

State Office of Administrative Hearings



Shelia Bailey Taylor
Chief Administrative Law Judge

December 5, 2006

CHIEF CLERK'S OFFICE

2006 DEC - 5 PM 3:55

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Derek Seal
General Counsel
Texas Commission on Environmental Quality
PO Box 13087
Austin Texas 78711-3087

Re: **SOAH Docket No. 582-06-1212; TCEQ Docket No. 2005-1607-SLG; Application for Beneficial Land Management, L.L.C., for Permit No. WQ00466000 in Victoria County, Texas**

Dear Mr. Seal:

The above-referenced matter will be considered by the Texas Commission on Environmental Quality on a date and time to be determined by the Chief Clerk's Office in Room 201S of Building E, 12118 N. Interstate 35, Austin, Texas.

Enclosed are copies of the Proposal for Decision and Order that have been recommended to the Commission for approval. Any party may file exceptions or briefs by filing the original documents with the Chief Clerk of the Texas Commission on Environmental Quality no later than **December 26, 2006**. Any replies to exceptions or briefs must be filed in the same manner no later than **January 5, 2007**.

This matter has been designated **TCEQ Docket No. 2005-1607-SLG; SOAH Docket No. 582-06-1212**. All documents to be filed must clearly reference these assigned docket numbers. Copies of all exceptions, briefs and replies must be served promptly on the State Office of Administrative Hearings and all parties. Certification of service to the above parties and an **original and eleven copies** shall be furnished to the Chief Clerk of the Commission. Failure to provide copies may be grounds for withholding consideration of the pleadings.

Sincerely,

A handwritten signature in black ink, appearing to read "Cassandra J. Church".

Cassandra J. Church
Administrative Law Judge

CJC/pp
Enclosures
cc: Servicelist

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AGENCY: Environmental Quality, Texas Commission on (TCEQ)

STYLE/CASE: BENEFICIAL LAND MANAGEMENT, L.L.C.

SOAH DOCKET NUMBER: 582-06-1212

REFERRING AGENCY CASE: 2005-1607-SLG

STATE OFFICE OF ADMINISTRATIVE

ADMINISTRATIVE LAW JUDGE

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BENEFICIAL LAND MANAGEMENT, L.L.C.

SOAH DOCKET NO. 582-06-1212
TCEQ DOCKET NO. 2005-1607-SLG

2005 DEC -5 PM 3:55

IN RE: APPLICATION BY
BENEFICIAL LAND MANAGEMENT,
L. L. C., FOR PERMIT NO. WQ00466000
IN VICTORIA COUNTY, TEXAS

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BEFORE THE STATE OFFICE

CHIEF CLERK'S OFFICE

OF

ADMINISTRATIVE HEARINGS

PROPOSAL FOR DECISION

I. INTRODUCTION

Beneficial Land Management, L.L.C. (BLM), has applied to the Texas Commission on Environmental Quality (TCEQ or Commission) for a permit authorizing the land application of wastewater treatment plant sewage sludge for beneficial use on 793.4 acres in Victoria County, proposing an application rate not to exceed eight dry tons per acre per year. The proposed permit does not authorize a discharge into waters in the State.

The land application unit (LAU) comprises a portion of the 2,881-acre Arenosa Creek Ranch (the Site). The ranch is located 10 miles northwest of the City of Inez, on Farm-to-Market Road 444, and 2.5 miles northeast of the intersection of Karnes Road and Farm-to-Market Road 444 in Victoria County, Texas.¹ The Site is in the drainage of Lavaca Bay and Chocolate Bay in Segment No. 2453 of the Lavaca-Guadalupe Coastal River Basin.

The Administrative Law Judge (ALJ) recommends that the Commission find that granting the permit will not adversely effect the environment of and around the LAU, including soils, wetlands, human health, wildlife, agriculture, and the surface and groundwater supplies in Victoria County by introduction of harmful levels of pathogens, bacteria, viruses, or heavy metals. The ALJ also recommends that the Commission find that granting the permit will not create an unmanageable

¹ The population of Victoria County is approximately 87,000 people, of which approximately 60,000 live in the City of Victoria. Tr. 263.

level of nuisance odors, as that term is defined in statutes and rules within the Commission's jurisdiction.

II. PROCEDURAL HISTORY

BLM application was received on July 21, 2003, and declared administratively complete on August 22, 2003. On August 26, 2004, the Commission's Executive Director (ED) issued a preliminary decision recommending issuance of the permit and issued final draft permit on March 16, 2006.² As the application was filed and processed, notices were published as required. On July 12, 2006, the Commission named Victoria County an affected party and referred the issues of environmental impacts and nuisance odors to State Office of Administrative Hearings (SOAH) for a hearing. No protestants other than Victoria County appeared at the preliminary hearing on March 27, 2006.

The hearing on the merits was conducted in Austin, Texas, on July 29 and August 1, 2006. At the hearing, BLM proposed an application rate below that in the draft permit. No party objected to the lowered rate. The record closed on October 6, 2006, upon filing of a transcript and the parties' briefs.

BLM was represented by Helen S. Gilbert, attorney. Victoria County was represented by W. Clayton Cain, attorney. The Office of Public Interest Counsel (OPIC) was represented by Garrett Arthur. The ED elected not to participate.³

² After the permit was declared administratively complete, there was considerable dialog between Staff and BLM, resulting in additional soil sampling and buffering requirements. App. Exhs. 10 through 22, and 24.

³ ED Notice, February 6, 2006, applying the participation criteria in 30 TEX. ADMIN. CODE § 80.108(c).

III. APPLICABLE LAW

BLM's application is governed by TEX. HEALTH & SAFETY CODE ANN. § 361.121, and rules adopted thereunder, found at 30 TEX. ADMIN. CODE ch. 312.⁴ These laws govern all land sludge application on or after September 1, 2003.⁵ Rules in effect at the time BLM's application was administratively complete govern the necessary contents of an application, as described in more detail below.

Land application of sludge consists of the spraying or spreading of sewer sludge on to the land surface, the injection of sewage sludge below the land surface, or the incorporation of sewage sludge into the soil.⁶ Such use is defined as beneficial when the land application does not exceed the agronomic need or rate for a cover crop, or any metal or toxic constituent limitations that the cover crop may have.⁷ At the time BLM's application was filed, land appliers were not required to provide a nutrient management plan (NMP), but BLM submitted one.⁸ The rules provide for cumulative and annual loading rates for metals.⁹ Over the life of the permit, a land-applier must monitor the cumulative amount of metals applied at the LAU to order to insure they do not exceed permit maximums.¹⁰

⁴ General authority to regulate water quality in the State is set forth in TEX. WATER CODE ANN. ch. 26.

⁵ Between April 11, 2002, and August 31, 2003, BLM had land applied sludge at the LAU under a registration. However, all applications, including those of a former registrant, are considered new applications. TEX. HEALTH & SAFETY CODE ANN. § 361.121(b).

⁶ 30 TEX. ADMIN. CODE § 312.8(11).

⁷ 30 TEX. ADMIN. CODE § 312.8(14).

⁸ 30 TEX. ADMIN. CODE § 312.11 (eff. August 29, 2002). An NMP comprises the applier's plan for minimizing water quality impairment by application of nitrogen. 30 TEX. ADMIN. CODE § 312.11(d)(6) (eff. date August 29, 2002, as amended, eff. date October 20, 2005).

⁹ 30 TEX. ADMIN. CODE § 312.43(b).

¹⁰ Cumulative metal loading rate is the maximum amount of an inorganic pollutant (dry weight basis) that may be applied to a unit area of land. 30 TEX. ADM. CODE § 312.8(22).

The sludge must not be applied to flooded lands in such a manner that the sludge enters a wetland¹¹ or other water in the State. A LAU must be buffered from water sources as well as from potential conduits to surface or groundwater areas.¹² Sludge must be applied in a manner that minimizes runoff, consistent with the local rainfall, seasonal water table variances, and soil slope and composition.¹³ At a site, such as BLM's, at which there is a seasonal high water table of less than three or four feet below the surface, an application is considered on a case-by-case basis to insure the appropriate groundwater protection measures are in place.¹⁴ The rule states as follows:

(g) Groundwater protection measures.

...

(3) Seasonal generally refers to a groundwater table that may be perched on a less permeable soil or geologic unit and fluctuates with seasonal climatic variation or that occurs in a soil or geologic unit as a variation in saturation due to seasonal climactic conditions and is identified as such in a published soil survey report or similar document.

(4) Application of sludge to land having soils with greater permeability or with higher groundwater tables will be considered on a case-by-case basis, after consideration of soil pH, metal loadings onto the soil, soil buffering capacity, or other protective measures to prevent groundwater contamination.

¹¹ The applicable rule defines wetlands as areas inundated or saturated by surface water or groundwater at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. 30 TEX. ADMIN. CODE § 312.8(94). Examples provided include swamps, marshes, and bogs.

¹² 30 TEX. ADMIN. CODE § 312.44(b) - (d).

¹³ 30 TEX. ADMIN. CODE § 312.44(g) and (h).

¹⁴ 30 TEX. ADMIN. CODE § 312.44(h). In the version of this rule adopted in 2005, this section appears as Section "(g)." The wording did not change.

Also, a land applier must follow management practices that do not cause or contribute to the harm of a threatened or endangered species of plant, fish, or wildlife, or result in the destruction or adverse modification of the critical habitat of a threatened or endangered species.¹⁵

Pathogen control is imposed by requiring land appliers to accept only sludge that meets certain standards and also to follow site management practices that limit animal and human contact with an LAU after application.¹⁶ Pathogenic organisms are defined as disease-causing organisms including, but not limited to, certain bacteria, protoza, viruses, and viable helminth ova.¹⁷ The certification of appropriate processing and testing of the sludge for fecal coliform is made by the wastewater treatment plant generating the sludge.¹⁸

Land appliers must reduce the vector attractiveness of an LAU by choosing one of several methods listed in Commission rules. Vector attraction is defined as the characteristic of sewage sludge that attracts rodents, flies, mosquitoes, or other organisms capable of transporting infectious agents.¹⁹ Incorporation of the sludge into the soil is one of the methods available.²⁰ Another is verification that the sludge passed certain tests at the treatment plant.²¹

Land appliers must minimize potential nuisances created by the application, including public health nuisances, runoff, blowing sludge, debris, dust migration, and objectionable odors. In order to minimize objectionable odors, the land applier must either incorporate the sludge into the soil or

¹⁵ 30 TEX. ADMIN. CODE § 312.44(a).

¹⁶ 30 TEX. ADMIN. CODE §§ 312.45(a) and 312.82(b).

¹⁷ 30 TEX. ADMIN. CODE § 312.8(63). A helminth is an intestinal worm such as a roundworm (nematode) or tapeworm (cestode). Webster's Ninth New Collegiate Dictionary (1983).

¹⁸ 30 TEX. ADMIN. CODE § 312.82(b)(1).

¹⁹ 30 TEX. ADMIN. CODE § 312.8(91).

²⁰ 30 TEX. ADMIN. CODE §§ 312.45(b) and 312.82(b)(1) - (10).

²¹ 30 TEX. ADMIN. CODE § 312.82(b)(1).

take another type of corrective action.²² Although 30 TEX. ADMIN. CODE § 312.44(j) requires a land applier to minimize objectionable odors, the rules do not further define when an objectionable odor would rise to the level of a significant nuisance condition. For general guidance, the ALJ relied on the definition of nuisance odor appearing in the Commission's general air quality rules at 30 TEX. ADMIN. CODE § 80.104. That definition states as follows:

No person shall discharge from any source whatsoever one or more air contaminants or combinations thereof, in such concentration and of such duration as are or may tend to be injurious to or to adversely affect human health or welfare, animal life, vegetation, or property, or as to interfere with the normal use and enjoyment of animal life, vegetation, or property.

IV. PERMIT ACTIVITIES AND SITE HISTORY

The Site is a ranch owned by Joyce Mayfield, wife of BLM's president, Jess Mayfield. The Mayfields pasture cattle on the ranch and also lease pasture; they spend weekends there. For about 50 years the LAU was operated as a rice farm. Original soils at the Site were bladed or tilled to create flat fields for rice cultivation and a number of ditches and berms were built to direct water flow for the cyclic draining and flooding of the rice fields. Those ditches and berms still exist and were the focus of discussion regarding the effects of the proposed operation on surface and groundwater. Victoria County receives approximately 38 inches of rain per year, which generally falls between April and September, although, in two years out of ten, the annual rainfall is less than 20 inches.²³

The proposed LAU is identical to the LAU that BLM had operated under registration. During BLM's operation under registration, the ED brought no enforcement actions against it.²⁴

²² 30 TEX. ADMIN. CODE § 312.44(j).

²³ App. Exh. 28a, p. 37.

²⁴ App. Exh. 7.

The proposed term of the pending permit is five years and would not authorize a discharge of pollutants into the waters in the State. BLM proposed that it be permitted to land apply Class B sludge at a rate of no more than eight dry tons per acre per year, a level below the application rates recommended in the draft permit. The change would also create a uniform application rate for all fields in the LAU.²⁵ The permit allows surface application; BLM proposes to till or disk the sludge into the soil within six hours of receipt. Disking in the sludge is part of BLM's pathogen and vector control practices.

The Site is private property, not open to the public. The LAU would be fenced, using both mechanical and electric fencing, to prevent access by cattle to the area for 30 days after an application. The proposed cover crops are Bermuda and native grasses in the spring and summer and rye or oats in the fall and winter. The grasses will be harvested by grazing.

Mr. Mayfield has held a Double Class C water-wastewater operator certificate since 1980 and has operated wastewater treatment plants since 1975.²⁶ He operates the Bridgewood Hills sewage treatment plant (Bridgewood Hills) operated by Leon Spring Utility Company. Bridgewood Hills is BLM's sole approved source for Class B sludge and treats only domestic wastewater. Mr. Mayfield also operates the hauling company that will transport the sludge from Bridgewood Hills to the LAU.²⁷

²⁵ The final draft permit proposed sludge-application rates not to exceed 11.4 dry tons per acre per year for Fields No. 1-6 and 9; 10.2 dry tons per acre per year for Field No. 7, 12 dry tons per acre per year for Field No. 8, and 9.6 dry tons per acre per year for Field No. 10. App. Exh. 24. The ALJ has assumed that the ED would not object to an application rate lower than proposed in the draft permit.

²⁶ App. Exhs. 1 and 34, p. 1. Mr. Mayfield currently operates two wastewater treatment plants, one industrial wastewater treatment plants and three beneficial use sites.

²⁷ App. Exh. 34, pp. 6-7.

V. ENVIRONMENTAL IMPACTS

The major issue referred for decision in this case is assessment of the environmental impacts of the sludge application on the soils, wetlands, human health, wildlife, agriculture, and surface and groundwater supply in Victoria County. In order to analyze the overarching question of environmental impacts, two component issues were analyzed separately. Those two component issues include: (1) whether BLM delineated, as required by applicable statutes and rules, the characteristics of the receiving soils and the levels of pathogens, bacteria, viruses, and heavy metals that may or will be introduced into the environment through permit activity; and (2) whether the levels of pathogens, bacteria, viruses, and heavy metals that may or will be introduced into the environment through permit activity meet applicable statutes and rules for protection of the environment in regard to each of the areas of concern, *i.e.*, soil, wetlands, human health, wildlife, agriculture, and surface or groundwater.

A. Did BLM delineate as required by applicable statutes and rules the LAU soil conditions and characteristics, and the levels of pathogens, bacteria, viruses, and heavy metals that will be introduced into the environment through permitted activity?

Based on the credible evidence presented, the ALJ concluded that BLM adequately deliberated pathogens, bacteria, viruses, and heavy metals that may or will be introduced into the environment through permit activity, as well as the conditions and characteristics of the receiving soils of the LAU.

One of Victoria County's chief concerns was whether BLM had sufficiently examined the potential effects of the proposed activity. The County's chief argument in this regard was that BLM failed to do any modeling of the possible water migration from the LAU either through percolation through the LAU's soils or from runoff from the LAU. Testifying on behalf of Victoria County, Matthew K. Wickham, an environmental remediation consultant, stated that modeling of water migration would give the most accurate picture of potential paths of water movement. Mr. Wickham

also expressed concern that the soils surveys used to support the LAU management plan were too general and that field observations and studies would be a better means of understanding the soils specific to the LAU.²⁸

Applicants for beneficial land application permits are not specifically required to model water flows and migration. Documentation concerning the water retention, runoff, and composition of the soils in the LAU was reviewed by several experts engaged by BLM.²⁹ Pierce L. Chandler, Jr., P.E., a hydrogeologist, visited the LAU and reviewed several published soil surveys to analyze soil conditions.³⁰ Available soils surveys describe the pH of the area soils, their slope, drainage and permeability, plasticity, and anticipated productivity for various agriculture and rangeland use.³¹

BLM included an NMP in its application. The NMP prepared by Bob Carlile, P.E.—Environmental, an agronomist, was the basis for the revised sludge application rate proposed by BLM. The NMP was based on harvesting the grass crop twice in the summer and once in the winter. The ED required BLM to add a winter cover crop to required activities.

In its application, BLM provided an analysis of the metals content of the sludge from Bridgewood Hills as well as an analysis of the background metal content of the LAU. During the permit review process, at the request of Staff, BLM took new soil samples from the LAU. Results from the soils testing and the testing of the metal content of the sludge were used to derive a metals loading rates for the LAU. Bridgewood Hills is a small plant, so the levels of metal concentrations in its effluent are only tested every five years. The pathogen concentrations are measured once a year. However, Russell Masters, an environmental management consultant, stated that testing at these frequencies does not present a concern as the characteristics of the sludge from a domestic

²⁸ Tr. 286.

²⁹ App. Exhs. 26-28a, 30 and 31.

³⁰ App. Exh. 36; Tr. 115-195.

³¹ App. Exhs. 26-28, 30 and 31.

wastewater-only plant like Bridgewood Hills will be stable.³² Mr. Masters prepared BLM's application.

BLM submitted information on the anticipated bacteria and pathogen concentrations from the Bridgewood Hills sludge and identified the proposed method of controlling vectors of concern, primarily rodents, fruit flies, and the common house fly.³³ The specified control methods are: (1) taking only sludge that meets pathogen test standards and (a) disking the sludge into the soil within six hours of receipt.

B. Will the levels of pathogens, bacteria, viruses, and heavy metals that will be introduced into the environment through permit activity meet applicable statutes and rules for protection of the environment in regard to each of the identified environmental receptors, *i.e.*, soil, wetlands, human health, wildlife, agriculture, and surface or groundwater?

The ALJ concludes that the levels of pathogens, bacteria, viruses, and heavy metals that will be introduced into the environment through the permit activity are within the limits of applicable statute and rules. There was no evidence demonstrating that the means and methods for environmental protection provided for by those statutes and rules, if followed by BLM, would be insufficient to protect the specific receptors at issue. There was no evidence demonstrating that BLM did not have the capacity to operate the LAU in conformity with all permit conditions. Thus, the ALJ concludes that the activity to be authorized in the proposed permit, as amended, will be protective of the environment in regard to each of the identified environmental receptors.

The ALJ further concludes that a determination as to whether the requirements of the Water Code and the Health and Safety Code, or rules adopted thereunder, are protective of the environment is beyond the scope of the referral in this case. In the course of his review of the proposed permit,

³² Tr. 90-93, 108.

³³ App. Exhs. 2 and 34, p. 9.

Mr. Wickham questioned generally whether the overall standards in Section 312 were protective of the environment and also said that TCEQ inspections of beneficial land use sites were minimal.³⁴ Similarly, the sufficiencies of inspections of the ongoing operation under the permit are not part of this case.

i. Soil, wetlands, surface and groundwater

These receptors are grouped because any adverse impacts on them would occur through the migration of water-borne constituents from the LAU. This section will discuss the potential for migration of constituents, the characteristics of those constituents, and the groundwater protection measures required by the seasonal high water tables occurring at the LAU.³⁵

One of the fundamental differences between the parties' positions was each's view of the potential for harm posed by constituents in the sludge. BLM's position was that, regardless of the method of application, the sludge proposed to be applied to the LAU has little, if any, potential to harm the environment. Victoria County's position was based on the premise that sludge has characteristics with a significant potential for harm to the environment if not correctly managed. Judge Donald R. Pozzi, County Judge for Victoria County, stated that his main concern, like that of other county officials and residents, was the potential adverse effect of the application on Arenosa Creek.³⁶ Arenosa Creek is located to the east of the LAU and does not cross it.

However, Victoria County presented no credible evidence that the levels of metals, pathogens, and bacteria authorized by Commission statutes and rules would not be protective of the environment if managed in accordance with permit conditions. Further, Victoria County did not

³⁴ Tr. 282-285.

³⁵ 30 TEX. ADMIN. CODE § 312.44(h).

³⁶ County Exhs. 1 and 2. Approximately 500 county residents signed petitions in opposition to the proposed permit. County Exh. 3.

demonstrate that the permit conditions under which BLM would operate presented special circumstances that warranted a degree of scrutiny beyond what the applicable statutes and rules require.

The credible evidence in this case showed that the buffering, soil slope and characteristics, and BLM's management practices will prevent the sludge from entering a wetland, potential wetland, or other water in the State. The LAU will be buffered from water sources as well as from potential conduits to surface or groundwater areas.³⁷ Further, the sludge-application procedures in the draft permit will minimize runoff in a manner consistent with the local rainfall, seasonal water table variances, and soil slope and composition.³⁸

The LAU is comprised primarily of Nada-Cieno soils with a small area of Telferner soils located in the eastern corners of the LAU.³⁹ Nada-Cieno soil is a sandy loam with a moderately-high infiltration characteristic which can sustain depressions which may have wetlands characteristics. The LAU is underlain at the depth of approximately 30 inches by one or more clay layers. The clay layer immediately below the surface soils is at least 15 feet thick.⁴⁰ The clay layers, which made the LAU desirable for rice farming because they retained water in the flooded fields, comprise a barrier to percolation of water. The slope of the LAU is one per cent so most rainfall is expected to infiltrate into the soils or be lost through evapotranspiration.⁴¹ There are no active seeps or springs in the LAU and there is no indication that water from the LAU regularly moves into the irrigation ditches.⁴²

³⁷ 30 TEX. ADMIN. CODE § 312.44(b) - (d).

³⁸ 30 TEX. ADMIN. CODE § 312.44(g) and (h).

³⁹ Tr. 160; App. Exh. 28.

⁴⁰ App. Exh. 15 (Report, Wernli Exploration, Inc., May 17, 2004).

⁴¹ Tr. 136-137.

⁴² Tr. 126-127, 139.

In general, undisturbed Telferner soils have high plasticity, *i.e.*, shrink-swell potential. Highly-plastic soils can form cracks down which water may flow to lower soil levels. However, the Telferner areas in the LAU are disturbed. In the course of leveling and plowing the land for the rice farming, those soils were incorporated into surrounding soils resulting in a mixed soil with a moderate plasticity level.⁴³ The irrigation ditches were designed to empty into unnamed tributaries of Arenosa Creek.⁴⁴ No routine draining into those tributaries has been mapped.⁴⁵ Those tributaries are located approximately one-half mile from the northern and the southern boundaries of the LAU.⁴⁶ The portion of Arenosa Creek at or near the Site is an intermittent flow stream.⁴⁷

Between October and May, perched water often raises the water table in areas within the LAU to within one to two feet of the surface.⁴⁸ The perched water is not used for drinking water or otherwise as a water resource. Drinking and irrigation water is taken from a water-bearing layer approximately 200 feet below the surface. There is groundwater approximately 50-60 feet below the surface, but it is not used at the Site. Mr. Chandler said the perched water areas are evidence that there is no hydraulic connection between those areas and groundwater sources.⁴⁹ Further, he concluded that banning sludge application during periods when perched water is present would be a sufficient restriction to also protect surface water sources from water-borne constituents.⁵⁰

⁴³ Tr. 181-183.

⁴⁴ Tr. 157-158.

⁴⁵ Tr. 193-194.

⁴⁶ Tr. 127-128.

⁴⁷ App. Exh. 25, pp. 11-12; Tr. 148.

⁴⁸ App. Exh. 14 (ED's *Groundwater Impact Evaluation and Recommendations*, April 23, 2004). Documents in evidence differ in identifying the months in which the highest levels of rain generally fall. However, there is no disagreement among the sources that a seasonal high water table occurs at the LAU during rain events.

⁴⁹ App. Exh. 24, pp. 8-10.

⁵⁰ App. Exh. 36, pp. 11-12.

Staff and the OPIC originally contended that the shallow surface soils and the seasonal high water table were disqualifying or potentially negative factors for land application. In developing his draft permit, the ED required BLM to take additional protective measures to address the issue of the seasonal high water table. The additional permit conditions included the installation of three shallow monitoring wells to detect the presence of water perched on the clay layer and the addition of additional buffering around the irrigation ditches and potential wetlands. BLM will maintain buffer zones on either side of the irrigation ditches left from the rice farming.⁵¹ No sludge can be applied in the buffer zones. Although there are no active wetlands on the LAU, Staff required additional buffering, a 33-foot-wide zone, around several areas which they concluded had potential to be wetlands or to collect water.⁵² Further, BLM may not apply sludge when water is perched within the LAU.⁵³

Both the ED, through issuance of his final draft permit with the conditions listed above, and OPIC, after the contested-case hearing, concluded that these additional measures will protect groundwater in the area.⁵⁴

Mr. Wickham concluded that the LAU had a high potential for runoff in heavy rainfall events and that seasonally-perched water in the shallow soils above clay layers would likely result in ponding.⁵⁵ Mr. Wickham questioned whether BLM had done sufficient analysis of the possible runoff levels.⁵⁶

⁵¹ App. Exh. 24, p. 5; Tr. 206-207.

⁵² App. Exhs. 16 and 24, pp. 7-8. Those areas had shown up as dark areas on an infrared photo of the LAU.

⁵³ The monitor wells reach to the top of the first clay layer, approximately three feet below ground level. App. Exh. 15, p. 4.

⁵⁴ App. Exh. 24; OPIC *Closing Argument*, September 22, 2006.

⁵⁵ County Exh. 4, pp. 2-4.

⁵⁶ Tr. 291-293.

Control of water migration during rainfall events was another concern. The permit prohibits application of sludge during a rainfall event. The disking in of material is expected to reduce runoff. Mr. Chandler stated that the ditches and berms will help contain runoff from a moderate rain event, defined as rainfall of approximately one to two inches. He also said that any runoff from the LAU moving into the two unnamed tributaries of Arenosa Creek would not contain significant amounts of constituents. He said the runoff would contain low level of constituents because any rainfall sufficient to create significant runoff would dilute water-borne constituents.⁵⁷ Mr. Wickham acknowledged that any runoff would contain *de minimus* amounts of nitrogen.⁵⁸

Dr. Carlile characterized the LAU as ideal for land application of sludge due to the shallow slope, clay layers below the surface soils, good surface water infiltration rates, and low runoff potential.⁵⁹ He also concluded that the LAU soils were low in nutrient levels, had low background levels of heavy metals, would support grass production, and had no detectable levels of pesticides.⁶⁰

Dr. Carlile calculated the agronomic rate for the LAU as eight dry tons per acre per year. The agronomic rate balances the rate at which the cover crop can use (or uptake) the nutrients contained in the biosolid or sludge applied.⁶¹ Application above the agronomic rate can cause the build up of excess nitrogen and phosphorus, which is harmful to the environment, while application below that rate will curtail crop production.⁶²

⁵⁷ Tr. 175-177.

⁵⁸ Tr. 302.

⁵⁹ App. Exh. 37, p. 3.

⁶⁰ App. Exh. 37, pp. 3-4.

⁶¹ Tr. 231-237.

⁶² App. Exh. 37, pp. 4-6; Tr. 232-236.

Dr. Carlile stated that the clay layers at the LAU will minimize downward movement of water, including nitrates or other soluble sales in the water.⁶³ He agreed with Mr. Chandler that prohibiting application during times when the perched water has raised the water table would prevent contact of the sludge with water sources. He also stated that the proposed application restrictions were consistent with restrictions for beneficial land application sites with which he was familiar that had similar shallow soils.

ii. Pathogen and vector controls

The primary means of controlling pathogens at an LAU is by controlling the characteristics of sludge accepted for application. The generator must certify the characteristics of the sludge. Bridgewood Hills, the sole sludge source approved by the permit, will assure that the sludge has an acceptable level of pathogens by testing the density of fecal coliform.⁶⁴ This method is one of the several permissible pathogen-control methods listed in Commission rules.⁶⁵

The vector attraction reduction methods available to BLM are also dictated by the characteristics of the sludge it will apply. In this case the Bridgewood Hills plant output passed the specific oxygen uptake rate (SOUR) test.⁶⁶ The results of this test qualify BLM to apply the sludge to the surface of the LAU without further action. However, BLM stated its practice will be to

⁶³ App. Exh. 37, pp. 5-6.

⁶⁴ If BLM desires to take sludge from a generator other than Leon Spring Utility Company it must demonstrate to the ED that the additional generator will also meet all permit standards.

⁶⁵ 30 TEX. ADMIN. CODE § 312.82(b)(2).

⁶⁶ 30 TEX. ADMIN. CODE § 312.83(a)(1) and (b)(4). The SOUR limits are as follows: The specific oxygen uptake rate (SOUR) for sewage sludge treated in an aerobic process shall be equal to or less than 1.5 milligrams of oxygen per hour per gram of total solids (dry weight basis) at a temperature of 20 degrees Celsius.

incorporate the sludge into the ground within six hours of application.⁶⁷ Dr. Carlile stated that bacteria do not move very far through soil.⁶⁸

iii. Metals

As is the case for pathogens, the primary means of controlling the amounts of metals introduced into the LAU is monitoring the characteristics of the sludge received for application. The land applier must be assured that sludge he takes for application contains levels of metals below those specified in the permit.⁶⁹ The generator must make metals-analysis information available to the land applier who then must insure that the sludge applied over the course of a year does not exceed the annual metal-loading rates set for the site.⁷⁰ The land applier must keep records on the metals testing and report on its activities to the Commission.⁷¹

Background rates of metals of concern in the soils at the LAU were low.⁷² Dr. Carlile stated the metal of most concern in the LAU was copper. However, he stated that at an application rate of eight tons per year, it would take over 100 years before the metal-loading limit for copper would be met. It would require even longer periods to reach maximum load limits for all other metals of concern.⁷³ The clay layers under the LAU would tend to absorb any metals in the percolating waters, thus further diluting their impact.⁷⁴

⁶⁷ App. Exh. 11, Exhibit F, p. 65; Tr. 53, 61-63.

⁶⁸ Tr. 212-213.

⁶⁹ App. Exh. 24, p. 3, Table 1.

⁷⁰ 30 TEX. ADMIN. CODE § 312.49.

⁷¹ 30 TEX. ADMIN. CODE §§ 312.47(a)(5) and 312.48.

⁷² Metals of concern include arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, and zinc. 30 TEX. ADMIN. CODE § 312.43.

⁷³ Tr. 227-229.

⁷⁴ App. Exh. 25, p. 6; Tr. 173-174.

iv. Human health and wildlife

This section covers impacts other than by water-borne constituents that may affect human health and wildlife. There was no credible evidence that any harmful constituents would be transmitted to individuals or to areas where people live by any means other than water migration. First, there is the distance between the LAU and individual homes or settled communities. Mr. Chandler stated that the primary vectors for pathogen distribution, flies and rodents, do not normally travel beyond distances measured in tens of feet or tens of yards.⁷⁵ The possibility of contact by the vectors with any pathogens also will be minimized by incorporation of the sludge into the soil.

Victoria County raised the issue of the transport of pathogens by feral hogs, *i.e.*, that feral hogs could be a vector of concern under the local conditions. There was no dispute among the parties that feral hogs are plentiful in the county, commonly root in fields and pastures, and likely could not be excluded from the LAU. BLM contended that feral hogs were not one of the vectors that Commission rules require them to control, that the sludge being applied will not contain a harmful level of pathogens even if rooting feral hogs transport soils on their bodies off the LAU, and that any amounts of material so transported would be minimal. Feral hogs or other mammals are not specifically listed among the creatures defined as vectors in the Commission's rules. However, that definition is broad enough to encompass organisms other than rodents or insects that act as vectors in specific circumstances.

However, to be a vector an organism must be capable of transporting the infectious agents of concern. Victoria County presented no credible evidence showing that feral hogs can transport significant amounts of the soils in which they root distances of two miles or further. Nor did the

⁷⁵ Tr. 143.

County establish that feral hogs have been associated with the transmission of infectious agents through transport of soils on their bodies.⁷⁶

The protection of wildlife from sludge application is restricted to not causing or contributing to the harm of a threatened or endangered species of plant, fish, or wildlife or taking actions that result in the destruction or adverse modification of the critical habitat of a threatened or endangered species. There was no evidence in the record that the LAU or the Site contained any species of protected wildlife.

v. Agriculture

As noted, both conventional and electric fencing will be used to keep cattle off the LAU for the prescribed 30-day post-application period. Any potential impacts on agriculture in Victoria County that may be caused by migration of surface or groundwater containing undesirable constituents were discussed above. There was no evidence of impacts on agriculture in areas of Victoria County outside the LAU by any other aspect of the proposed sludge application.

There was credible evidence in the record that the soils in the LAU were depleted by its exclusive use for some 50 years as a rice farm. In addition, the fallow but disturbed soils have fostered the growth of weeds. Beneficial application of sludge to the LAU is expected to restore the productivity of soils and foster the growth of more desirable and more diverse plant species.⁷⁷

VI. NUISANCE ODORS

The ALJ concluded that BLM's proposed management of the LAU would minimize objectionable odors within the meaning of 30 TEX. ADMIN. CODE § 312.44(j). Specifically, disking

⁷⁶ The discussion of the activity of feral hogs addressed only their direct transmission of bacteria or pathogens, not whether their rooting activity could be so severe as to exacerbate undesirable water migration.

⁷⁷ App. Exh. 37, p. 4.

the sludge into the soil will reduce the dispersal of any of the "earthy" or "organic" odor of the sludge into the atmosphere. There was no evidence to show that any odors which might disperse offsite would interfere with any person's health or welfare or the use or enjoyment of their property, within the meaning of 30 TEX. ADMIN. CODE § 80.104.

Although Victoria County raised the issue of nuisance odors, there was no evidence showing that prevailing winds or other atmospheric conditions would disperse odors from the LAU several miles offsite, to the more densely-populated areas of Victoria County. There was no evidence that county residents had, during the year the LAU was in operation under registration, smelled odors emitting from the LAU that rose to the level of a significant nuisance.

VII. OTHER ISSUES

Although not a referred issue, the parties differed on one aspect of the proposed operation, the fact that Mr. Mayfield would be the person conducting, or overseeing, testing of the sludge at the wastewater treatment plant and also hauling the sludge to the LAU. Mr. Mayfield contended that his control of the sludge from the treatment phase to application would assure better quality control and compliance with the Commission's standards. He stated that his good record as a wastewater treatment plant operator demonstrated that he could comply with Commission rules regarding sludge application as well. Victoria County questioned whether having only one person overseeing all stages of the operation might provide opportunities for error that might not arise if the stages were in separate hands. However, Victoria County did not raise specific concerns regarding Mr. Mayfield's performance as a wastewater treatment plant operator.

VIII. STANDARD LANGUAGE

In addition to Findings of Fact and Conclusions of Law on referred issues, the Proposed Order includes provisions stating that the application also complies with applicable statutes and rules that were not referred for hearing. These provisions do not represent the ALJ's findings based on

the record of the case. Rather, this language, used in the past in limited-referral cases, has been included as a courtesy to the Commission so that it has a complete draft order to consider.

IX. TRANSCRIPTION COSTS

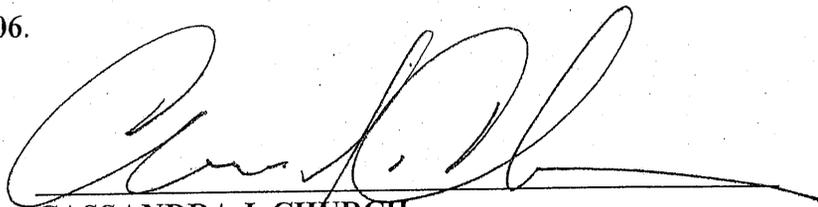
BLM and Victoria County agreed to each pay half of the cost of the court reporter and of preparation of the transcript. Thus there is no need to allocate costs or to make findings on the allocation factors set forth in 30 TEX. ADMIN. CODE § 80.23.

X. CONCLUSION

In conclusion, the ALJ recommends that the Commission find that granting the permit will not adversely effect the environment of and around the LAU in Victoria County, including soils, wetlands, human health, wildlife, agriculture, and surface and groundwater supplies in Victoria County by introduction of harmful levels of pathogens, bacteria, viruses and heavy metals into the environment. The ALJ also recommends that the Commission find that proposed site management practices will provide for appropriate and reasonable means of minimizing any nuisance odors.

The ALJ further recommends that the Commission approve BLM's proposed permit amendment to reduce the application rate to eight dry tons per acre per year, and that the Commission adopt all Findings of Fact and Conclusions of Law in the Proposed Order on these issues.

SIGNED December 5, 2006.



**CASSANDRA J. CHURCH
ADMINISTRATIVE LAW JUDGE
STATE OFFICE OF ADMINISTRATIVE HEARINGS**



2006 DEC -5 PM 3:56

CHIEF CLERK'S OFFICE

ORDER
Concerning the Application by
BENEFICIAL LAND MANAGEMENT, L.L.C.
For Permit No. WQ00466000
TCEQ DOCKET NO. 2005-1607-SLG
SOAH DOCKET NO. 582-06-1212

On _____, the Texas Commission on Environmental Quality (TCEQ or Commission) considered the application of Beneficial Land Management, L.L.C. (BLM), for a permit to land apply sludge to an area in Victoria County, Texas. A Proposal for Decision (PFD) was presented by Cassandra J. Church, an Administrative Law Judge (ALJ) with the State Office of Administrative Hearings (SOAH), who conducted a public hearing on this matter on July 21 and August 1, 2006, in Austin, Texas. The record closed on October 6, 2006.

The following are parties to the proceeding: BLM, Victoria County, and the Office of Public Interest Counsel (OPIC).

The Commission referred the matter to SOAH on the issue of environmental impacts that application of sludge and its attendance pathogens, bacteria, viruses, and heavy metals may have on Victoria County's soil, wetlands, health, wildlife, agriculture, surface and groundwater supplies, and also on the issue of the potential for sludge application to create nuisance odors.

After considering the Proposal for Decision, the Commission makes the following Findings of Fact and Conclusions of Law.

I. FINDINGS OF FACT

1. BLM applied to the Commission on Environmental Quality for Permit No. WQ00466000 to authorize the land application of Class B sewage sludge for beneficial use on a land application area (LAU) of approximately 793.4 acres in Victoria County, Texas.
2. The LAU is a portion of the 2,881-acre Arenosa Creek Ranch that is located 10 miles northwest of the City of Inez, on Farm-to-Market Road 444, and 2.5 miles northeast of the intersection of Karnes Road and Farm-to-Market Road 444 in Victoria and Jackson Counties, Texas (the Site).
3. The Site is located in the drainage area of Lavaca Bay and Chocolate Bay in Segment No. 2453 of the Lavaca-Guadalupe Coastal River Basin.
4. The permit, as amended by BLM, would authorize a sludge-application rate not to exceed eight dry tons per acre per year.
5. Joyce Mayfield, husband of BLM President Jess Mayfield, owns the Site. Mr. and Mrs. Mayfield pasture cattle there.
6. The nearest occupied residence is approximately two miles from the LAU. Inez is the community nearest to the LAU.
7. The permit does not authorize a discharge into waters in the State.
8. BLM's application was received on July 21, 2003, and declared administratively complete on August 22, 2003.
9. Notice of Receipt and Intent to Obtain a Beneficial Land Use Permit was published on September 18, 2003, in the Victoria Advocate, a newspaper published and generally circulated in Victoria County, Texas.

10. On August 26, 2004, the Commission's Executive Director (ED) issued a preliminary decision recommending issuance of the permit and, after revisions, issued his final draft permit on March 16, 2006.
11. The final draft permit proposed sludge-application rates not to exceed 11.4 dry tons per acre per year for Fields No. 1-6 and 9; 10.2 dry tons dry tons per acre per year for Field No. 7, 12 dry tons per acre per year for Field No. 8, and 9.6 dry tons per acre per year for Field No. 10, all located within the LAU.
12. A Notice of Application and Preliminary Decision for Land Application of Sewer Sludge was published on November 5, 2004, in the Victoria Advocate, a newspaper published and generally circulated in Victoria County, Texas.
13. A Notice of Public Meeting on an Application for Land Application of Sewage Sludge was published on May 12, 2005, in the Victoria Advocate, a newspaper published and generally circulated in Victoria County, Texas.
14. A public meeting was held on June 14, 2005, in Victoria, Texas. A second public meeting was also held.
15. Notice of Hearing on the application was published on February 14, 2006, in the Victoria Advocate, a newspaper published and generally circulated in Victoria County, Texas.
16. On January 11, 2006, the Commission determined that Victoria County was an affected entity entitled to party status in the contested-case hearing.
17. By Interim Order dated January 12, 2006, the Commission referred the matter to SOAH for a contested-case hearing on the following issues: (1) The environmental impacts that application of sludge and its attendant pathogens, bacteria, viruses, and heavy metal at the site may have on Victoria County's soil, wetlands, health, wildlife, agriculture, and surface

and groundwater supply; and (2) concerns about the sludge application's creation of nuisance odors.

18. On March 27, 2006, a preliminary hearing was held in Austin, Texas. The following were designated as parties to the proceeding: BLM, Victoria County, and OPIC.
19. The evidentiary hearing was conducted on July 31 and August 1, 2006, in Austin, Texas, by ALJ Cassandra J. Church. The record closed October 6, 2006.
20. On April 11, 2002, the Commission issued Sludge Registration No. 710850 to BLM for the beneficial land application of Class B sludge at the LAU, which registration expired on August 31, 2003. During the term of the registration, BLM applied sludge to one of the ten fields within the LAU.
21. There were no enforcement actions by the ED against BLM during the term of its operation under registration.
22. BLM will receive Class B sludge from the Bridgewood Hills Wastewater Treatment Plant (Bridgewood Hills) operated by Leon Spring Utility Company. Bridgewood Hills treats only domestic wastewater.
23. The characteristics of sludge from domestic wastewater, including pathogen levels and metals, tends to be consistent over time.
24. Rice was cultivated on the LAU for about 50 years and soils throughout the LAU were bladed or tilled to create flat fields for rice cultivation. Ditches and berms were built to alternatively flood and drain the rice fields.
25. Two ditches cross the LAU and there is one ditch on its western boundary. The water-control berms remain in place and will reduce rainfall runoff from the LAU.

26. The LAU soils comprise primarily mixed Nada-Cieno soils with a small area of disturbed Telferner soils on its eastern corners.
27. Nada-Cieno soil is a sandy loam with a moderately-high infiltration characteristic that can sustain depressions which may have wetlands characteristics. Undisturbed Telferner soils have high plasticity, *i.e.*, a high shrink-swell potential, which can crack when dry to form conduits for the migration of water.
28. Tilling and leveling of the Nada-Cieno soil areas eliminated depressions that may have been wetlands or had potential to become wetlands and also mixed the Telferner soils with other soils at the LAU. The mixed Telferner soils have a low to moderate plasticity.
29. There are no wetlands in the LAU. There are no depressions in the LAU that display wetlands characteristics, *i.e.*, are frequently flooded, have wetland-type of vegetation present, or have anaerobic soils.
30. The overall slope of the Site is less than one percent.
31. Soils at the LAU are underlain at the depth of approximately 30 inches by one or more clay layers. The uppermost clay layer is up to 15 feet thick.
32. The shallow clay layers seasonally perch water to create a temporary high water table between one and two feet below ground level.
33. Perched water at the LAU leaves the soil primarily through evapotranspiration.
34. Victoria County receives approximately 38 inches of rain per year, although, in two years out of ten, the annual rainfall is less than 20 inches.
35. Clay layers minimize downward percolation of water and also absorb water-borne metals.

36. The irrigation ditches at the LAU are hydraulically connected to two unnamed tributaries of Arenosa Creek, but no current mapping of water flows shows that the ditches discharge into the unnamed tributaries.
37. The two unnamed tributaries of Arenosa Creek are located approximately one-half mile from the northern and southern boundaries of the LAU.
38. Arenosa Creek is an intermittent-flow stream at the point it crosses or borders the Site. Arenosa Creek does not cross or border the LAU.
39. Perched groundwater does not regularly migrate into the irrigation ditches, as shown by the lack of signs of active seeps or springs, indicators of migration, in the area of the ditches.
40. The ditches are not used in the cattle pasturing activity at the Site.
41. In the vicinity of the Site, groundwater for use is produced from a water-producing zone at about 200 feet. There is also a little-used water-producing zone at about 60 feet.
42. There is no evidence that any areas within the LAU on which water may perch are hydraulically connected to groundwater sources.
43. No water for any water-resource use is produced from perched or shallow groundwater that may occur at the Site.
44. Rainfall of between one and two inches will be retained on the LAU. A rainfall of more than two inches may create runoff from the LAU.
45. Rainfall severe enough to cause runoff from the LAU will dilute nitrogen from the soils to *de minimis* levels in the runoff.
46. The ditches, a well, and areas identified through infrared photography as having any potential to become wetlands will be surrounded by a buffer zone.

47. The permit conditions prohibit application of sludge in the buffer zones, during rainfall events, and when the water table is above three feet, as determined by readings in shallow monitor wells.
48. There is no evidence that the LAU contains the habitat of any threatened or endangered species of wildlife.
49. Land-applied sludge has an earthy or organic smell which diminishes after the material is disked or tilled into the soil. BLM plans to disk or till sludge into the soil within six hours of application.
50. There is no evidence that any odor produced by sludge application on the LAU has extended beyond the boundaries of the Site or reached inhabited areas.
51. BLM will use cover crops of bermuda or native grasses in the spring and summer and rye or oats in the fall and winter. The grasses will be harvested by grazing.
52. The agronomic application rate for the LAU for the grass cover crops is eight dry tons per acre per year.
53. The cover crops will not be irrigated as the expected annual rainfall in Victoria County is sufficient to produce the cover crops.
54. Use of a cover crop in the fall and winter will speed the rate of uptake of the nutrients from the sludge.
55. Rice cultivation at the LAU depleted the soils and permitted the growth of weeds. Application of sludge will improve the productivity of the soils at the LAU and encourage the growth of diverse plant species.
56. The land application of sludge on the LAU will not affect agriculture in areas of Victoria County beyond the Site.

57. The chief vectors of concern at the LAU are rodents, some fruit flies, and the common house fly. Disking the sludge into the soil is an acceptable methods of vector control.
58. The range of rodents and flies of concern at the LAU is usually less than a mile.
59. Sewage from Bridgewood Hills passed the specific oxygen uptake rate (SOUR) test. Application of sludge that passes the SOUR test is an acceptable method of vector control.
60. Feral hogs run freely throughout Victoria County and cannot be excluded from fields and pastures by fencing. Feral hogs root in field and pastures throughout Victoria County.
61. There is no evidence that feral hogs which may root in the LAU after an sludge application will transport, via soils on their bodies, harmful amounts of pathogens to inhabited areas.
62. BLM will reduce pathogens by applying only sludge with acceptable fecal coliform density, per limits in Commission rules, and by using fencing to limit wildlife and cattle access to the LAU for 30 days after a sludge application. These management practices are methods of pathogen control provided for in Commission rules.
63. Background levels at the LAU of metals of concern in sludge applications are low. Metals of concern include arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, and zinc.
64. Due to the expected levels of copper in the Bridgewood Hills sludge, 1.5 pounds per ton, copper is the metal of most concern at the LAU. At an application rate of eight dry tons per acre per year, it would take over 100 years before the metal-loading limit for copper would be reached from application of sludge with the copper content of Bridgewood Hills sludge.
65. At an application rate of eight dry tons per acre per year, it would take more than 100 years before the metal-loading limit for metals of concern other than copper would be reached from application of sludge with the metals content of sludge from Bridgewood Hills.

II. CONCLUSIONS OF LAW

1. The Commission has jurisdiction over permits to land apply sewage sludge pursuant to TEX. WATER CODE ANN. ch. 26, TEX. HEALTH & SAFETY CODE ANN. ch. 361, and 30 TEX. ADMIN. CODE ch. 312.
2. SOAH has the authority to conduct evidentiary hearings and prepare proposals for decision on contested matters referred by the Commission pursuant to TEX. GOV'T CODE ANN. § 2003.047.
3. A sludge-application rate of eight dry tons per acre per year in Permit No. WQ0046600 constitutes the agronomic rate, within the meaning of 30 TEX. ADMIN. CODE § 312.8.
4. Permit No. WQ0046600 contains sufficient provisions to assure sludge will be applied by a method and under conditions that will prevent or minimize adverse environmental impacts from pathogens, bacteria, viruses, and heavy metals on Victoria County's soil, wetlands, health, wildlife, agriculture, and surface and groundwater supplies, pursuant to the requirements of TEX. HEALTH & SAFETY CODE ANN. 361.121 and 30 TEX. ADMIN. CODE ch. 312.
5. Permit No. WQ0046600 contains sufficient nuisance-control provisions to assure that sludge will be applied by a method and under conditions that will minimize the creation of a significant nuisance condition of objectionable odors, within in the meaning of 30 TEX. ADMIN. CODE § 312.44(j).
6. Based on the above Findings of Fact and Conclusion of Law, the application of BLM for Permit No. WQ0046600 complies with the requirements of 30 TEX. ADMIN. CODE ch. 312 in regard to environmental impacts and control of nuisance odors.

7. In accordance with 30 TEX. ADMIN. CODE § 50.117, the Commission issues this Order and the attached permit as its single decision on the permit application. Information in the agency record of this matter, which includes evidence admitted at the hearing and part of the evidentiary record of this matter, document the ED's review of the permit application, including that part not subject to a contested-case hearing, and establishes that the terms of the attached permit (**Exhibit A**), as amended regarding the sludge-application rate, are appropriate and satisfy all applicable federal and state requirements.

NOW, THEREFORE, BE IT ORDERED BY THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY, IN ACCORDANCE WITH THESE FINDINGS OF FACT AND CONCLUSIONS OF LAW, THAT:

1. The Commission adopts the ED's Response to Public Comment in accordance with 30 TEX. ADMIN. CODE § 50.117. Also in accordance with 30 TEX. ADMIN. CODE § 50.117, the Commission issues this Order and the attached permit (**Exhibit A**), as amended regarding the sludge-application rate, to Beneficial Land Management, L.C.C., as its single decision on the permit application. Information in the agency record of this matter, which includes evidence admitted at the hearing and part of the evidentiary record of this matter, document the ED's review of the permit application, including that part not subject to a contested-case hearing, and establishes that the terms of the attached permit, as amended, are appropriate and satisfy all applicable federal and state requirements.
2. All other motions, requests for entry of specific Findings of Fact or Conclusions of Law, and any other requests for general or specific relief, if not expressly granted herein, are hereby denied.

3. The effective date of this Order is the date the Order is final, as provided by TEX. GOV'T CODE ANN. § 2001.144 and 30 TEX. ADMIN. CODE § 80.273 .
4. The Commission's Chief Clerk shall forward a copy of this Order to all parties.
5. If any provision, sentence, clause, or phase of this Order is for any reason held to be invalid, the invalidity of any provision shall not affect the validity of the remaining portions of this Order.

ISSUED:

TEXAS COMMISSION ON
ENVIRONMENTAL QUALITY

Kathleen Hartnett White, Chairman
For the Commission

Texas Commission on Environmental Quality

INTEROFFICE MEMORANDUM

TO: LaDonna Castañuela, Chief Clerk DATE: March 16, 2006

THRU: *WMB* Beth Helms, Team Leader
3/16 Land Application Team, Wastewater Permitting Section (MC-148)

FROM: *BS 3/16* Brian Sierant, Permit Writer
 Land Application Team, Wastewater Permitting Section (MC-148)

SUBJECT: ADDITIONS TO BE MADE TO DRAFT PERMIT
 Beneficial Land Management, Inc. - Permit No. WQ0004666000

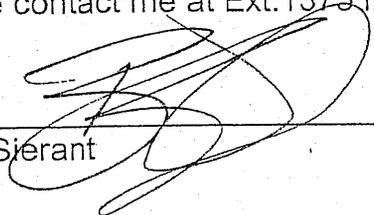
Attached is the revised draft permit (with the exception of Attachments A through E) that need to replace the current draft permit for the above-referenced facility.

Attachments A through E from the current draft permit are to be included with this updated draft.

Please note that these are not actual changes to the draft permit, it is only to replace the draft permit. Changes were made incorrectly to the previous request from December 19, 2005, to replace page 1 of the draft permit and page 2 of the Technical Summary.

These additions do not require the permit application to be renoticed.

Please contact me at Ext.1375 if you have any specific questions.



 Brian Sierant

Attachments

TEXAS
 COMMISSION
 ON ENVIRONMENTAL
 QUALITY
 CENTRAL
 COUNTY OFFICE
 2006 DEC - 5 PM 3:57

THE STATE OF TEXAS
 COUNTY OF TRAVIS

I hereby certify that this is a true and correct copy of a Texas Commission on Environmental Quality document, which is filed in the permanent records of the Commission. Given under my hand and the seal of office on



 LaDonna Castañuela, Chief Clerk
 Texas Commission on Environmental Quality
 JUN 13 2006

0000002

PERMIT NO. W00004666000



Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

PERMIT TO LAND APPLY SEWAGE SLUDGE

under provisions of Chapter 26 of the Texas Water Code,
Chapter 361 of Health and Safety Code, Chapter 312 of Texas Administrative Code.

I. PERMITTEE:

Beneficial Land Management, L.L.C.
P.O. Box 6870
San Antonio, Texas 78209-0870

II. AUTHORIZATION:

Beneficial Land Application of Wastewater Treatment Plant (WWTP) sewage sludge. This site operated previously under Registration No. 710850, which expired on August 31, 2003, per House Bill 2912.

III. GENERAL DESCRIPTION AND LOCATION OF SITE:

Description: The permittee is authorized to land apply WWTP sewage sludge at an annual rate not to exceed 11.4 dry tons/acre/year for field #'s 1-6 and 9, 10.2 dry tons/acre/year for field # 7, 12 dry tons/acre/year for field # 8, and 9.6 dry tons/acre/year for field # 10 on 793.4 acres located within approximately 2,881 acres at this site.

Location: The sewage sludge land application site is located ten miles northwest of the City of Inez, on Farm-to-Market Road 444 and 2.5 miles northeast of the intersection of Karnes Road and Farm-to-Market Road 444 in Victoria County, Texas. See Attachment A.

SIC Code: 0139

Drainage Basin: The facility is located in the drainage area of Lavaca Bay and Chocolate Bay in Segment No. 2453 of the Lavaca-Guadalupe Coastal River Basin. No discharge of pollutants into waters of the State is authorized by this permit.

This permit and the authorization contained herein shall expire at midnight five years from the date of issuance listed below.

ISSUED DATE:

THE STATE OF TEXAS
COUNTY OF TRAVIS

I hereby certify that this is a true and correct copy of a Texas Commission on Environmental Quality document, which is filed in the permanent records of the Commission. Given under my hand and the seal of office on

For the Commission

LaDonna Castanuela JUN 13 2006
LaDonna Castanuela, Chief Clerk
Texas Commission on Environmental Quality

IV. GENERAL REQUIREMENTS:

- A. The permittee shall handle and dispose of sewage sludge in accordance with 30 TAC Chapter 312 and all other applicable state and federal regulations in a manner which protects public health and the environment from any reasonably anticipated adverse effects due to any toxic pollutants which may be present in the sludge.
- B. Application for renewing this permit shall be submitted by the permittee at least 180 days prior to expiration date of this permit.
- C. WWTP sludge
 - 1. In all cases, the generator or processor of sewage sludge shall provide necessary analytical information to the parties who receive the sludge, including those receiving the sewage sludge for land application, to assure compliance with these regulations.
 - 2. Permittee shall not accept the sewage sludge that fails the Toxicity Characteristic Leaching Procedure (TCLP) test per the method specified in both 40 CFR Part 261, Appendix II and 40 CFR Part 268, Appendix I or other method, which receives the prior approval of the TCEQ for the contaminants listed in Table 1 of 40 CFR Section 261.24.
 - 3. Sewage sludge shall not be applied to the land if the concentration of any metal exceeds the ceiling concentration listed in Table 1 below. Additional information on the frequency of testing for metals is found in Section IX.

TABLE 1

<u>Pollutant</u>	<u>Ceiling Concentration (milligrams per kilogram)*</u>
Arsenic	75
Cadmium	85
Chromium	3000
Copper	4300
Lead	840
Mercury	57
Molybdenum	75
Nickel	420
Selenium	100
Zinc	7500

* Dry weight basis

- 4. When the total aggregate amount of any metal in Table 2 (in all sludge applied at the site during the entire use of this site) reaches the cumulative level listed in table 2 below, only sludge with metal levels at or below those shown Table 3 below can be applied at the site. To compute this criteria, the total amount of each metal in all sludge applied must be summed on a continuing basis as sludge is applied.

Table 2

<u>Pollutant</u>	<u>Cumulative Pollutant Loading Rate (pounds per acre)</u>
Arsenic	36
Cadmium	35
Chromium	2677
Copper	1339
Lead	268
Mercury	15
Molybdenum	Report Only
Nickel	375
Selenium	89
Zinc	2500

Table 3

<u>Pollutant</u>	<u>Concentration (milligrams per kilogram)*</u>
Arsenic	41
Cadmium	39
Chromium	1200
Copper	1500
Lead	300
Mercury	17
Molybdenum	Report Only
Nickel	420
Selenium	36
Zinc	2800

* Dry weight basis

5. Sludge also cannot be applied in excess of the most restrictive of the following criteria:
- The maximum sludge application rate (MSAR) based on crop nitrogen needs (also referred to as the agronomic rate), which is calculated based on the total amount of nitrogen in the sludge, septage and in the soils at the application site and on the nitrogen requirements of the vegetation in the application area.
 - The MSAR for each metal pollutant in Table 1 above, which is calculated individually for each metal based on its concentration in the sludge and in the soils in the application area.
6. All of the MSARs above must be calculated using Appendix A of the "Application for Permit for Beneficial Land Use of Sewage Sludge." These calculations must cover both sludge and septage for areas where both are applied. If sludge is received from multiple sources, the average concentration of each of the elements above must be determined using "Table 2 - Volume Weighted Average (Mean) of Nutrient and Pollutant Concentration" from the application form.
7. Anytime the permittee plans to accept WWTP sludge from any source(s) other than those listed in the application and approved for this permit, the permittee must notify and receive authorization from the Water Quality Division, Land Application Team (MC 148) of the TCEQ prior to receiving the new sludge. The notification must include information to demonstrate the sludge from the proposed new source(s) meets the requirements of this permit. The permittee must provide certifications from each source that the sludge meets the requirement for a Process to Significantly Reduce Pathogens (PSRP) or other alternatives. The permittee must provide documentation that the sludge meets the limits for polychlorinated biphenyls (PCBs), vector attraction and the metal pollutants in Table 1 above. No sludge from sources other than the ones listed in the application can be land applied prior to receiving written authorization from the TCEQ.

V. OPERATIONAL REQUIREMENTS:

The operation and maintenance of this land application site must be in accordance with 30 TAC Chapter 312 and Title 40 of the Code of Federal Regulations (40 CFR) Part 503 as they relate to land application for beneficial use. All applicable local and county ordinances must also be followed.

VI. REQUIRED MANAGEMENT PRACTICES:

- A. Sludge applications must not cause or contribute to the harm of a threatened or endangered species of plant, fish, or wildlife or result in the destruction or adverse modification of the critical habitat of a threatened or endangered species.
- B. Sludge must not be applied to land that is flooded, frozen or snow-covered to prevent entry of bulk sewage sludge into wetland or other waters in the State.
- C. Sludge shall be land applied in a manner which complies with Management Requirements in accordance with 30 TAC Section 312.44 including maintaining the following buffer zones for each application area:

a.	Established school, institution, business or residence	750 feet
b.	Public water supply well, intake, public water supply spring or similar source, public water treatment plant, or public water supply elevated or ground storage tank	500 feet
c.	Solution channels, sinkholes, or other conduits to groundwater	200 feet
d.	Waters in the State of Texas	200 feet
e.	Private water supply well	150 feet
f.	Public right of way	50 feet
g.	Property boundary	50 feet
h.	Waters in the State if sludge is both incorporated into the soil within 48 hours of application and a vegetative cover is present between the application area and all adjacent surface waters.	33 feet
i.	Irrigation conveyance canals	10 feet

- D. Sludge must be applied to the land at an annual application rate that is equal to or less than the agronomic rate for the vegetation in the area on which the sludge is applied. The calculation of this rate must include both the sludge that is to be applied.
- E. The seasonally high water table, groundwater table, or depth to water-saturated soils must be at least three (3) feet below the treatment zone for soils with moderate to slow permeability (less than two inches per hour) or four (4) feet below the treatment zone for soils with rapid to moderately rapid permeability (between two and twenty inches per hour). Sludge can not be applied to soils with permeation rates greater than twenty inches per hour.

- F. Sludge must be applied by a method and under conditions that prevent runoff beyond the active application area and that protect the quality of the surface water and the soils in the unsaturated zone. In addition the following conditions must be met:
1. Sludge must be applied uniformly over the surface of the land.
 2. Sludge must not be applied to areas where permeable surface soils are less than 2 feet thick.
 3. Sludge must not be applied during rainstorms or during periods in which surface soils are water-saturated.
 4. Sludge must not be applied to any areas having a slope in excess of 8%.
 5. Where runoff from the active application area is evident, the operator must cease further sludge application until the condition is corrected.
 6. The site operator must prevent public health nuisances. Sludge debris must be prevented from leaving the site. Where nuisance conditions exist, the operator must eliminate the nuisance as soon as possible.
 7. Sludge application practices must not allow uncontrolled public access, so as to protect the public from potential health and safety hazards at the site.
 8. Sewage sludge can be applied only to the land application area shown on Attachment B. The buffer zones as listed on that map as well as the buffer zone distances listed in section VI.C. must not have any sludge applied on them.
- G. The permittee shall post a sign that is visible from a road or sidewalk that is adjacent to the premises on which the land application unit is located stating that a beneficial land use application site is located on the premises.

VII. PATHOGEN CONTROL:

- A. All sewage sludge that is applied to agricultural land, forest, a public contact site, or a reclamation site shall be treated by one of the following methods to ensure that the sludge meets either the Class A or Class B pathogen requirements.

1. Six alternatives are available to demonstrate compliance with Class A sewage sludge.

The first 4 options require either the density of fecal coliform in the sewage sludge be less than 1000 Most Probable Number (MPN) per gram of total solids (dry weight basis), or the density of Salmonella sp. bacteria in the sewage sludge be less than three MPN per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed. Below are the additional requirements necessary to meet the definition of a Class A sludge.

Alternative 1 The temperature of the sewage sludge that is used or disposed shall be maintained at or above a specific value for a period of time. See 30 TAC §312.82(a)(2)(A) for specific information.

Alternative 2 The pH of the sewage sludge that is used or disposed shall be raised to above 12 std. units and shall remain above 12 std. units for 72 hours.

The temperature of the sewage sludge shall be above 52 degrees Celsius for 12 hours or longer during the period that the pH of the sewage sludge is above 12 std. units.

At the end of the 72-hour period during which the pH of the sewage sludge is above 12 std. units, the sewage sludge shall be air dried to achieve a percent solids in the sewage sludge greater than 50 percent.

Alternative 3 The sewage sludge shall be analyzed for enteric viruses prior to pathogen treatment. The limit for enteric viruses is less than one Plaque-forming Unit per four grams of total solids (dry weight basis) either before or following pathogen treatment. See 30 TAC §312.82(a)(2)(C)(i-iii) for specific information. The sewage sludge shall be analyzed for viable helminth ova prior to pathogen treatment. The limit for viable helminth ova is less than one per four grams of total solids (dry weight basis) either before or following pathogen treatment. See 30 TAC §312.82(a)(2)(C)(iv-vi) for specific information.

Alternative 4 The density of enteric viruses in the sewage sludge shall be less than one Plaque-forming Unit per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed. The density of viable helminth ova in the sewage sludge shall be less than one per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed.

Alternative 5 Processes to Further Reduce Pathogens (PFRP) - Sewage sludge that is used or disposed of shall be treated in one of the processes to Further Reduce Pathogens (PFRP) described in 40 CFR Part 503, Appendix B. PFRP include composting, heat drying, heat treatment, and thermophilic aerobic digestion.

Alternative 6 (PFRP Equivalent) - Sewage sludge that is used or disposed of shall be treated in a process that has been approved by the U. S. Environmental Protection Agency as being equivalent to those in Alternative 5.

2. Three alternatives are available to demonstrate compliance with Class B criteria for sewage sludge.

Alternative 1 i. A minimum of seven random samples of the sewage sludge shall be collected within 48 hours of the time the sewage sludge is used or disposed of during each monitoring episode for the sewage sludge.

ii. The geometric mean of the density of fecal coliform in the samples collected shall be less than either 2,000,000 MPN per gram of total solids (dry weight basis) or 2,000,000 Colony Forming Units per gram of total solids (dry weight basis).

Alternative 2 Sewage sludge that is used or disposed of shall be treated in one of the Processes to Significantly Reduce Pathogens (PSRP) described in 40 CFR Part 503, Appendix B, so long as all of the following requirements are met by the generator of the sewage sludge.

- i. Prior to use or disposal, all the sewage sludge must have been generated from a single location, except as provided in paragraph v. below;
- ii. An independent Texas Licensed Professional Engineer must provide a certification to the generator of a sewage sludge that the wastewater treatment facility generating the sewage sludge is designed to achieve one of the PSRP at the permitted design loading of the facility. The certification need only be repeated if the design loading of the facility is increased. The certification shall include a statement indicating the design meets all the applicable standards specified in Appendix B of 40 CFR Part 503;
- iii. Prior to any off-site transportation or on-site use or disposal of any sewage sludge generated at a wastewater treatment facility, the chief certified operator of the wastewater treatment facility or other responsible official who manages the processes to significantly reduce pathogens at the wastewater treatment facility for the permittee, shall certify that the sewage sludge underwent at least the minimum operational requirements necessary in order to meet one of the PSRP. The acceptable processes and the minimum operational and record keeping requirements shall be in accordance with established U. S. Environmental Protection Agency final guidance;
- iv. All certification records and operational records describing how the requirements of this paragraph were met shall be kept by the generator for a minimum of three years and be available for inspection by commission staff for review; and
- v. If the sewage sludge is generated from a mixture of sources, resulting from a person who prepares sewage sludge from more than one wastewater treatment facility, the resulting derived product shall meet one of the PSRP, and shall meet the certification, operation, and record keeping requirements of this paragraph.

Alternative 3 Sewage sludge shall be treated in an equivalent process that has been approved by the U. S. Environmental Protection Agency, so long as all of the following requirements are met by the generator of the sewage sludge.

- i. Prior to use or disposal, all the sewage sludge must have been generated from a single location, except as provided in paragraph v. below;
- ii. Prior to any off-site transportation or on-site use or disposal of any sewage sludge generated at a wastewater treatment facility, the chief certified operator of the wastewater treatment facility or other responsible official who manages the processes to significantly reduce pathogens at the wastewater treatment facility for the permittee, shall certify that the sewage sludge underwent at least the minimum operational requirements necessary in order to meet one of the PSRP. The acceptable processes and the minimum operational and record keeping requirements shall be in accordance with established U. S. Environmental Protection Agency final guidance;

- iii. All certification records and operational records describing how the requirements of this paragraph were met shall be kept by the generator for a minimum of three years and be available for inspection by commission staff for review;
- iv. The executive director will accept from the U. S. Environmental Protection Agency a finding of equivalency to the defined PSRP; and
- v. If the sewage sludge is generated from a mixture of sources resulting from a person who prepares sewage sludge from more than one wastewater treatment facility, the resulting derived product shall meet one of the Processes to Significantly Reduce Pathogens, and shall meet the certification, operation, and record keeping requirements of this paragraph.

B. In addition, the following site restrictions must be met if Class B sludge is land applied:

1. Food crops with harvested parts that touch the sewage sludge/soil mixture and are totally above the land surface shall not be harvested for 14 months after application of sewage sludge.
2. Food crops with harvested parts below the surface of the land shall not be harvested for 20 months after application of sewage sludge when the sewage sludge remains on the land surface for 4 months or longer prior to incorporation into the soil.
3. Food crops with harvested parts below the surface of the land shall not be harvested for 38 months after application of sewage sludge when the sewage sludge remains on the land surface for less than 4 months prior to incorporation into the soil.
4. Food crops, feed crops, and fiber crops shall not be harvested for 30 days after application of sewage sludge.
5. Animals shall not be allowed to graze on the land for 30 days after application of sewage sludge.
6. Turf grown on land where sewage sludge is applied shall not be harvested for 1 year after application of the sewage sludge when the harvested turf is placed on either land with a high potential for public exposure or a lawn.
7. Public access to land with a high potential for public exposure shall be restricted for 1 year after application of sewage sludge.
8. Public access to land with a low potential for public exposure shall be restricted for 30 days after application of sewage sludge.
9. Land application of sludge shall be in accordance with the buffer zone requirements found in 30 TAC §312.44.

VIII. VECTOR ATTRACTION REDUCTION REQUIREMENTS:

- A. All bulk sewage sludge that is applied to agricultural land, forest, a public contact site, or a reclamation site shall be treated by one of the following alternatives for Vector Attraction Reduction.

- Alternative 1 The mass of volatile solids in the sewage sludge shall be reduced by a minimum of 38 percent [30 TAC §312.83(b)(1)].
- Alternative 2 If Alternative 1 cannot be met for an anaerobically digested sludge, demonstration can be made by digesting a portion of the previously digested sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30 and 37 degrees Celsius. Volatile solids must be reduced by less than 17 percent to demonstrate compliance [30 TAC §312.83(b)(2)].
- Alternative 3 If Alternative 1 cannot be met for an aerobically digested sludge, demonstration can be made by digesting a portion of the previously digested sludge with a percent solids of two percent or less aerobically in the laboratory in a bench-scale unit for 30 additional days at 20 degrees Celsius. Volatile solids must be reduced by less than 15 percent to demonstrate compliance [30 TAC §312.83(b)(3)].
- Alternative 4 The specific oxygen uptake rate (SOUR) for sewage sludge treated in an aerobic process shall be equal to or less than 1.5 milligrams of oxygen per hour per gram of total solids (dry weight basis) at a temperature of 20 degrees Celsius. This test may only be run on sludge with a total percent solids of 2.0% or less [30 TAC §312.83(b)(4)].
- Alternative 5 Sewage sludge shall be treated in an aerobic process for 14 days or longer. During that time, the temperature of the sewage sludge shall be higher than 40 degrees Celsius and the average temperature of the sewage sludge shall be higher than 45 degrees Celsius [30 TAC §312.83(b)(5)].
- Alternative 6 The pH of sewage sludge shall be raised to 12 or higher by alkali addition and, without the addition of more alkali shall remain at 12 or higher for two hours and then remain at a pH of 11.5 or higher for an additional 22 hours at the time the sewage sludge is prepared for sale or given away in a bag or other container [30 TAC §312.83(b)(6)].
- Alternative 7 The percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 75 percent based on the moisture content and total solids prior to mixing with other materials. Unstabilized solids are defined as organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process [30 TAC §312.83(b)(7)].
- Alternative 8 The percent solids of sewage sludge that contains unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 90 percent based on the moisture content and total solids prior to mixing with other materials at the time the sludge is used. Unstabilized solids are defined as organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process [30 TAC §312.83(b)(8)].

Alternative 9 Sewage sludge shall be injected below the surface of the land. No significant amount of the sewage sludge shall be present on the land surface within one hour after the sewage sludge is injected. When sewage sludge that is injected below the surface of the land is Class A with respect to pathogens, the sewage sludge shall be injected below the land surface within eight hours after being discharged from the pathogen treatment process [30 TAC §312.83(b)(9)].

Alternative 10 Sewage sludge applied to the land surface or placed on a surface disposal site shall be incorporated into the soil within six hours after application to or placement on the land. When sewage sludge that is incorporated into the soil is Class A with respect to pathogens, the sewage sludge shall be applied to or placed on the land within eight hours after being discharged from the pathogen treatment process [30 TAC §312.83(b)(10)].

IX. MONITORING REQUIREMENTS:

The sewage sludge must be monitored according to 30 TAC §312.46(a)(1) for the ten metals in Table 1 of Section IV.C.3, pathogen reduction, and vector attraction reduction.

- A. If the concentration of nitrogen or any of the metals in Table 1 in Section IV.C.3 exceeds the concentration used to calculate any of the MSARs in Sections IV.C.5 and IV.C.6, the MSAR for that element must be recalculated. If the sludge comes from multiple sources, the calculations must use Table 2 in Section IV.C.4 to provide a volume weighted average of all sludge that will be applied during the current monitoring period.
- B. After the sludge has been monitored according to 30 TAC §312.46(a)(1) for a period of two years, an application may be submitted to amend this permit to reduce the frequency of monitoring.
- C. The frequency of monitoring will be increased if recalculation of the agronomic rate increases the amount of sludge that can be applied to a higher threshold, as shown in 30 TAC §312.46(a)(1). The frequency of monitoring may also be increased if the TCEQ determines that the level of pollutants or pathogens in the sludge warrants such action.
- D. If WWTP sludge is received at this site for land application then the permittee must ensure that the test data for TCLP and PCBs is provided from the generators.
- E. All metal constituents and Fecal coliform or Salmonella sp. bacteria shall be monitored at the appropriate frequency pursuant to 30 TAC §312.46(a)(1).
- F. Representative samples of sewage sludge shall be collected and analyzed in accordance with the methods referenced in 30 TAC §312.7.

X. RECORD KEEPING REQUIREMENTS:

The permittee shall fulfill record keeping requirements per 30 TAC §312.47. The documents shall be retained at the site and/or shall be readily available for review by a TCEQ representative.

- A. Records of the following general information must be kept for all types of sludge and domestic septage lab application permits:
1. A certification statement that all applicable requirements (specifically listed) have been met, and that the permittee understands that there are significant penalties for false certification including fine and imprisonment. See 30 TAC §312.47(a)(4)(A)(ii) or 30 TAC §312.47(a)(5)(A)(ii), which ever is applicable.
 2. The location, by street address, and specific latitude and longitude, of each site on which sewage sludge (including WTP sludge, and/or domestic septage if applicable) is applied.
 3. The number of acres in each site on which bulk sludge is applied.
 4. The dates, times and quantities of sludge (and/or domestic septage if applicable) is applied to each site.
 5. The cumulative amount of each pollutant in pounds per acre listed in Table 2 of Section IV.C.4 applied to each site.
 6. The total amount of sludge applied to each site in dry tons.
 7. A description of how the management practices listed above in Section IV.C., and 30 TAC §312.44 are being met. If these requirements are being met, prepare and keep a certification statement per 30 TAC §312.47(5)(B)(viii).
- B. For Sewage Sludge with metal concentrations at or below levels in Table 3 of Section IV.C.4; which also meets Class A pathogen requirements in 30 TAC §312.82(a), and the vector attraction reduction requirements in 30 TAC §312.83(b)(9) or (10):
1. A description of how the vector attraction reduction requirements are met. If these requirements are being met prepare and keep a certification statement per 30 TAC §312.47(5)(B)(xii).
- C. For Sewage Sludge with metal concentrations at or below levels in Table 3 of Section IV.C.4; and which also meets Class B pathogen requirements in 30 TAC §312.82(b), and the vector attraction reduction requirements in 30 TAC §312.83(b)(9) or (10):
1. A description of how site restrictions for Class B sludge in 30 TAC §312.82(b)(3) are being met. If these requirements are being met prepare and keep a certification statement per 30 TAC §312.47(5)(B)(x).
 2. A description of how the vector attraction reduction requirements in 30 TAC §312.83(b)(9) or (10) are met. If these requirements are being met prepare and keep a certification statement per 30 TAC §312.47(5)(B)(xii).
- D. For Sewage Sludge with metal concentrations at or below levels in Table 1 of Section IV.C.3; and which also meets Class B pathogen requirements in 30 TAC §312.82(b), and the vector attraction reduction requirements in 30 TAC §312.83(b)(9) or (10):
1. A description of how the requirements to obtain information from the generators of sludge in 30 TAC §312.42(e) are being met. If these requirements are being met prepare and keep a certification statement per 30 TAC §312.47(5)(B)(vi).

2. A description of how site restrictions for Class B sludge in 30 TAC §312.82(b)(3) are being met. If these requirements are being met prepare and keep a certification statement per 30 TAC §312.47(5)(B)(x).
3. A description of how the vector attraction reduction requirements in 30 TAC §312.83(b)(9) or (10) are met. If these requirements are being met prepare and keep a certification statement per 30 TAC §312.47(5)(B)(xii).

XI. REPORTING REQUIREMENTS:

- A. Permittee shall submit a separate annual report by September 30th of each year per 30 TAC §312.48 for each site. The annual report must include all the information required under 30 TAC §312.48 (including the items listed below) for a period covering September 1st of previous year through August 31 of current year. Additionally an "Annual Sludge Summary Report Form" (**Attachment C**) should be filled out and submitted with the annual report. Submit your report to the Water Quality Division, Land Application Team (MC 148) and the TCEQ Regional Office (MC Region 14). Record retention requirements must be followed in accordance with 30 TAC §312.47.
1. Annual Sludge Summary Sheet (a blank form is provided in Attachment C of this permit) with following information. This information must be submitted by all permittees:
 - i. Permit number.
 - ii. The site location (address or latitude and longitude).
 - iii. Operator address, contact person name, telephone number, and fax number.
 - iv. Amount of sludge disposal dry weight (lbs/acre) at each disposal site. Report domestic septage quantities in gallons.
 - v. Number of acres on which sludge and septage is land applied.
 - vi. Vegetation grown and number of cuttings.
 - vii. Other items listed in the summary sheet.
 2. If the sludge concentration for any metal listed in Table 3 of Section IV.C.4 is exceeded, the report must include the following information:
 - i. Date and time of each sludge application.
 - ii. All four certification statements required under 30 TAC §312.47(a)(5)(B).
 - iii. A description of how the information from the sludge generator was obtained, as per 30 TAC §312.42(e).
 - iv. A description of how each of the management practices in 30 TAC §312.44 were met for this site.
 - v. A description of how the site restrictions in 30 TAC §312.82(b)(3) were met for the site.

- vi. If the vector attraction reduction requirements in 30 TAC §312.83(b)(9) or (10) are met, a description of how this was done.
 - vii. Soil and sludge test reports, as required in Section XII of this permit.
 - viii. Calculations of the current agronomic sludge application rate and the life of the site based on metal loadings (Appendix A of application, as identified in Section IV.C.4, or similar form).
3. If none of the concentrations for the metals exceed the values listed in Table 3 in Section IV.C.4 of this permit:
- i. Information per 30 TAC §312.47(a)(3)(B) for Class A sludge.
 - ii. Information per 30 TAC §312.47(a)(4)(B) for Class B Sludge.
4. When the amount of any pollutant applied to the land exceeds 90% of the cumulative pollutant loading rate for that pollutant, as described in Table 2 in Section IV.C.4 of this permit the permittee shall provide the following additional information:
- i. Date and time of each sludge application.
 - ii. The information in 30 TAC §312.47(a)(5)(A) must be obtained from the sludge generator and included in the report.
 - iii. The cumulative amount in pounds per acre of each pollutant listed in Table 2 in Section IV.C.4 applied to each application field of this site through bulk sewage sludge.
- B. Permittee shall submit a quarterly report by the 15th day of the month following each quarter during the reporting period (ie. quarterly reports will be due December 15th, March 15th, June 15th, and September 15th). Additionally, a "Quarterly Sludge Summary Report Form" (**Attachment D**) should be filled out and submitted with the quarterly report. The quarterly report must include all the information listed below. Submit your report to the Water Quality Division, Land Application Team (MC 148) and the TCEQ Regional Office (MC Region 14). Record retention requirements must be followed in accordance with 30 TAC §312.47.
1. The source, quality, and quantity of sludge applied to the land application unit.
 2. The location of the land application unit, either in terms of longitude and latitude or by physical address, including the county.
 3. The dates of delivery of Class B sludge.
 4. The dates of application of Class B sludge.
 5. The cumulative amount of metals applied to the land application unit through the application of Class B sludge.
 6. Crops grown at the land application unit site.
 7. The suggested agronomic application rate for the Class B sludge.

XII. SOIL SAMPLING:

The permittee is required to notify the local TCEQ Regional Office 48 hours prior to taking annual soil samples at the permitted site.

The permittee must monitor the soil-sludge mixture for the site as follows using soil sampling requirements described in 30 TAC §312.11(d)(2) and (3):

	PARAMETER	NOTE	FREQUENCY	SAMPLE DEPTH	
				0"-6"	6"-24"
1	Nitrate Nitrogen (NO ₃ -N)		1 per year	X	X
2	Ammonia Nitrogen (NH ₄ -N)		1 per year	X	X
3	Total Nitrogen (TKN)	1	1 per year	X	X
4	Phosphorus (extractable)	2	1 per year	X	X
5	Potassium (extractable)		1 per year	X	X
6	Sodium (extractable)		1 per year	X	X
7	Magnesium (extractable)		1 per year	X	X
8	Calcium (extractable)		1 per year	X	X
9	Soluble Salts/EC	3	1 per year	X	X
10	Soil Water pH (S.U.)	4	1 per year	X	X
11	Total Arsenic (mg/kg)	*	1 per 5 years	X	NA
12	Total Cadmium (mg/kg)	*	1 per 5 years	X	NA
13	Total Chromium (mg/kg)	*	1 per 5 years	X	NA
14	Total Copper (mg/kg)	*	1 per 5 years	X	NA
15	Total Lead (mg/kg)	*	1 per 5 years	X	NA
16	Total Mercury (mg/kg)	*	1 per 5 years	X	NA
17	Total Molybdenum (mg/kg)	*	1 per 5 years	X	NA
18	Total Nickel (mg/kg)	*	1 per 5 years	X	NA
19	Total Selenium (mg/kg)	*	1 per 5 years	X	NA
20	Total Zinc (mg/kg)	*	1 per 5 years	X	NA

1. Determined by Kjeldahl digestion or an equivalent accepted procedure. Methods that rely on Mercury as a catalyst are not acceptable.
2. Mehlich III extraction.
3. Electrical Conductivity (EC) - determine from extract of 2:1 (volume/volume) water/soil mixture.
4. Soil pH must be analyzed by the electrometric method in "Test Methods for Evaluating Solid Waste," EPA SW-846, 40 CFR 260.11; method 9040.

* Analysis for metals in sludge and soil must be performed according to methods outlined in "Test Methods for Evaluating Solid Waste," EPA SW-846; method 3050.

XIII. STANDARD PROVISIONS:

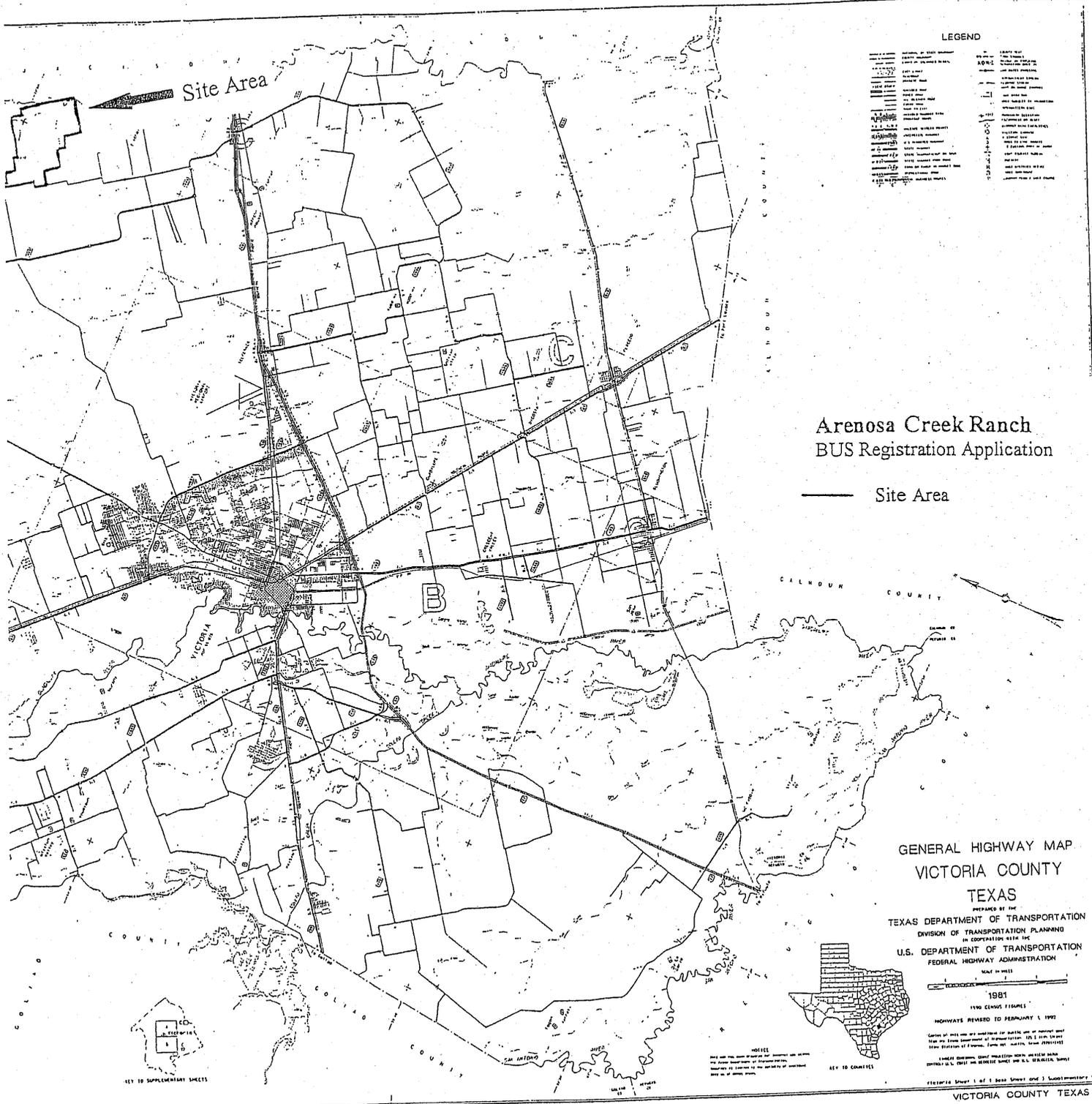
- A. This permit is granted in accordance with the Texas Water Code, Health and Safety Code, and the rules and other Orders of the Commission and the laws of the State of Texas.
- B. Unless specified otherwise, any noncompliance which may endanger human health or safety, or the environment shall be reported to the TCEQ. Report of such information shall be provided orally or by facsimile transmission (FAX) to the Regional Office within 24 hours of becoming aware of the noncompliance. A written submission of such information shall also be provided to the TCEQ Regional Office (MC Region 14) and to the Enforcement Division (MC 224) within five working days of becoming aware of the noncompliance. The written submission shall contain a description of the noncompliance and its cause; the potential danger to human health or safety, or the environment; the period of noncompliance, including exact dates and times; if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance, and to mitigate its adverse effects.
- C. Any noncompliance other than that specified in the Standard Provision B, or any required information not submitted or submitted incorrectly, shall be reported to the TCEQ Enforcement Division (MC 224) as promptly as possible.
- D. Acceptance of this permit constitutes an acknowledgment and agreement that the permittee will comply with all the terms, provisions, conditions, limitations and restrictions embodied in this permit and with the rules and other Orders of the Commission and the laws of the State of Texas. Agreement is a condition precedent to the granting of this permit.
- E. Prior to any transfer of this permit, Commission approval must be obtained. The Commission must be notified, in writing, of any change in control or ownership of facilities authorized by this permit. Such notification should be sent to the Water Quality Applications Team (MC 161) of the Registration, Review, and Reporting Division.
- F. The application pursuant to which the permit has been issued is incorporated herein; provided, however, that in the event of a conflict between the provisions of this permit and the application, the provisions of the permit shall control.
- G. The permittee is subject to the provisions of 30 TAC §305.125.
- H. The permittee shall remit to the Commission annual fees per 30 TAC §312.9. Failure to pay the fees on time may result in revocation of this permit.
- I. This permit does not become a vested right in the permit holder.
- J. The permittee may not accept Class B sludge unless the sludge has been transported to the land application unit in a covered container with the covering firmly secured at the front and back.

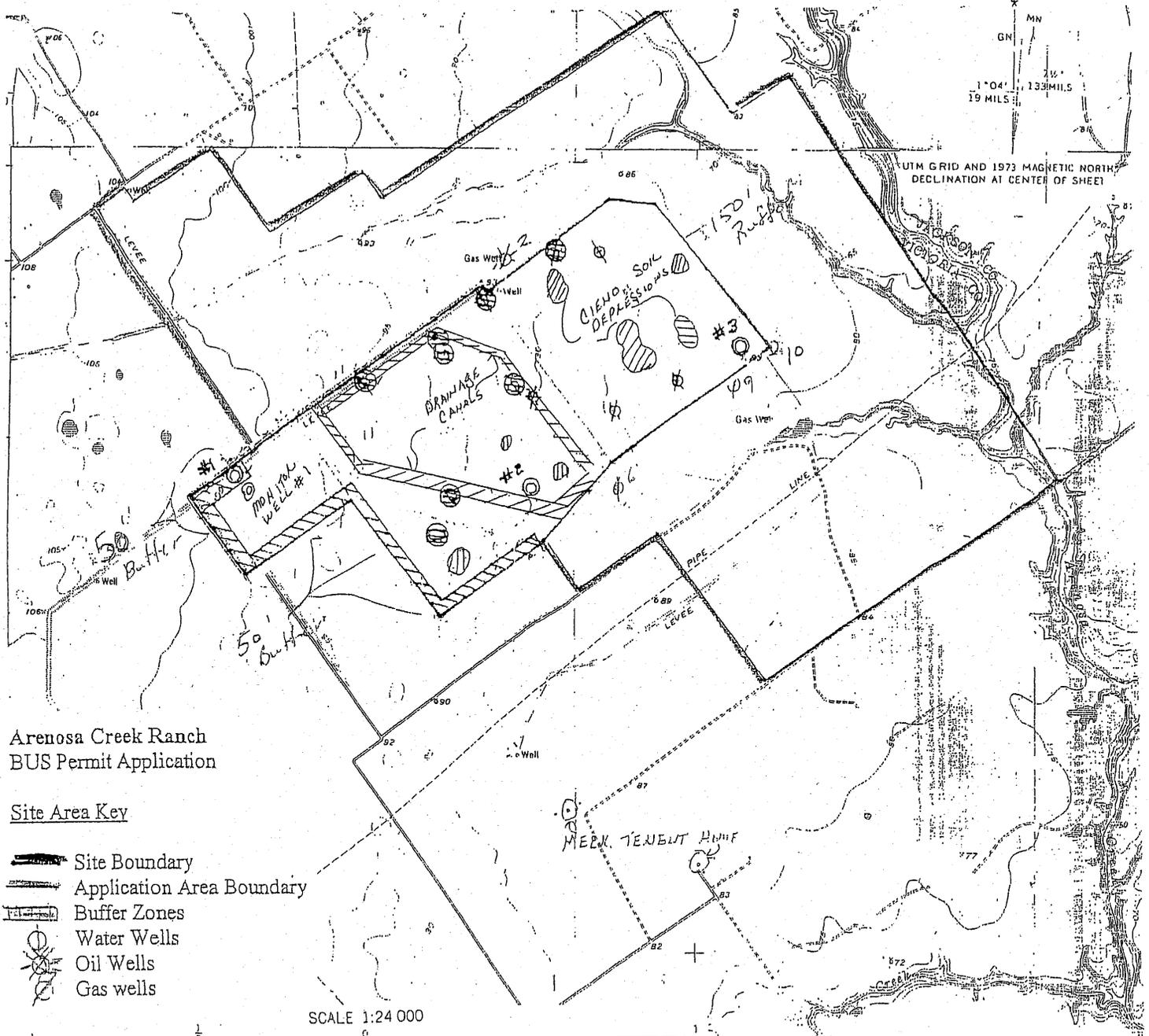
Beneficial Land Management, L.L.C.

XIV. SPECIAL PROVISIONS:

- A. The maximum annual sludge application rate shall not exceed 11.4 dry tons/acre/year for field #'s 1-6 and 9, 10.2 dry tons/acre/year for field # 7, 12 dry tons/acre/year for field # 8, and 9.6 dry tons/acre/year for field # 10, and shall be land applied at a frequency proposed in the application.
- B. The permittee should consider nutrient management practices appropriate for land application of sewage sludge and assess the potential risk for nitrogen and phosphorous to contribute to water quality impairment. Information and assistance to develop and implement a nutrient management plan are available from certified Nutrient Management Specialists, the Natural Resource Conservation Service (NRCS) Code 590 Practice Standard, and the Phosphorous Index. Annual analysis for extractable phosphorous in soil samples should be conducted using Mehlich III extraction. **Attachment E** lists sources for obtaining more information on Certified Nutrition Management Specialists, the NRCS 590 Standard, and the Phosphorous Index.
- C. The permittee shall comply with the sludge management plan (SMP) approved by the TCEQ on July 30, 2004. **The SMP comprises a series of approved best management practices submitted to the TCEQ. Records of groundwater observation required by the SMP shall be kept on file and recorded before each application of sludge.**
- D. Application areas (Field #'s) must be distinguished from each other by the use of flags, posting or fencing to ensure that each field is separated. **Cieno soil depression and drainage canal buffer areas will also be identified by the use of flags, posting or fencing to ensure that these areas are excluded from sludge application. The areas buffered from sludge application are identified on Attachment B.**

Attachment A



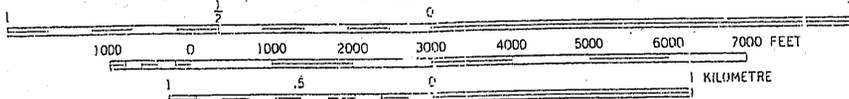


**Arenosa Creek Ranch
BUS Permit Application**

Site Area Key

- Site Boundary
- Application Area Boundary
- Buffer Zones
- Water Wells
- Oil Wells
- Gas wells

SCALE 1:24 000



CONTOUR INTERVAL 5 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

ROAD CLASSIFICATION

- Primary highway, hard surface _____
- Secondary highway, hard surface _____
- Light-duty road, hard or improved surface _____
- Unimproved road _____

- Interstate Route
- U. S. Route
- State Route

Mapped, edited, and published by the Geological Survey
Control by USGS and USC&GS

Culture and drainage in part compiled from aerial photographs taken 1946-1947. Topography by plane-table surveys 1951

Polyconic projection. 1927 North American datum
10,000-foot grid based on Texas coordinate system, south central zone
1000-metre Universal Transverse Mercator grid ticks, zone 14, shown in blue

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



Annual Sludge Summary Report Form

- Note 1: If your site has more than one land application field, please submit a separate form for each field.
- Note 2: Please note, in addition to the summary form, you need to submit all information as required by 30 TAC 312.48.
- Note 3: If you operate other registered/permited sludge land application sites, a form should be submitted for each site.
- Note 4: Also send one complete copy of your report and this form to the TCEQ regional office in your area.

For TCEQ Fiscal year _____; Reporting period from September 1, _____, August 31, _____

PERMIT NO.: _____ **DATE:** _____

NAME OF PERMITTEE: _____

MAILING ADDRESS: _____

CONTACT PERSON: Name: _____ Telephone No: _____

Field No(if any): _____ (Please submit a separate form for each field).

1. Sewage Sludge :
 - a.. Land Applied : _____ dry tons/year
 - b.. Disposed Via Monofill : _____ dry tons/year
 - c.. Disposed Via MSW Landfill : _____ dry tons/year
2. Treated Domestic Septage - Land Applied : _____ gallons/year
 - a.. Method used to treat Domestic Septage: _____
3. Water Treatment Plant Sludge:
 - a.. Land Applied: _____ dry tons/year;
 - b.. Dedicated Land Disposal: _____ dry tons/year
 - c.. Disposed Via monofill : _____ dry tons/year

Class A sludge land applied : _____ dry tons / year

Acreage used for Sludge Application/disposal at this site: _____ acres

Site Vegetation (such as grass type etc) and # of cuttings: _____

Sewage Sludge only – Please provide information regarding the following 3 items:-

1. Does any of the sludge you have generated or received NOT MEET the concentration limits for the metals listed in Table 3 of “30 TAC §312.43 (b)? Yes _____ No _____
2. Has your field/site reached or exceeded 90% of the cumulative metal loading rates for any metals as listed in Table 2 of 30 TAC §312.43 (b)? Yes _____ No _____
3. Has sewage sludge been applied to the field/site after 90% of cumulative metal loading rates for any of the metals per Table 2 of “ 30 TAC §312.43 (b)” been reached? Yes _____ No _____

PLEASE MAIL THE COMPLETED ANNUAL REPORT TO :

Texas Commission on Environmental Quality
 Land Application Team (M/C 148)
 Wastewater Permitting Section
 P.O. Box 13087
 Austin, TX 78711-3087

TCEQ

Quarterly Sludge Summary Report Form

- Note 1: If your site has more than one land application field, please submit a separate form for each field.
- Note 2: Please place this sheet at the top of your Quarterly Sludge Report.
- Note 3: If you have more than one permitted site, then fill-out this form for each one of those sites.
- Note 4: Please send a copy of this sheet and all attachments to the local TCEQ regional office.

For TCEQ Quarter _____ Reporting period from _____, to, _____	
PERMIT NO.: _____	DATE: _____
NAME OF PERMITTEE: _____	
MAILING ADDRESS: _____	
CONTACT PERSON: Name: _____ Telephone No: _____	

Field No: _____ (Submit separate form for each field, if site has two or more fields)

- Class B Sewage Sludge Land Applied : _____ dry tons / quarter
 - Treated Domestic Septage - Land Applied : _____ gallons / quarter
 - Method used to treat Domestic Septage: _____
 - Water Treatment Plant Sludge - Land Applied: _____ dry tons /quarter
 - Class A sludge land applied : _____ dry tons / quarter
- a. Acreage used for Sludge Application/disposal at this site:- _____ acres
- b. Site Vegetation (such as grass type etc) and # of cuttings:- _____
- c. Does any of the sludge you have generated or received DOES NOT MEET concentration limits for any of the metals listed in Table 3 of "30 TAC §312.43 (b)"? Yes _____ No _____
- d. Site location: Latitude: _____, Longitude: _____
- e. Site physical address: _____

Please attach the information regarding the following items (Sewage Sludge only):-

- * Please note the following information shall be provided in computer generated report format:
- * Please place check mark before each item below to indicate you have attached that item with this report.

- _____ 1. Metal concentration, pathogen analysis data and vector attraction certifications of sludge for each source.
- _____ 2. Provide a list containing the name and permit number of each source of sludge.
- _____ 3. Date of delivery of each load of sludge land applied.
- _____ 4. Date of land application of each load of sludge.
- _____ 5. The cumulative metal loading rates for any metals as listed in Table 2 of 30 TAC §312.43 (b)?"
- _____ 6. The suggested agronomic rate for the class B sludge.

PLEASE MAIL THE COMPLETED REPORT TO :

Texas Commission on Environmental Quality
 Land Application Team (M/C 148)
 Wastewater Permitting Section
 P.O. Box 13087
 Austin, TX 78711-3087

TCEQ
Attachment E

Information Sources on Phosphorous Risk Management

■ **Certified Nutrient Management Specialists:**

- ▶ "<http://soilcrop.tamu.edu/events/index.html>".

■ **Natural Resource Conservation Service (NRCS) Code 590 Practice Standard:**

This standard addresses the kind, source, placement, form, amount, timing, and application method of nutrients and soil amendments.

- ▶ "<http://www.tx.nrcs.usda.gov/eng/TexasStandards/Final/590tx.pdf>".

■ **Phosphorous Index:** *This is a simple screening tool to rank vulnerability of fields as sources of phosphorous loss to surface runoff.*

- ▶ "<http://www.tx.nrcs.usda.gov/eng/TexasStandards/Final/TxTechnote15.pdf>".

Note: The website addresses could change from time to time. So, please check for the latest addresses for these sites.