

Application for Permit for Beneficial Land Use of Sewage Sludge

ADMINISTRATIVE REPORT

Applicant _____

Permit Number _____

Type of application:

- New (Original, Unpermitted)
- Major amendment with Renewal
- Major amendment without Renewal (Retain current expiration date. Application requirements are limited to those items that relate to the proposed modification.)
- Renewal of existing permit
- Minor amendment to permit (Retain current expiration date. Application requirements are limited to those items that relate to the proposed modification.)

For an application to amend a permit, list the major proposed changes causing the amendment. (i.e., Increase Processing Volume, Request Buffer Zone Variance, Reduce or Remove a Monitoring Requirement or Frequency)

Application Fee:

\$1,000 to \$5,000 based on the quantity of sewage sludge to be applied annually. See the fee schedule in 30 TAC 312.9(g)(4) to determine the appropriate fee. A copy of the check must be submitted as part of the application.

Application Site:

If the land application site is within or adjacent to a publicly-owned wastewater treatment plant (WWTP) and the site is owned or operated by the WWTP, then you can complete this application as part of your Domestic Wastewater Permit application (TCEQ Form 10054). The WWTP's existing Municipal Wastewater permit may be amended to authorize land application. Please contact the Municipal Permits Team at (512) 239-4671.

For Commission Use Only:

Proposed/Current Permit Number _____ Region: _____

Segment Number: _____ County _____ Expiration Date: _____

1. APPLICANT INFORMATION (Instructions, Page 3)

a. Site Operator (Operator must apply for the permit.)

What is the Legal Name of the entity (applicant) applying for this permit?

(The legal name must be spelled exactly as filed with the Texas Secretary of State, County, or in the legal document forming the entity.)

If the applicant is currently a customer with TCEQ, what is the Customer Number (CN)?

Search for your CN at:

<http://www12.tceq.texas.gov/crpub/index.cfm?fuseaction=cust.CustSearch>

CN _____

What is the name and title of the person signing the application?

(The person must be an executive official meeting signatory requirements in TAC 305.43(a).)

Prefix: _____

(Mr. Ms, Miss)

First/Last Name: _____

Suffix: _____

Title: _____ Credential: _____

What is the applicant's mailing address as recognized by the **US Postal Service**? You may verify the address at: <http://zip4.usps.com/zip4/welcome.jsp>

Organization Name: _____

Mailing Address: _____

Internal Routing (Mail Code, Etc.): _____

City: _____ State: _____ ZIP Code: _____

Mailing Information if outside USA

Territory: _____ Country Code: _____ Postal Code: _____

Phone No.: _____ Extension: _____

Fax No.: _____ E-mail Address: _____

Indicate the type of Customer:

- | | |
|--|---|
| <input type="checkbox"/> Individual | <input type="checkbox"/> Sole Proprietorship-D.B.A. |
| <input type="checkbox"/> Limited Partnership | <input type="checkbox"/> Corporation |
| <input type="checkbox"/> Trust | <input type="checkbox"/> Estate |
| <input type="checkbox"/> Federal Government | <input type="checkbox"/> State Government |
| <input type="checkbox"/> County Government | <input type="checkbox"/> City Government |
| <input type="checkbox"/> Other Government | <input type="checkbox"/> Other: _____ |

Independent entity

- Yes
- No *(If governmental entity, subsidiary, or part of a larger corporation)*

Number of Employees:

- 0-20; 21-100; 101-250; 251-500; or 501 or higher

Customer Business Tax and Filing Numbers

(Not applicable to individuals, governments, general partnerships or sole proprietors.

REQUIRED for corporations and limited partnerships)

State Franchise Tax ID Number: _____

TX SOS Charter (filing) Number: _____

Federal Tax ID: _____

DUNS Number (if known): _____

b. Co-Permittee information (complete only if the entity must be a co-permittee)

What is the Legal Name of the entity applying for this permit?

Operator _____

(The legal name must be spelled exactly as filed with the Texas Secretary of State, County, or in the legal document forming the entity.)

If the operator is currently a customer with TCEQ, what is the Customer Number (CN)?

Search for your CN at:

<http://www12.tceq.texas.gov/crpub/index.cfm?fuseaction=cust.CustSearch>

CN _____

What is the name and title of the person signing the application?

(The person must be an executive official meeting signatory requirements in TAC 305.43(a).)

Prefix: _____

(Mr. Ms, Miss)

First/Last Name: _____

Suffix: _____

Title: _____ Credential: _____

What is the applicant's mailing address as recognized by the **US Postal Service**? You may verify the address at: <http://zip4.usps.com/zip4/welcome.jsp>

Organization Name: _____

Mailing Address: _____

Internal Routing (Mail Code, Etc.): _____

City: _____ State: _____ ZIP Code: _____

Mailing Information if outside USA

Territory: _____ Country Code: _____ Postal Code: _____

Phone No.: _____ Extension: _____

Fax No.: _____ E-mail Address: _____

Indicate the type of Customer:

- | | |
|--|---|
| <input type="checkbox"/> Individual | <input type="checkbox"/> Sole Proprietorship-D.B.A. |
| <input type="checkbox"/> Limited Partnership | <input type="checkbox"/> Corporation |
| <input type="checkbox"/> Trust | <input type="checkbox"/> Estate |
| <input type="checkbox"/> Federal Government | <input type="checkbox"/> State Government |
| <input type="checkbox"/> County Government | <input type="checkbox"/> City Government |
| <input type="checkbox"/> Other Government | <input type="checkbox"/> Other: _____ |

Independent entity

- Yes
 No *(If governmental entity, subsidiary, or part of a larger corporation)*

Number of Employees:

- 0-20; 21-100; 101-250; 251-500; or 501 or higher

Customer Business Tax and Filing Numbers

*(Not applicable to individuals, governments, general partnerships or sole proprietors. **REQUIRED** for corporations and limited partnerships)*

State Franchise Tax ID Number: _____

TX SOS Charter (filing) Number: _____

Federal Tax ID: _____

DUNS Number (if known): _____

Provide a brief description of the need for a co-permittee:

c. Individual information *(complete only if the site operator or co-permittee is an individual)*

What is the Legal Name (first, middle, last) of the operator/co-permittee applying for this permit?

If the operator/co-permittee is currently a customer with TCEQ, what is the Customer Number (CN)? Search for your CN at:

<http://www12.tceq.texas.gov/crpub/index.cfm?fuseaction=cust.CustSearch>

CN _____

What is the name and title of the person signing the application?

(The person must be the individual. See signatory requirements in TAC 305.43(a).)

Prefix: _____

(Mr. Ms, Miss)

First: _____ Middle: _____ Last: _____

Suffix: _____

State Identification Number: _____

Date of Birth: _____

Assumed business or professional name: _____

Business name: _____

What is the Individual's mailing address as recognized by the **US Postal Service**? You may verify the address at: <http://zip4.usps.com/zip4/welcome.jsp>

Mailing Address: _____

Internal Routing (Mail Code, Etc.): _____

City: _____ State: _____ ZIP Code: _____

Mailing Information if outside USA

Territory: _____ Country Code: _____ Postal Code: _____

Phone No.: _____ Extension: _____

Fax No.: _____ E-mail Address: _____

2. BILLING CONTACT (Instructions Page 6)

a. Billing Contact and Address Information

*The permittee is responsible for paying the annual fee. The annual fee will be assessed to permits **active on September 1 of each year**. TCEQ will send a bill to the address provided in this section. The permittee is responsible for terminating the permit when it is no longer needed.*

Is the billing address the same as the permittee or co-permittee?

Permittee Co-permittee No, fill out this section

Prefix: _____

(Mr. Ms, Miss)

First/Last Name: _____

Suffix: _____

Title: _____ Credential: _____

Organization Name: _____

Billing Mailing Address: _____

Internal Routing (Mail Code, Etc.): _____

City: _____ State: _____ ZIP Code: _____

Mailing Information if outside USA.

Territory: _____ Country Code: _____ Postal Code: _____

Phone No.: _____ Extension: _____

Fax No.: _____ E-mail Address: _____

3. APPLICATION CONTACT INFORMATION (Instructions, Page 6)

If TCEQ needs additional information regarding this application, who should be contacted?

a. Application Contact

Prefix: _____

(Mr. Ms, Miss)

First/Last Name: _____

Suffix: _____

Title: _____ Credential: _____
 Organization Name: _____
 Mailing Address: _____
 Internal Routing (Mail Code, Etc.): _____
 City: _____ State: _____ ZIP Code: _____
 Mailing Information if outside USA.
 Territory: _____ Country Code: _____ Postal Code: _____
 Phone No.: _____ Extension: _____
 Fax No.: _____ E-mail Address: _____
 Check one or both: Administrative contact Technical Contact

b. Application Contact

Prefix: _____
 (Mr. Ms, Miss)
 First/Last Name: _____
 Suffix: _____
 Title: _____ Credential: _____
 Organization Name: _____
 Mailing Address: _____
 Internal Routing (Mail Code, Etc.): _____
 City: _____ State: _____ ZIP Code: _____
 Mailing Information if outside USA.
 Territory: _____ Country Code: _____ Postal Code: _____
 Phone No.: _____ Extension: _____
 Fax No.: _____ E-mail Address: _____
 Check one or both: Administrative contact Technical Contact

4. PERMIT CONTACT INFORMATION (Instructions, Page 6)

Provide two names of individuals that can be contacted throughout the permit term.

a. Prefix: _____
 (Mr. Ms, Miss)
 First/Last Name: _____
 Suffix: _____
 Title: _____ Credential: _____
 Organization Name: _____
 Mailing Address: _____
 Internal Routing (Mail Code, Etc.): _____
 City: _____ State: _____ ZIP Code: _____
 Mailing Information if outside USA.
 Territory: _____ Country Code: _____ Postal Code: _____
 Phone No.: _____ Extension: _____
 Fax No.: _____ E-mail Address: _____

b. Prefix: _____
 (Mr. Ms, Miss)
 First/Last Name: _____
 Suffix: _____
 Title: _____ Credential: _____
 Organization Name: _____
 Mailing Address: _____
 Internal Routing (Mail Code, Etc.): _____
 City: _____ State: _____ ZIP Code: _____
 Mailing Information if outside USA.
 Territory: _____ Country Code: _____ Postal Code: _____
 Phone No.: _____ Extension: _____
 Fax No.: _____ E-mail Address: _____

5. NOTICE INFORMATION (Instructions, Page 6)

a. Individual publishing the notices

First/Last Name: _____
 Suffix: _____
 Title: _____ Credential: _____
 Organization Name: _____
 Mailing Address: _____
 Internal Routing (Mail Code, Etc.): _____
 City: _____ State: _____ ZIP Code: _____
 Mailing Information if outside USA.
 Territory: _____ Country Code: _____ Postal Code: _____
 Phone No.: _____ Extension: _____
 Fax No.: _____ E-mail Address: _____

b. Method for receiving Notice of Receipt and Intent to Obtain a Water Quality Permit Package

Indicate by a check mark the preferred method for receiving the first notice and instructions:

- E-mail Address: _____
- Fax No.: _____
- Overnight/Priority mail: (self addressed, prepaid envelope required)
- Regular Mail:
 Mailing Address: _____
 Internal Routing (Mail Code, Etc.): _____
 City: _____ State: _____ ZIP Code: _____

c. Contact in the Notice

Prefix: _____
(Mr. Ms, Miss)
First/Last Name: _____
Suffix: _____
Title: _____ Credential: _____
Organization Name: _____
Phone No.: _____ Extension: _____

d. Public Place Information

If the facility and/or outfall is located in more than one county, a public viewing place for each county must be provided.

Public Building name: _____
Location within the building: _____
Physical address of building: _____
City: _____ County: _____
Contact Name: _____
Phone No.: _____ Extension: _____

e. Bilingual Notice Requirements:

For new permit applications, amendment and renewal applications. Not applicable for minor modification applications.

Please call the bilingual/ESL coordinator at the nearest elementary and middle schools and obtain the following information to determine if an alternative language notice is required:

1. Is a bilingual education program required by the Texas Education Code at the nearest elementary or middle school to the facility or proposed facility?
 Yes No (If No, alternative language notice publication is not required; skip to item 6. REPORTING INFORMATION.)

2. Are the students who attend either the elementary school or the middle school enrolled in a bilingual education program at that school?
 Yes No

3. Do the students at these schools attend a bilingual education program at another location?
 Yes No

4. Would the school be required to provide a bilingual education program but the school has waived out of this requirement under 19 TAC §89.1205(g)?
 Yes No

5. If the answer is yes to 1, 2, 3, or 4, public notice in an alternative language is required. Which language is required by the bilingual program?

This section of the application is only used to determine if alternative language notice will be needed. Complete instructions on publishing the alternative language notice will be in your public notice package.

6. REPORTING INFORMATION

Provide the address for receiving any annual sludge report correspondence.

Prefix: _____

(Mr. Ms, Miss)

First/Last Name: _____

Suffix: _____

Title: _____ Credential: _____

Organization Name: _____

Mailing Address: _____

Internal Routing (Mail Code, Etc.): _____

City: _____ State: _____ ZIP Code: _____

Mailing Information if outside USA.

Territory: _____ Country Code: _____ Postal Code: _____

Phone No.: _____ Extension: _____

Fax No.: _____ E-mail Address: _____

7. REGULATED ENTITY AND PERMITTED SITE INFORMATION

If the site of your business is part of a larger business site, a Regulated Entity Number (RN) may already be assigned for the larger site. Use the RN assigned for the larger site. Search TCEQ's Central Registry to see if the larger site may already be registered as a regulated site at: <http://www12.tceq.texas.gov/crpub/index.cfm?fuseaction=regent.RNSearch>

If the site is found, provide the assigned Regulated Entity Reference Number and provide the information for the site to be authorized through this application below. The site information for this authorization may vary from the larger site information.

TCEQ issued RE Reference Number (RN): **RN** _____

- a. Name of project or site (the name known by the community where located):

- b. Is the location of the beneficial land use area used in the existing permit correct?

Yes No

Does the site have a physical address?

If Yes, complete Section A for a physical address.

If No (the location description is not accurate or this is a new permit application, complete), complete Section B for site location information.

Section A: Enter the physical address for the site.

Verify the address with USPS. If the address is not recognized as a delivery address, provide the address as identified for overnight mail delivery, 911 emergencies, or other online map tool to confirm an address.

Physical Address of Project or Site:

Street Number: _____ Street Name: _____

City: _____ ZIP Code: _____

Section B: Enter the site location information.

If no physical address (Street Number & Street Name), provide a written location access description to the site:

(Ex.: located 2 miles west from intersection of Hwy 290 & IH35 accessible on Hwy 290 South)

c. ZIP Code where the site is located: _____

d. County where the site is located _____

Please note that TCEQ cannot issue a class b beneficial land use permit for a land application unit that is located both: (1) in a county that borders the gulf of Mexico (Aransas, Brazoria, Calhoun, Cameron, Chambers, Galveston, Jefferson, Kenedy, Kleberg, Matagorda, Nueces, San Patricio, and Willacy counties); *and* (2) 500 feet or less from any water well or surface water.

e. Latitude: _____ Longitude: _____

f. Owner of the beneficial land use area

If the owner of the beneficial land use area is not the same as the applicant, the owner of the land and the applicant must complete the affidavit found on page 16. (Attach an additional sheet if more than one landowner.)

Prefix: (Mr. Ms, Miss) _____ First/Last Name: _____ Suffix: _____

Organization Name: _____

Mailing Address: _____

Internal Routing (Mail Code, Etc.): _____

City: _____ State: _____ ZIP Code: _____

Mailing Information if outside USA.

Territory: _____ Country Code: _____ Postal Code: _____

Phone No.: _____ Extension: _____

g. In your own words, briefly describe the primary business of the Regulated Entity: (*Do not repeat the SIC and NAICS code*)

h. Is facility located on Indian Land? Yes No

i. Please indicate the size of the **property boundaries** of the site area.

Site Area: _____ Acres, includes the application area and buffer zone.

j. Please indicate the size of the application area: _____ acres, the area where sludge/septage may be applied according to the buffer zone restriction in 30 TAC, Subsection 312.44 (c) and (d).

k. The beneficial land use area is (check one):

within the city limits of _____

Within the extraterritorial jurisdiction of _____

outside the extraterritorial jurisdiction of _____

l. Check the type(s) of waste to be applied:

Wastewater Treatment Plant Sludge

Water Treatment Plant Sludge

Domestic Septage

m. Provide the anticipated date (mm/dd/yy) of the first application of the sludge after issuance or re-issuance of the permit. (Please note that the permit issuance time frame is approximately 330 days after receipt of application). _____

n. Provide a copy of the nutrient management plan that has been prepared by a certified nutrient management specialist, in accordance with the practice standards of the Natural Resources Conservation Service of the United States Department of Agriculture.

o. Provide the name of the County Judge in each County where the site is located (attach separate page if necessary)

Name of County Judge: _____

Mailing Address: _____

Internal Routing (Mail Code, Etc.): _____

City: _____ State: _____ ZIP Code: _____

Phone No.: _____ Name of County: _____

p. Provide a copy of the transporter registration letter.

8. WASTEWATER TREATMENT PLANT OR WATER TREATMENT PLANT INFORMATION: (If multiple facilities are involved, please us an attachment.)

Facility Name	TCEQ Permit Number	Location

9. MISCELLANEOUS INFORMATION (Instructions, Pages 10)

a. List each person formerly employed by the TCEQ who represented your company and was paid for service regarding the application:

b. Do you owe fees to the TCEQ? Yes No

If yes, please provide:

Account number: _____ Amount past due: _____

c. Do you owe any penalties to the TCEQ? Yes No

If yes, please provide:

Enforcement order number _____ Amount past due _____

10. MAPS

a. Provide an original, **full-sized USGS Topographic Map** with all required information. Indicate by a check mark that the information is provided.

- Applicant’s property boundary
- Sewage sludge disposal site
- Irrigation area
- New and future construction
- All ponds
- Water wells, springs, surface water supply intakes, water treatment plants, potable water storage facility, and sewage treatment plants within 1/4 mile radius of sludge disposal/land application site

b. Submit a legible copy of a USDA Natural Resources Conservation Service (NRCS) Soil Map with soil legend indicating the following:

- outline in red the location of the sludge disposal/land application (Exact duplicates of each map must be submitted with each copy of the application)
- indicate the location of each grab sample

- c. Submit a copy of the Federal Emergency Management Agency (FEMA) Map, showing the sludge land application unit (outlined in red) and the surrounding area within one-quarter mile of the unit, with legend.
- d. Submit one original General Highway (County) Map showing all boundaries of the site area.

11. AFFECTED LANDOWNER INFORMATION

Required for **all** permit applications

- a. Indicate by a check mark that the landowners map includes the following:
 - Scale of Map
 - The applicant's property boundaries
 - The location of the beneficial land use area
 - The approximate property boundaries of all landowners located within 1/4 mile of the property boundaries where the beneficial land use area is located
- b. Indicate by a check mark which format the landowners list is submitted:
 - CD 4 sets of labels
- c. The list of landowners is cross referenced to the landowner map and includes the following persons:
 - Landowners who live on land located within 1/4 mile of the property boundaries where the beneficial land area is/will be located
 - OR*
 - All landowners located within 1/4 mile of the property boundaries where the beneficial land area is/will be located
- d. Indicate by a check mark that the list of landowners is cross-referenced to the landowners map.
- e. Provide the source of the landowner's names and mailing addresses:

(Specify: City, County, Tax Records, etc.)

12. INSURANCE INFORMATION

(This information is not required for an applicant that is a political subdivision (e.g., city, county, state agency, water district, etc.)

Note: The insurance policies required by this section must be maintained for the duration of the permit (Permits are normally issued for a term of five years).

- a. **Submit the following document providing evidence of commercial liability insurance:**

- 1). A certificate of insurance in regard to commercial liability, reflecting total coverage of not less than \$3 million per occurrence with an annual aggregate of not less than \$3 million, exclusive of legal defense costs. The certificate must be worded identically to the wording specified in §37.9145 of the Texas Administrative code (relating to Certificate of Insurance for Commercial Liability) or an endorsement worded identically to the wording specified in §37.9150 of the Texas Administrative Code (relating to Endorsement for Commercial Liability). The certificate of insurance must be issued by an insurance company authorized to transact business in the State of Texas and that has a rating of A- or better by A.M. Best Company).

b. Submit the following document providing evidence of environmental impairment insurance:

- 1.) A certificate of insurance in regard to environmental impairment, reflecting total coverage of not less than \$3 million per occurrence with a policy limit of not less than \$3 million, exclusive of legal defense costs. The certificate must be worded identically to the wording specified in §37.9155 of this title (relating to Certificate of Insurance for Environmental Impairment). The certificate of insurance must be issued by an insurance company authorized to transact business in the State of Texas and that has a rating of A- or better by A.M. Best Company).

13. CERTIFICATION

APPLICANT/SITE OPERATOR:

I, _____, _____
(Name) (Title)

understand that I am responsible for operating the site described in the legal description in accordance with the Texas Natural Commission on Environmental Quality (TCEQ) requirements in 30 TAC Chapter 312, the conditions set forth in this application, and any additional conditions as required by the TCEQ. I also certify under penalty of law that all information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine, imprisonment for violations, and revocation of this permit.

Signature: _____ Date: _____
(Use blue ink)

Note: all applications must bear the signature and seal of notary public.

Subscribed and sworn to before me by the said _____

on this _____ day of _____, 20_____.

My commission expires on the _____ day of _____, 20_____.

Notary Public

[SEAL]

County, Texas

COMPLETE THE FOLLOWING ONLY IF THE LANDOWNER IS NOT THE SITE OPERATOR

I, _____, _____
(Name) (Title)

understand that I am responsible for operating the site described in the legal description in accordance with the Texas Natural Commission on Environmental Quality (TCEQ) requirements in 30 TAC Chapter 312, the conditions set forth in this application, and any additional conditions as required by the TCEQ. I also certify under penalty of law that all information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine, imprisonment for violations, and revocation of this permit.

Signature: _____ Date: _____
(Use blue ink)

Note: all applications must bear the signature and seal of notary public.

Subscribed and sworn to before me by the said _____

on this _____ day of _____, 20_____.

My commission expires on the _____ day of _____, 20_____.

[SEAL]

Notary Public

County, Texas

Sewage Sludge Beneficial Use

TECHNICAL REPORT

1. SITE HISTORY INFORMATION

- a. Has sludge/septage been previously applied to this site? Yes No
- b. Please provide a short, typed narrative description of the agricultural plan previously used or that will be used for the land application unit. Indicate by a check mark that all of the following elements are included into the narrative:
- Crops grown Tillage practices
 - Previous sludge application amounts (dry tons) and rates (dry tons per acre)
 - Previous septage application amounts (gallons) and rates (gallons per acre)

2. APPLICATION ACTIVITIES INFORMATION

Please provide a short, typed narrative on the vegetation and/or crops planned. This information was needed to complete the nutrients needed by the vegetation/crops when calculating the Sludge Application Rate (SAR), in Appendix A, based on crop nitrogen needs. Indicate by a check mark that all the following elements are included into the narrative:

- Crops to be grown Incorporated into soil Evenly distributed
- Times per year applied Planting dates Equipment used
- Tillage practices Frequency of application

3. SOIL INFORMATION

a. Complete the table below using the Physical and Chemical Properties and the Engineering Tables found in the USDA NRCS soils descriptions.

Map Symbol	Soil Type	Slope	pH	*Depth to bedrock (inches)	Depth to groundwater (feet)	Permeability (in/hr)	**Soil Depth (inches)

* If depth to bedrock is not specified in soil survey, use the maximum depth shown.

**If soil depth is less than two feet, please provide the rationale for utilizing soils thinner than two feet. The rationale should include site specific investigation results.

Soil Data Table completed by: _____

Data Source(s): _____ Date: _____

List all soils meeting the Restrictive Characteristics (listed below) and management practices to be used:

Soil Type with Restrictive Characteristic	Management Practice

Restrictive Soil Characteristics

Soils with at least an “occasional flooding” classification in the soil legend may flood between 5 and 50 times in 100 years.

Seasonal groundwater or groundwater table shall be below the treatment zone at least:

- 3 feet for soil with permeability of < 2 in/hr;
- 4 feet for soil with permeability of 2-6 in/hr;
- For soil permeabilities of >6 in/hr, the TCEQ will review each case individually.

b. Please include a soil laboratory analysis following the Soil Testing Requirements listed in 312.12(a)(1)(E) and (F) or in Appendix B of the application. A maximum of 80 acres per composite sample per soil type.

4. WELL DATA

Please provide the following for **ALL WELLS** located on and within 500 feet of the land application unit.

Type of Well Example (Water Well)	Action Taken**							
	Producing		Cased*		Plugged		Capped	
	Yes	No	Yes	No	Yes	No	Yes	No
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- * Proper casing is a minimum of 10 feet of casing and cement. (Casing, plugging and capping rules are listed under 30 TAC Section 238.48.)
- ** Action that the site operator assures will be taken on each well before sludge/septage application begins on the site.

Condition of Well

If producing and cased
 If producing and not cased
 If non-producing and cased
 If non-producing and not cased

Action to be Taken

no action necessary.
 case or describe other means of protection.
 must plug or cap before sludge/septage application.
 must plug before sludge/septage application.

For the site water well history, contact the Texas Water Development Board. (512) 936-0837.

For a thorough investigation of other well records, contact the Texas Railroad Commission: Mapping Office (512) 463-6851 or Records Retention Office (512) 463-6882.

5. PATHOGEN REDUCTION REQUIREMENTS

Please indicate by a check mark that **Appendix E** for Pathogen Reduction Options has been completed and attached, according to 312.82(b).

- Appendix E PSRP Certification attached (if required)

6. VECTOR ATTRACTION REDUCTION REQUIREMENTS

Please indicate by a check mark that **Appendix F** for Vector Attraction Reduction Options has been completed and attached, according to 312.83.

- Appendix F

7. SLUDGE TESTING REQUIREMENTS

- a. Please include a sludge laboratory analysis per the Sludge Testing Requirements listed in 312.7 and in Appendix C of the application.
- b. Complete the following **Table 1** using the analysis of the sludge to be land applied. If multiple treatment facilities are involved, please photocopy this page as needed and create a separate attachment to the application. The Commission has the right to randomly request any original lab test results, which you must keep on file at your offices for five years. Also maintain records for TCLPs, QA/QC and chain of custody sheets.
- c. If sewage sludge and/or water treatment plant sludge is obtained from multiple sources, the agronomic rate calculations for the sludge must cover all the sources on a basis proportionate to the amounts to be supplied by each. Please summarize the nutrient and pollutant data for each source on the **Table 2**. If more room is needed, photocopy this **Table 2**. Please only put up to 10 sources on each page, and use the last page for the sums and totals (row at bottom of form).

8. HYDROLOGIC CHARACTERISTICS INFORMATION

Submit information listed below or equivalent documentation regarding the hydrologic characteristics of the surface and ground water at the sewage sludge land application unit and its surrounding area within one-quarter of a mile:

- a. Aquifer identification per report 345 of Texas Water Development Board.
- b. Location of the area according to the geologic atlas of Texas published by Bureau of Economic Geology, University of Texas at Austin.
- c. Any feature that exhibits a direct hydrologic connection between surface and subsurface water.
- d. List periods of seasonal perched and/or high water table if any.

CERTIFICATION STATEMENT FOR ANALYTICAL DATA

Effective July 1, 2008, all laboratory tests performed must meet the requirements of 30 TAC Chapter 25, Environmental Testing Laboratory Accreditation and Certification with the following general exemptions:

- a. The laboratory is an in-house laboratory and is:
 - (1) periodically inspected by the TCEQ; or
 - (2) located in another state and is accredited or inspected by that state; or
 - (3) performing work for another company with a unit located in the same site; or
 - (4) performing pro bono work for a governmental agency or charitable organization.
- b. The laboratory is accredited under federal law.
- c. The data are needed for emergency-response activities, and a laboratory accredited under the Texas Laboratory Accreditation Program is not available.
- d. The laboratory supplies data for which the TCEQ does not offer accreditation.

The applicant should review 30 TAC Chapter 25 for specific requirements. The following certification statement shall be signed and submitted with every application.

I, _____,
 Typed or Printed Name

certify that all laboratory tests submitted with this application meet the requirements of 30 TAC Chapter 25, Environmental Testing Laboratory Accreditation and Certification.

 Sign in blue ink

Date_____

TABLE 1- Pollutant and Nutrient Concentrations in Sewage Sludge (for each source)

Facility Name	TCEQ Permit Number

The concentration listed in column two are from 312.43(b)(1) Table 1.

POLLUTANT/METAL ANALYSIS

Pollutant	Maximum Concentration mg/kg dry weight	Test Results mg/kg dry weight	Sample Date	Detection Level for Analysis	Sample Method
Arsenic (As)	75				
Cadmium (Cd)	85				
Chromium (Cr)	3000				
Copper (Cu)	4300				
Lead (Pb)	840				
Mercury (Hg)	57				
Molybdenum (Mo)	75				
Nickel (Ni)	420				
Selenium (Se)	100				
Zinc (Zn)	7500				
PCB (ppm)	2	(ppm)			

NUTRIENT ANALYSIS

Nutrient	Concentration (%)	Sample Date	Detection Level for Analysis	Sample Method
Total Kjeldahl Nitrogen (TKN)				
Ammonium Nitrogen (NH ₄ -N)				
Nitrate Nitrogen (NO ₃ -N)				
Phosphorus (P)				
Potassium (K)				

TABLE 2 - Volume Weighted Average (Mean) of Nutrient and Pollutant Concentration

INCLUDE ONLY IF MORE THAN ONE SOURCE IS LAND APPLIED

Directions:

1. Multiply the Pollutant Concentrations from Table 1 (previous page) by the number of dry tons you expect to apply from that facility.
2. Sum the individual columns. Enter results in last row of the table.
3. Divide the sum of each column by the dry tons sum (bottom of second column). Enter number in the appropriate Volume Weighted Average Box (row below table).
4. Use these final results to complete the table in Step 1 of Appendix A.

TCEQ Permit No.	Estimated Dry Tons *	Pollutant Concentrations (Table 1) x Dry Tons (mg/kg dry weight)										Nutrient Conc.(Table 1) x Dry tons (%)				
		As	Cd	Cr	Cu	Pb	Hg	Mo	Ni	Se	Zn	TKN	NH ₄ -N	NO ₃ -N	P	K
Sum =																
Volume Weighted Average																

* Total estimated dry tons to be land applied from source facility. (Needed for volume weighted calculation).

APPENDIX A

AGRONOMIC RATE CALCULATIONS

Note: If the agronomic rate exceeds 12 tons/acre/ year, there is likely to be a miscalculation or lab analysis problem. Please check all calculations and analysis before submitting.

PART 1: SEWAGE SLUDGE APPLICATION RATE

Step 1 - Calculate Quantity of Nutrients & Metals in Sludge in Pounds per Ton (# / Ton)

Nutrient	% nutrient in sludge*	Conversion factor	Pounds per ton
Total Kjeldahl Nitrogen (TKN)		x 20	
Ammonium Nitrogen (NH ₄ -N)		x 20	
Nitrate Nitrogen (NO ₃ -N)		x 20	
Total Phosphorus (P)		x 20	
Total Potassium (K)		x 20	

Metal	metal in sludge (mg/kg) *	Conversion factor	Pounds per ton
Total Arsenic (As)		x 0.002	
Total Cadmium (Cd)		x 0.002	
Total Chromium (Cr)		x 0.002	
Total Copper (Cu)		x 0.002	
Total Lead (Pb)		x 0.002	
Total Mercury (Hg)		x 0.002	
Total Molybdenum (Mo)		x 0.002	
Total Nickel (Ni)		x 0.002	
Total Selenium (Se)		x 0.002	
Total Zinc (Zn)		x 0.002	

*Values from the sludge tests (dry weight only).
(Conversions: mg/kg ÷ 10,000 = % ; PPM = mg/kg)

Step 2 - Soil Test Analysis and Fertilizer Recommendations

Note: Please include a fertilizer recommendation from the local County Extension Service or equivalent source for determining the nutrient needed by the specified crop(s).

Yield Goal(s): _____ pH: _____

Warm Season Intended Crop(s): _____

Cool Season Intended Crop(s): + _____

Total Nutrient Needed by crop for specific yield goal:
 _____ (Include in Line A)

	<u>N (lbs/Acre)</u>
A. Nutrient needed by crop for specific yield goal**	_____
B. Nutrient available in soil (lbs/acre) [= 2 x NO ₃ -N(ppm)(0-6" soil depth) + 6 x NO ₃ -N(ppm)(6-24" soil depth)] **	_____
C. Nutrient amount still needed [Nutrient needed - Nutrient available] (enter this amount in Step 4 A.)	_____

**Please provide the means of determining these values.

Step 3 - Calculate the Plant Available Nitrogen (Pan) Provided By the Sludge

(Use the values for TKN, NH₄-N, and NO₃-N from Step 1.)

- A. Organic Nitrogen = TKN - (NH₄-N) - (NO₃-N) = _____
 (Multiply by percent values in Appendix C for PAN) x _____ % = _____
- B. Ammonium Nitrogen (NH₄-N) x V = _____ x _____ = + _____
 Use Volatilization factor (V) = 0.5 if sludge is left on soil surface;
 Use Volatilization factor (V) = 1.0 if sludge is worked into soil.
- C. Nitrate Nitrogen (NO₃-N) = _____ + _____
- D. 3A. + 3B. + 3C. = (enter this amount in Step 4B.) Total PAN = _____

Step 4 - Calculate Maximum Sludge Application Rate Based on Crop Nitrogen Needs (SAR_N)

- A. Enter amount from Step 2C. Nitrogen amount still needed: _____ lbs/acre/year
 B. Enter amount from Step 3D. Total PAN in sludge: _____ lbs/ton
 C. Sludge Application Rate (SAR_N) = A ÷ B = _____ ÷ _____ = _____ tons/acre/year

Step 5 - Calculate Maximum Sludge Application Rate Based On Metals (SAR_M)

	A	B	C	D	E	F
	CUMULATIVE METAL LIMITS (lbs/acre)	MAX METAL LOADING/YR (lbs/ac/yr)	METALS IN SLUDGE (lbs/ton)	METALS APPLIED YEARLY AT SAR _N (lbs/acre/yr)	SLUDGE APPLIED YEARLY AT SAR _M (tons/acre/yr)	MAX SLUDGE LOADING RATE (tons/acre)
METAL	Appendix C	Appendix C	(Step 1)	(C x SAR _N)	(B ÷ C)	(A ÷ C)
Arsenic	36	1.8				
Cadmium	35	1.7				
Chromium	2677	134				
Copper	1339	67				
Lead	268	13				
Mercury	15	0.76				
Molybdenum	Monitor	Monitor				
Nickel	375	18.7				
Selenium	89	4.5				
Zinc	2500	125				
Other						

Note: For each metal, if the value in column B is greater than the value in column D (B>D), the SAR_n dictates the maximum sludge application rate. Therefore, indicate N/A in column E. If however the value in column B is less than the value in column D (B<D), then the SAR_m dictates the maximum sludge application rate and the value is E = B ÷ C.

Step 6 - Calculate Cumulative Loading Rate

- A. Maximum allowable cumulative sludge loading rate (lowest value in Step 5, column F): _____ tons/acre
 B. Previous applications of sludge: _____ tons/acre
 C. Remaining sludge application rate to reach metal limits (6A - 6B) _____ tons/acre
 D. Maximum allowable sludge application rate (Lowest value of step 4C and step 5 column E) _____ tons/acre/year
 E. Years remaining to reach the maximum cumulative loading (6C ÷ 6D) _____ years

PART 2: SEPTAGE APPLICATION RATE

Step 1 - Soil Test Analysis and Fertilizer Recommendations

Note: Please include a fertilizer recommendation from the local County Extension Service for determining the nutrient needed by the specified crop(s).

Yield Goal(s): _____ pH: _____

Warm Season Intended Crop(s): _____

Cool Season Intended Crop(s): + _____

Total Nutrient needed by crop for specific yield goal: _____
(Include in Line A)

	<u>N (lbs/Acre)</u>
Nutrient needed by crop for specific yield goal**	_____
Nutrient available in soil (lbs/acre) [= 2 x NO ₃ -N(ppm)(0-6" soil depth) + 6 x NO ₃ -N(ppm)(6-24" soil depth)]**	- _____
Nutrient amount still needed	= _____

**Please provide the means of determining these values.

Step 2 - Calculate Annual Application Rate Based on Nitrogen Requirements of Crop in Gallons per Acre per 365 Day Period

AAR = N (Line C) ÷ 0.0026 = _____ ÷ 0.0026 = _____ gal/acre/year

AAR = Annual application rate in gallons per acre per 365 day period.

N = Amount of nitrogen in pounds per acre per 365 day period for the crop or vegetation grown on the land.

Part 3: - Proportionate Agronomic Rate when both Septage and Sludge are applied in the Same Year or When Other Fertilizer is used

Since the agronomic rate for beneficial land use is based on the nutrient requirements of the crop intended for production, the individual rate for septage or sludge must be adjusted when other materials are used as fertilizers. If only one material and no other type of fertilizer is used, this step is not needed and the amount calculated above is the agronomic rate. Otherwise, use the following formulas to complete the actual agronomic rates:

Sewage Sludge:

- A. Calculated agronomic rate for sewage sludge _____
tons/acre/year
- B. Percentage of plant nutrient supplied by sludge = _____ ÷ 100 = _____
- C. Multiply Line A by Line B _____
tons/acre/year

Domestic Septage:

- A. Calculated agronomic rate for domestic septage _____
gallons/acre/year
- B. Percentage of plant nutrient supplied by septage = _____ ÷ 100 = _____
- C. Multiply Line A by Line B _____
gallons/acre/year

APPENDIX B

SOIL TESTING INFORMATION

Procedures:

- 1) Soil samples shall be taken prior to any application of commercial fertilizer. Do not use a galvanized container as this could give a false reading on zinc. Samples will need to be taken within the same 45 day time-frame each year, or by an approved sampling plan and analyzed within 30 days of procurement. The initial soil sample for application approval may be taken whenever necessary.
- 2) **Attach a map which clearly delineates where the soil samples were taken on the site.** It must match the scale of the soil survey map submitted with the application. The soil analysis data submitted must be clearly cross referenced to the location of the sample(s).
- 3) Composite samples shall be comprised of 10 - 15 random sample cores taken from each of the following soil depth zones: 0-6 inches and 6-24 inches.
- 4) Obtain one composite sample for each soil depth per 80 acres and per uniform soil type (soils with the same characteristics and texture) within the 80 acres, or per approved soil sampling plan.
- 5) Soil samples shall be submitted to a soil testing laboratory along with a previous crop history of the site, intended crop growth and yield goal. Soil reports shall include fertilizer recommendations for the crop yield goal.
- 6) Below are the parameters and soil sample depths to be taken to obtain the background samples. Submit copies of the laboratory reports for all required tests.

Monitoring Requirements

Parameter	Sample Depth		
	0-6 "	6-24"	
1. Nitrate Nitrogen (NO ₃ -N, mg/kg)	X	X	
2. Ammonium Nitrogen (NH ₄ -N, mg/kg)	X	X	
3. Total Kjeldahl Nitrogen (TKN, mg/kg) (1)	X	X	Please be advised that the maximum acceptable soil concentrations of metals are listed below. These rates are based on the maximum cumulative loading rates found in §312.43 Table 2-Cumulative Metal Loading Rate.
4. Phosphorus (plant available, mg/kg) (2)	X	X	
5. Potassium (plant available, mg/kg) (2)	X	NA	
6. Sodium (plant available, mg/kg) (2)	X	NA	
7. Magnesium (plant available, mg/kg) (2)	X	NA	
8. Calcium (plant available, mg/kg) (2)	X	NA	
9. Electrical Conductivity (3)	X	NA	
10. Soil Water pH (S.U.) (4)	X	X	
11. Total Arsenic (mg/kg)*	X	NA	Arsenic
12. Total Cadmium (mg/kg)*	X	NA	Cadmium
13. Total Chromium (mg/kg)*	X	NA	Chromium
14. Total Copper (mg/kg) *	X	NA	Copper
15. Total Lead (mg/kg)*	X	NA	Lead
16. Total Mercury (mg/kg)*	X	NA	Mercury
17. Total Molybdenum (mg/kg)*	X	NA	Molybdenum
18. Total Nickel (mg/kg)*	X	NA	Nickel
19. Total Selenium (mg/kg)*	X	NA	Selenium
20. Total Zinc (mg/kg) *	X	NA	Zinc

Metal	Soil Concentration Limit (mg/kg-soil)
Arsenic	20.5
Cadmium	19.5
Chromium	1500
Copper	750
Lead	150
Mercury	8.5
Molybdenum	monitor
Nickel	210
Selenium	50
Zinc	1,400

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 (yields plant-available concentrations) with inductively coupled plasma.
 3. Electrical Conductivity (EC) - determine from extract of 2:1 (volume/volume) water/soil mixture and expressed in ds/m (same as mmho/cm).
 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 9045C - determine from extract of 2:1 (volume/volume) water/soil mixture.
- * 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.

**APPENDIX C
SLUDGE TESTING INFORMATION**

Testing Parameters (dry weight basis) for Municipal Wastewater Sludge and Water Treatment Plant Sludge

<u>Nutrients (%)</u>	<u>Metals (mg/kg)</u>	<u>Metals (continued)</u>	<u>Other</u>
1) Total Kjeldahl Nitrogen	6) Total Cadmium	11) Total Arsenic	16) Total PCBS
2) Ammonium-Nitrogen	7) Total Copper	12) Total Chromium	
3) Nitrate-Nitrogen	8) Total Lead	13) Total Mercury	
4) Total Phosphorus	9) Total Nickel	14) Total Molybdenum	
5) Total Potassium	10) Total Zinc	15) Total Selenium	

- Complete Table 1 (page 5) using the metal and nutrient data for the sludge. If accepting sludge from **multiple sources**,
(A) perform a new sludge analysis on the mixed sludge if blended before land application, or
(B) use Table 2 (page 6) to determine the volume weighted average (mass balance) which will accurately reflect the amount of metals contributed by each facility.
- The metal and nutrient tests shall be used to calculate the Maximum Sludge Application Rate and Site Life in Appendix A (or a similar form). These tests and calculations will also be required in an **annual report** for the permitted site.
- Copies of **all laboratory test data** with Quality Control (QA/QC) and Chain of Custody sheets must be **kept on file** at the site operator's place of business for at least **five (5) years** and can be requested by TCEQ at any time.
- Include the most recent full Toxicity Characteristic Leaching Procedure (TCLP) analysis for each wastewater treatment plant source.**

Maximum Loadings & Concentrations

(Values Used in Appendix A, Step 5, Columns A and B)

If background *soil* metal concentrations exceed the loadings listed below, then land application is **only** possible if sludge concentrations are below the concentrations found in Table 3 of 30 TAC Subsection 312.43(b)(3).

If the concentration of any metal in the sewage sludge exceeds the ceiling concentration for metal, then the land application of that sludge the metal, then land application of that sludge is prohibited.

<u>Pollutant</u>	<u>Cumulative Loading Table 3(312.43(b)(3)) (pounds per acre)</u>	<u>(mg/kg)</u>	<u>Metal Ceiling Concentration (mg/kg)</u>
Arsenic	36	41	75
Cadmium	35	39	85
Chromium	2,677	1200	3,000
Copper	1,339	1500	4,300
Lead	268	300	840
Mercury	15	17	57
Molybdenum	Monitor	Monitor	75
Nickel	375	420	420
Selenium	89	36	100
Zinc	2,500	2800	7,500

Sludge Organic Nitrogen Mineralization Rates For Year Following Application

Unstabilized Primary and Waste Activated Sludge	(Estimated Values)* 40 %
Aerobically Digested Sludge	30 %
Anaerobically Digested Sludge	20 %
Composted Sludge	10 %

*(Use these values in Appendix A, Step 3-A)

APPENDIX D ON-SITE STORAGE

If on-site storage will occur at the site, this Appendix must be completed in its entirety. On-site storage does not include staging of sludge or Septage for up to seven (7) days prior to applying it. On-site storage cannot exceed the 90-day maximum per 30 TAC §312.50 unless properly authorized for each instance. Construction of the storage area cannot begin until written authorization for this action is received from the TCEQ. The on-site storage area must be shown on the U.S.G.S. topographic map submitted with the application, including the major features of the storage area (berms, tanks, pads, liners, storm water retention, etc.). Materials cannot be treated without proper authorization from the TCEQ. Provide the following information:

- a. A complete description of operational plans for the temporary storage including all steps to be taken to control odors, vectors and other nuisance conditions.
- b. The location of the temporary storage area(s) must be accurately shown on the U.S.G.S, topographic map submitted with the application, including all main features of the storage area(s). The intent of this requirement is to provide enough detail on the map to ensure adequate measures are taken to protect the environment.
- c. Liner and storage tank certification as per 30 TAC §312.50(a)(4), or 312.50(a)(8).
- d. A full explanation of proposed spill prevention and cleanup methods.

A certification that the berm(s) will hold the required volume(s) without discharging as per 30 TAC §312.50 (a)(7).

- e. A full description of the method for storm water runoff collection and disposal.
- f. Describe methods to be used to ensure no loads of sludge remain at the temporary storage site for longer than 90 days, including how exceptions to this restriction will be requested (as provided by 30 TAC §312.50) when needed.

**APPENDIX E
PATHOGEN REDUCTION OPTIONS**

Description:

Please indicate which pathogen reduction alternatives (as stated in §312.82) will be used prior to land application of the sewage sludge/septage.

If **multiple** treatment **facilities** are involved, please indicate which alternative is applicable for **each** sludge source facility.

TCEQ Permit Number	Alternative Utilized	Fecal Coliform Geometric Mean (cfu/gram total solids)*	Fecal Test Date*	PSRP Certification Attached?
<i>Example -WQ11280-001</i>	<i>Option 1 - Density of Fecal Coliform</i>	<i>300,000 cfu/g</i>	<i>8/02/98</i>	<i>N/A</i>
<i>Example -WQ13450-003</i>	<i>Option 2a - PSRP Alternative-Aerobic Digestion</i>	<i>N/A</i>	<i>N/A</i>	<i>Yes</i>

*If Applicable

CLASS B Pathogen Reduction Alternatives

1. Density of fecal coliform
2. Processes to Significantly Reduce Pathogens (PSRP**): (40 CFR Part 503 Appendix B)
 - a. Aerobic digestion
 - b. Air drying
 - c. Anaerobic digestion
 - d. Composting
 - e. Lime stabilization
 - f. Addition of lime (Only option for domestic septage)
 - g. Other (please explain) _____

** Please provide additional sludge testing information or certifications required in §312.82.

**APPENDIX F
VECTOR ATTRACTION REDUCTION OPTIONS**

Description:

Please indicate the vector attraction reduction options (as stated in §312.83) that will be implemented prior to or after land application of the sewage sludge/septage. If **multiple** treatment **facilities** are involved, please indicate which alternative is applicable for **each** sludge source facility.

TCEQ Permit Number	Alternative Utilized	Monitoring criteria and results needed for alternative
<i>Example - WQ11280-001</i>	<i>Option 10 - Sludge incorporated within 6 hours of application</i>	<i>Visual inspection of area after tilling</i>
<i>Example - WQ13450-003</i>	<i>Option 4 - SOUR Test</i>	<i>Aerobically digested, 2.0% solids, SOUR=1.3 mg/g</i>

Vector Attraction Reduction Alternatives

Sludge Treatment Alternatives

- Option 1. volatile solids reduced by 38 percent
- Option 2. Lab demonstration of volatile solids reduction anaerobically.
- Option 3. Lab demonstration of volatile solids reduction aerobically.
- Option 4. SOUR≤1.5 mg O₂/hour/g total solids at 20C (< 2% solids).
- Option 5. Aerobic process for 14 days at > 40C (45C average).
- Option 6 . pH to ≥ 12 for 2 hours and retain at 11.5 for 22 hours.
- Option 7 . Stabilized sludge is ≥75 percent solids
- Option 8 . Unstabilized sludge is ≥90 percent solids.

Onsite Alternatives

- Option 9 . Subsurface injection.
- Option 10. Incorporation within 6 hours

Domestic Septage Alternative (only option):

- Option 12. Raise pH to greater than 12 for at least 30 minutes.