for the land application of septage and grease trap waste on the Cummings Property.