November 15, 2016

Ms. Daniela Ortiz de Montellano, Project Manager
Texas Commission on Environmental Quality
Municipal Solid Waste Permit Section (MC-124)
Waste Permits Division
12100 Park 35 Circle, Bldg. F
Austin, Texas 78753

Re: Response to Permit Application Notice of Deficiency dated September 1, 2016
Sealy Composting Facility – Austin County
Municipal Solid Waste – Permit No.2388
Tracking Nos. 20017868, 20508872, and 20694677; CN603436114/RN108878331

Dear Ms. Montellano:

On behalf of SouthWaste Disposal, LLC (SouthWaste), Daniel B. Stephens & Associates, Inc. (DBS&A) is providing responses to the Texas Commission on Environmental Quality (TCEQ) comments in the referenced notice of deficiency (NOD) letter dated September 1, 2016. For clarity purposes, the TCEQ comments are reproduced in italics; DBS&A responses immediately follow each comment.

Part II Comments

TCEQ Item 1: *Section 16.2, Vehicular Traffic Volume, indicates that the projected initial vehicular traffic volume generated by the Sealy facility used the data of the current vehicular traffic volume at the permitted composting facility located in San Antonio, Texas (operated by SouthWaste). Please provide vehicular traffic volume projection based on traffic data relevant to the Sealy Compost site.*

Section 16.2 has been revised to project the vehicular traffic volume relevant to facility operations at the Sealy Composting site.

Part III Comments

TCEQ Item 2: *On August l, 2016, we received a letter from the Department of the Army requesting more information to determine if a permit is required in regards to the proposed compost operation. A copy of their letter is enclosed for your review and response. In addition, please provide copies of the correspondence letter sent to and from the Department of the Army in the application.*

In response to the Department of the Army's letter dated August 1, 2016, a Waters of the U.S. (WOTUS) Delineation and Jurisdictional Determination for the Sealy facility was completed on October 14, 2016. The WOTUS delineation identified one wetland within a manmade stock pond impoundment and two swales that guide storm water runoff toward the impoundment. These aquatic features appear to have been constructed in an upland area that does not have a current or historical hydrologic connection to a navigable water.

Daniel B. Stephens & Associates, Inc.
4030 W. Braker Lane, Suite 325 512-821-2765
Austin, TX 78759 FAX 512-821-2724

None of the aquatic features at the facility meet the current definition of a WOTUS under the Code of Federal Regulations Title 33, Chapter 2, Part 328.3e (33 CFR 328.3e). The aquatic features also do not meet the definition of WOTUS published in the Federal Register, Vol. 80, No. 124, June 29, 2015 (Clean Water Rule). Based on these findings, the proposed construction of the Sealy Composting Facility does not require a Section 404 Clean Water Act (CWA) permit or Section 10 River and Harbors Act of 1899 permit.

On October 14, 2016, a letter was submitted to the U.S. Army Corps of Engineers (USACE) requesting an approved jurisdictional determination (AJD). The AJD is necessary to provide confirmation that no permit is required for the proposed activity.

The WOTUS Delineation and Jurisdictional Determination report and correspondence letter have been added as Appendix S of the application.

TCEQ Item 3: *Section 23.3, Procedure for Closure of Facility by Owner/Operator, should include all the closure activities that the owner/operator will conduct at closure. Please include a statement addressing the backfill and compaction of soil material for the compost pad retention pond and tests required for maturity and final compost product parameters, as applicable and revise Section 23.3 accordingly.*

Section 18.6, discussing post-processing, has been revised to refer to the sections in Part IV regarding maturity and final product testing. Section 23.3.1 has been revised to include language on required testing for compost materials to be used during revegetation. Section 23.3.3 has been added to address backfill and compaction for the compost pad retention pond.

TCEQ Item 4: *Appendix N, Closure Cost Estimate, please address the following:*

a) *The removal and spread of the soil of earthen berms to be used on-site for grading and backfill indicates $0. Please provide the cost associate with this closure activity.*

The line item for berm removal is $0 because this material will not be removed and hauled off-site, but will instead be reused for backfill. Earthwork activities associated with moving this material and placing it in the compost pad for backfill is already accounted for in the $95,570 line item in the first section of the cost estimate.

b) *Please include the cost associated with the sampling and analysis of soil and groundwater in accordance with the closure sampling and analysis plan presented in Section 23.4.*

Costs have been included to cover soil and groundwater sampling at closure.

c) *Please revise Item 8 to ensure that any remaining finished compost materials will be used during revegetation and not "any remaining on-site compost materials ..."*

Line item 8 on the closure cost summary page has been revised to state that finished compost materials will be used during revegetation.

d) Please include the cost associated with the tests required to determine maturity and final compost product parameters, as applicable.

Costs have been included to cover maturity and final product sampling at closure.

An original and three copies of the application revisions are included with this letter. The application revisions were prepared in a format that allows for the replacement of application pages with the revised pages. Revisions were made in accordance with to 30 TAC §330.57(g)(6). Should you have any questions or comments, please do not hesitate to contact me at (512) 651-6019.

Sincerely,

DANIEL B. STEPHENS & ASSOCIATES, INC.

Ben Camacho
Compliance and Permitting Specialist

cc: TCEQ Region 12 Office, Houston, TX
Mr. Tim Cox, Vice President of Operations, SouthWaste Disposal, LLC

SouthWaste Disposal, LLC.

Sealy Composting Facility

Municipal Solid Waste Permit

Application (Permit No. 2388)

Austin County, Texas

Submitted to **Texas Commission on Environmental Quality**
Austin, Texas

November 16, 2015

Revised
May 27, 2016,
August 10, 2016,
November 15, 2016

Daniel B. Stephens & Associates, Inc.

Texas Registered Engineering Firm F-286
Registered Texas P.G. Firm #50045

4030 W. Braker Lane, Suite 325 • Austin, Texas 78759

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List of Acronyms

ADT	average daily traffic
ALU	aquatic life use
Avg	average
BACT	best achievable control technology
BOD	biological oxygen demand
CCN	Certificate of Convenience and Necessity
cfh	cubic feet per hour
cfm	cubic feet per minute
CR	County Road
CSAP	Closure Sampling Plan
EPA	United States Environmental Protection Agency
EQ	exceptional quality
°F	Fahrenheit degrees
FM	Farm to Market Road
ft bgs	feet below ground surface
gpm	gallons per minute
GSS	grease trap waste/septic/sewage sludge
hp	horse power
in	inch(es)
kips	kilo pounds per inch
MSDS	Material Safety Data Sheet
MSS	maintenance, start up, and shut down
MSW	municipal solid waste
SIC	Standard Industrial Classification
NAICS	North American Industry Classification System
NIST	National Institute of Standards and Technology
OSSF	on-site sewage facility

List of Acronyms (continued)

pci	pounds per cubic inch
plf	pounds per linear feet
psi	pounds per square inch
PWS	public water system
RCRA	Resource Conservation and Recovery Act
SC-SM	silty, clayey sand
SIC	Standard Classification
SO_2	sulfur dioxide
SOP	Standard Operating Procedures
SSO	sanitary sewer overflows
SUD	Sewer Use District
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
THSC	Texas Health and Safety Code
TLAP	Texas Land Application Permit
TPDES	Texas Pollution Discharge Elimination System
TWC	Texas Water Code
TXDOT	Texas Department of Transportation
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VCP	Vector Control Program
yd	yard(s)

SouthWaste Disposal, LLC.
Sealy Composting Facility
Municipal Solid Waste Permit Application

PART I

Application Submittal Date: November 16, 2015

Revised: May 27, 2016, August 10, 2016, and November 15, 2016

Project Information

MSW Permit # 2388 ***RN: 108878331***

Project Name: Sealy Composting Facility

Project Location: Intersection of Bartlett Road and Brazos 10 Lane, Austin County, Texas.
Near San Felipe, Texas.

Project Description: Project is a composting facility that processes compostable municipal solid waste such as grease trap waste/septic/sewage sludge and distributes final product for sale.

Project Location Description: The facility is located in a rural area east of the corporate city limits of San Felipe, Texas, near the intersection of Bartlett Road and Brazos 10 Lane.

Applicant Information

CN: 603436114

Owner/Operator: SouthWaste Disposal, LLC.

Address: 9575 Katy Freeway, Suite 130 Houston, Harris County, Texas 77024

Telephone: 866-413-9494

Email: tcox@southwaste.com

Fed Tax ID: 203596390

Preparer Information

Firm: Daniel B. Stephens & Associates, Inc.
(Texas Registered Engineering Firm F-286; Registered Texas P.G. Firm #50045)

Preparer: Benjamin Camacho

Engineer: Thomas Golden, P.E.

Address: 4030 West Braker Lane, Suite 325, Austin, Texas 78759

Telephone: 800-933-3105

Email(s): bcamacho@dbstephens.com & tgolden@dbstephens.com

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Part I *This document constitutes the requirements of 30 TAC §330.59 for a composting facility.*

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Part I

List of Acronyms

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plf	pounds per linear feet
psi	pounds per square inch
PWS	public water system
RCRA	Resource Conservation and Recovery Act
SC-SM	silty, clayey sand
SDS	Safety Data Sheet
SIC	Standard Classification
SO_2	sulfur dioxide
SOP	Standard Operating Procedures
SSO	sanitary sewer overflows
SUD	Sewer Use District
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality

THSC	Texas Health and Safety Code
TLAP	Texas Land Application Permit
TPDES	Texas Pollution Discharge Elimination System
TWC	Texas Water Code
TXDOT	Texas Department of Transportation
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VCP	Vector Control Program

Section 1. Facility Permit Requirements

The SouthWaste Disposal, LLC Sealy Composting Facility (the Facility) will generate approximately 5,200 cubic yards of finished compost per month and is required to obtain a permit for the composting operations. The Facility requires a permit and is subject to 30 TAC §330, 30 TAC §332, and other sundry rules.

The Facility will consist of bulk material chipping and storage areas, a lined grease trap waste/septic/sewage sludge (GSS) processing area (composting pad), a composting area for other approved non-GSS waste, a compost pad retention pond, a post-processing area, aboveground feedstock storage tanks, and office areas (which include toilet and potable water facilities). GSS composting and curing processes will be restricted to the lined GSS processing area. Yellow grease processing may be added to future operations, which would be discussed in a future permit modification.

1.1 Municipal Solid Waste

1.1.1 Permit Applicability

The Facility will store, handle, process, and dispose of municipal solid waste (MSW). This application is for a new composting permit to process GSS and non-GSS waste and to compost the solids from these waste sources. Other activities performed within the Facility boundaries that do not require a permit under 30 TAC §332 include the use of tankage/equipment related to a liquid waste transfer station, storage and composting of food wastes, and chipping and grinding operations. These activities will be incorporated as part of this Facility permit. The Facility is not a medical waste mobile treatment or a mobile treatment unit.

Compliance information is discussed in the Site Development Plan presented in Part III of this application. This Facility does not store combustible material and is not required to comply with TAC §37, Subchapter J. Groundwater monitoring may be required by the Executive Director and will be maintained in accordance with the requirements of §330 Subchapter J, if required.

1.1.2 MSW Permits

1. Municipal Solid Waste Facilities TAC §30§330
    a. 30TAC §330.1 (d): The Facility will compost MSW in accordance with the requirements of 30TAC §332, but is required to apply for a permit in accordance with 30TAC §332.3(a). The application will follow the applicable requirements of 30TAC §330 Subchapter B.
2. 30TAC §332: Composting

1.1.3 Water and Storm Water

1. Spill Prevention and Control 30TAC §327
2. TPDES Multisector General Permit TXR050000 – Storm Water
    a. Sector C: Chemical and Allied Products

1.1.4 Air Quality

1. RULE §106.4 Requirements for Permitting by Rule
2. RULE §106.472 Organic and Inorganic Liquid Loading and Unloading
3. Composting Standard Permit Rule §332.8 Air Quality Requirements

1.1.5 Miscellaneous

4. Financial Assurance 30TAC §37
5. Public Notice 30TAC §39

1.2 Texas State Laws

6. Texas Solid Waste Disposal Act, Texas Health and Safety Code (THSC) Chapter 361
7. Texas Litter Abatement Act, THSC Chapter 365
8. Texas Toxic Chemical Release Reporting Act, THSC Chapter 370
9. Texas Clean Air Act, THSC Chapter 382
10. Texas Water Code (TWC) Chapter 26 (relating to Water Quality Control)

Section 2. Operation and Process Summary

The Facility will divert organic materials from typical MSW streams for beneficial reuse while maintaining standards for human health and safety and environmental protection. The Facility will produce compost from non-hazardous MSW. The Facility is required to obtain a compost permit.

The quantity of incoming liquid feedstock to be received will not exceed 72 million gallons per year. This quantity is 930 tons per day (22,300 tons per month, assuming 24 operating days per month) or 250,000 gallons per operating day (assuming 7.44 pounds per gallon typical for grease trap waste). Grease trap waste is expected to account for approximately 90 percent of the incoming feedstock at this Facility. The other feedstock accepted at the Facility will include municipal sewage sludge, food processing waste, and septage wastewater. The bulking material used in the process will be chipped and shredded wood and vegetation. Bulking material will be received either chipped or screened or in raw form, in which case it will be chipped on the property. Up to 32,000 cubic yards of bulking materials may be in-process on the compost pad at any point in time. Due to reduction in volume from maturation and screening, this volume results in approximately 15,680 cubic yards of finished compost. All materials entering the Facility, both feedstock and bulking material, will be screened on entry for unauthorized materials.

Both pre-chipped and shredded bulking material and raw bulking material will be delivered by truck to the Facility. Raw bulking materials will be stored and then chipped and screened at a

designated area. The Facility will be equipped with a chipper/grinder to chip and grind raw bulk material. The chipper/grinder will be equipped with low-velocity spray nozzles to minimize the generation of dust during operation. The chipped and shredded bulking material will be placed on the processing areas in windrows using a front-end loader.

The liquid feedstock will be pumped either into aboveground storage tanks for temporary storage or to the Facility vacuum truck or equivalent to be sprayed directly onto prepared windrows of bulking material located within the processing areas. The storage capacity of the aboveground tanks will allow the liquid feedstocks to be applied in a consistent manner and will provide additional feedstock storage capacity that can be used during periods of rainfall that limit feedstock application. No feedstock will be accepted in excess of the available capacity of the storage tanks.

Feedstock material will be applied to the windrows using a vacuum truck or equivalent. Once the feedstock is applied to a windrow, the windrow will be immediately turned, mixed, and homogenized using a self-propelled tiller to thoroughly mix feedstock and bulking material. This process allows the feedstock material to be evenly distributed throughout the windrows and prevents moisture or liquids from collecting at the base of the compost material. Once a windrow is considered to have the appropriate moisture content and mixture of bulking material and feedstock, then the temperature within the mixture throughout the windrow will be monitored.

After the monitoring period, the final composted product will be placed in a stockpile on the lined processing area for curing. Each batch of final product will be placed in a separate stockpile and assigned a batch number. Each batch will be physically separated to prevent co-mingling of different batches and will be tested for maturity and final product parameters. Batches that do not meet the maturity parameters will remain on the processing area and continue to be monitored until the maturity parameters are reached. Batches that meet the maturity parameters but do not meet the final product parameters for either Grade 1 or Grade 2 compost (waste grade compost) will be disposed off-site at an authorized MSW facility. Compost will initially be sold in bulk form. However, the facility may sell containerized compost at some time in the future.

Section 3. Facility Location

3.1 Location

Project Name: SouthWaste Disposal, LLC Sealy Composting Facility

Project Location: Northwest corner of Bartlett Road and U.S. Interstate 10 in Austin County, Texas

Project Location Description: The Facility is located in a rural area east of the corporate city limits of San Felipe, Texas, near the intersection of Bartlett Road and Brazos 10 Lane.

3.2 Access Routes

Route 1: Traversing on U.S. Interstate 10, exit onto Bartlett Road and turn north on Bartlett Road. Then turn west on Brazos 10 Lane for approximately 0.25 mile. The Facility is located adjacent to Brazos 10 Lane on the south.

3.3 Geographic Coordinates

The latitude and longitude of the approximate centroid of the property are 29° 46' 33.55" North and –96° 04' 41.00" West, respectively (North American Datum of 1983).

Section 4. Maps

4.1 General Location

The Site is located near the city of San Felipe, just east of the city of Sealy, in Austin County, Texas. See Figure 1 for a Facility Location Map. The Facility Location Map is scaled at ½ inch equals 1 mile. The property boundaries and longitudinal and latitudinal coordinates have been overlaid on the enlarged map. The Facility location map accurately shows proximity to surrounding features.

The property is 32.209 acres in size and irregular in shape.

4.2 General Topographic Map

The Topographic Map (Figure 2) is an excerpt of United States Geological Survey 7½-minute quadrangle sheets as an equivalency for the facility. The topographic map is at a scale of 1 inch equals 2,000 feet (1:24,000).

4.3 Land Use

The Land Use Map (Figure 3), on a scale of 1 inch equals ½ mile, depicts boundaries of the tract of land to be used by the applicant and extends at least 1 mile beyond the tract boundaries sufficient to show the following:

- Each well, spring, and surface water body or other water of the state within the map area;
- The general character of the areas adjacent to the Facility, including public roads, towns, and the nature of development of adjacent lands such as residential, commercial, agricultural, recreational, undeveloped, and so forth;
- The location of any waste disposal activities conducted on the tract not included in the application; and,
- The ownership of tracts of land adjacent to the Facility and within a reasonable distance from the proposed point or points of discharge, deposit, injection, or other place of disposal or activity.

4.4 Land Ownership

The landowners within ½ mile of the Facility boundaries listed in the following table are shown on Figure 4. The source of the names and addresses of property owners is the Austin County Appraisal District Database.

The Land Ownership Map (Figure 4), along with the list of landowners (Table 1), identifies properties owned by adjacent and potentially affected landowners within ½ mile of the Facility boundaries. The mineral interest ownership, designated as executive rights, under the facility is owned by the property owner, Michael and Carolyn Hicks (INST #997087 DRACTX).

Section 5. Property Owner Information

5.1 Legal Description of the Facility

The Facility is located near the cities of Sealy and San Felipe in Austin County, Texas. The following is a legal description with deed record information.

> Legal Description: 32.209 ACRES: ALL THAT TRACT OR PARCEL OF LAND consisting of 32.209 Acres located in the Stephen F. Austin Survey, A7, Austin County, Texas. Subject tract being a portion of the 62.53606 Acre tract described in Deed to Michael P. & Carolyn S. Hicks recorded in File# 997087 of the Official Records of Austin County, Texas.

As of submission of this application, the County had not completed its final plat in its records for this property. The survey (Appendix A) drawing is considered the final plat submitted to Austin County.

The Boundary Metes and Bounds with Drawing, included as Appendix A, is an official metes and bounds description and drawing of the proposed facility prepared and sealed by a registered surveyor.

5.2 Property Owner Affidavit and Lease Agreement

A property owner affidavit signed by the property owner includes the statements and affirmations of §330.59 (d) (2) (A), (B), (C). An executed Commercial Contract for Unimproved Property between SouthWaste, the "Buyer," and Mr. Mike Hicks dated May 4, 2015, the property owner and "Seller," is included in Appendix B.

According to the Commercial Contract for Unimproved Property, SouthWaste has agreed to lease the property for a term of 24 months, beginning 60 days following the effective date of the contract. At the end of the 24-month lease term, the 32.209-acre property will be sold to SouthWaste.

Table 1. Landowner List (½-mile radius)

Map #	Owner	Address
34, 35	Alvin Konvicka	516 Acres Lane, Sealy, Texas 77474
32	Barry Wayne Jackson	1723 Prince George Court, Katy, Texas 77492
40, 41	Beatrice Mae Haczynski	12040 Mlcak Road, Sealy, Texas 77474
46	Bhaidani Ali	5003 Skipping Stone Loane, Sugarland, Texas 77479
11	Brian and Ramona Valenti	3911 Wood Park, Sugarland, Texas 77479
47	Cardenas Rebecca	5408 Holly St, Bellaire, TX 774014704
37	Charles Mlcak	4106 Sea Meadow Court, Katy, Texas 77494
39	Christopher Haczynski	12040 Mlcak Road, Sealy, Texas 77474
22	Clem Buchala	263 Manak Road, Sealy, Texas 77474
17	David Wickens Family Partnership, LTD.	3027 Willow Oak Lane, Sealy, Texas 77418
13	DNAR, LLC	PO Box 396, Barker, Texas 77413
45	Donna Cash	7625 SE IH 10 Frontage Road, Sealy, Texas 77474
12	Douglas and Linda Simmons	11326 Inwood Drive, Houston, Texas 77077
8	Farshad Nazemi	11305 Green Vale, Houston, Texas 77024
15	Frank and Victoria Chou	2585 Meyer Road, Sealy, Texas 77474
36	Fred and JoAnn Buri	7918 Hilshire Green Drive, Houston, Texas 77005
9, 10	GeoSouthern Energy Corporation	1425 Lake Front Circle, Suite 200, The Woodlands, Texas 77380
44	Geraldine Hamil	7595 SE IH 10 Frontage Road, Sealy, Texas 77474
42	James Lezak	9455 Lake Drive, Chappell Hill, Texas 77426
30	Jeanette Kucera	131 Lezak Road, Sealy, Texas 77474
38	Jeanne Netardus	8518 Ivy Falls Court, Houston, Texas 77040
27	John Gannon, Inc.	525 Park Grove, Katy, Texas 77450
20	Joseph Walker Dudgeon, Jr. Trustee	23042 260th Avenue, Centerville, Iowa 52544
25, 29	JWJ Stone Properties	PO Box 277, San Felipe, Texas 77473
26	Kenneth and Cheri Bumbera	413 Brazos Hill Lane, Sealy, Texas 77474
48	Levine Sidney	PO Box 592, Sealy, TX 77474
43	Maxine Rudloff	7439 SE IH 10 Frontage Road, Sealy, Texas 77474
1	Michael and Carolyn Hicks	1228 Brazos Ten Lane, Sealy, Texas 77474
28	Patricia Bagwell	PO Box 473, San Felipe, Texas 77473
2, 4	Pencco	PO Box 600, San Felipe, Texas 77473
3	Reactive Metals & Alloy Metals	PO Box 786, Sealy, Texas 77474
16, 21	Richard and Carol Papso	10 Preston Court, Sugarland, Texas 77479
24	Rubie Mae Buchala	477 Manak Road, Sealy, Texas 77474
19	Rudolfo and Celia Pena	3226 Mulberry Lane, Houston, Texas 77084
14	Terrell Burtschell	106 6th Street, Sealy, Texas 77474
23	Victoria Buchala	6060 NE IH 10 Frontage Road, Sealy, Texas 77474
5, 6, 7	Vital Link, Inc.	PO BOX 303, San Felipe, Texas 77473
33	Whitehorse Development, LLC	2352 FM 1094, Sealy, Texas 77474
18	William Skrivanek	2226 Skrivanek Road, Sealy, Texas 77474
31	Woodridge Development LP	PO Box 22606, Houston, Texas 77227

Section 6. Legal Authority and Appointments

6.1 Legal Authority

SouthWaste has provided verification of legal status in the form of a one-page certificate of incorporation issued by the Secretary of State (Appendix C). The Secretary of State filing number for SouthWaste (owner and operator) is SOS#800553020.

6.2 Appointments

SouthWaste Disposal, LLC is a corporation, and the application will be signed by Mr. Tim Cox, Vice President of Operations for SouthWaste. Mr. Cox meets the requirements of TAC §305.44 related to the delegation of signatory authority. Mr. Cox has been granted legal authority to sign and encumber SouthWaste Disposal, LLC.

Section 7. Evidence of Competency

7.1 Other Operation Ownership

SouthWaste owns and operates several active MSW facilities throughout Texas, as indicated below:

RN Number:	RN101478071		
Name:	SouthWaste Disposal, LLC San Antonio Facility		
Primary Business:	Organic composting		
Street Address:	20805 Old Limn Road		
County: Bexar	*Nearest City:* Elmendorf	*State:* TX	*Zip Code:* 78112
Physical Location:			
7 miles west of Elmendorf near roadway 1 mile southwest of Interstate Highway 37			
Customer's Role:	Owner / Operator	*Begin Date*:	06/04/2010
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
MSW processing	Permit	2317	Active
Petroleum storage tank	Registration	87042	Active
Storm water	Permit	TXR05BC61	Active

RN Number:	RN105876601		
Name:	Austin Liquid Waste Processing Facility		
Primary Business:	No primary business description on file		
Street Address:	828 Linger Lane		
County: Travis	*Nearest City:* Austin	*State:* TX	*Zip Code:* 78725
Physical Location:			
Located on Linger Lane approximately 800 feet southwest of the intersection of Highway 183 and Linger Lane			
Customer's Role:	Owner	*Begin Date*:	NA
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
MSW processing	Permit	2367	Active

RN Number:	RN101289171		
Name:	SouthWaste Disposal, LLC South Plains Facility		
Primary Business:	Grease and grit trap processing		
Street Address:	801 North Avenue P		
County: Lubbock	*Nearest City:* Lubbock	*State:* TX	*Zip Code:* 79403
Physical Location:			
No physical location description on file			
Customer's Role:	Owner / Operator	*Begin Date*:	05/05/2010
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
MSW processing	Permit	2231	Active

RN Number:	RN103155800 RN101288603		
Name:	SouthWaste Disposal Hurst Facility		
Primary Business:	Industrial chemical manufacturing plant		
Street Address:	6407 Hurst Street		
County: Harris	*Nearest City:* Houston	*State:* TX	*Zip Code:* 77024
Physical Location:			
1.933 acres located on 6407 Hurst Street in Houston, Harris County			
Customer's Role:	Owner / Operator	*Begin Date*:	01/01/2009
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
Sludge	Registration	23737	Cancelled
Sludge	Registration	24075	Active
Air new source permits	Registration	120677	Active
Air new source permits	Registration	120683	Active
MSW processing	Permit	2241A	Active
MSW processing	Permit	2241B	Pending
Storm water	Permit	TXR05BV26	Active

RN Number:	RN102327715		
Name:	SouthWaste Disposal Dallas Facility		
Primary Business:	No primary business description on file.		
Street Address:	525 South 6th Avenue		
County: Tarrant	*Nearest City:* Mansfield	*State:* TX	*Zip Code:* 76063
Physical Location:			
Located at 525 South 6th Avenue in the city of Mansfield approximately ½ mile south of the intersection of 6th Avenue and Broad Street			
Customer's Role:	Owner / Operator	*Begin Date*:	10/23/2009
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
Air New Source Permits	Registration	115976	Active
MSW Processing	Permit	2256	Active
Storm water	Permit	TXRNEW710	Active

RN Number:	RN102803590		
Name:	SouthWaste Disposal Lockwood Facility		
Primary Business:	No primary business description on file		
Street Address:	753 Lockwood Drive		
County: Harris	*Nearest City:* Houston	*State:* TX	*Zip Code:* 78112
Physical Location:			
753 Lockwood Drive 0.4 mile south of Clinton Drive, Houston, Texas			
Customer's Role:	Owner / Operator	*Begin Date*:	02/16/2010
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
Air new source permits	Registration	11741	Active
MSW processing	Permit	1117	Canceled

SouthWaste is experienced with MSW facility type operations and understands the MSW rules and regulations set forth by the State of Texas. SouthWaste is currently staffed with several licensed solid waste facility supervisors that manage SouthWaste operations throughout Texas. Prior to operating the Sealy Composting Facility, SouthWaste will designate a licensed solid waste facility supervisor. In addition, the Facility will employ at least one TCEQ-certified compost operator within six months from the initiation of operations at the Facility. The TCEQ-certified compost operator will routinely be on-site during the hours of operation. Mr. Tim Cox is the principal and supervisor of the Facility's organization.

7.2 Financial Interest or Enforcement Actions

Currently, SouthWaste has one financial interest in a solid waste site in another state, territory, or country outside the State of Texas, which includes their Central Florida Disposal Interests facility located in Groveland, Florida. SouthWaste does not have any final enforcement orders, court judgments, consent decrees, or criminal convictions by the State of Texas, the State of Florida, or the federal government within the last five years relating to compliance with applicable legal requirements relating to the handling of solid or liquid waste under the jurisdiction of the TCEQ, the Florida Department of Environmental Protection, or the United States Environmental Protection Agency (U.S. EPA).

SouthWaste Disposal, LLC.
Sealy Composting Facility
Municipal Solid Waste Permit Application

PART II

Application Submittal Date: November 16, 2015

Revised: May 27, 2016, August 10, 2016, and November 15, 2016

Project Information

MSW Permit # 2388 ***RN: 108878331***

Project Name: Sealy Composting Facility

Project Location: Intersection of Bartlett Road and Brazos 10 Lane, Austin County, Texas.
Near San Felipe, Texas.

Project Description: Project is a composting facility that processes compostable municipal solid waste such as grease trap waste/septic/sewage sludge and distributes final product for sale.

Project Location Description: The facility is located in a rural area east of the corporate city limits of San Felipe, Texas, near the intersection of Bartlett Road and Brazos 10 Lane.

Applicant Information

CN: 603436114

Owner/Operator: SouthWaste Disposal, LLC.

Address: 9575 Katy Freeway, Suite 130 Houston, Harris County, Texas 77024

Telephone: 866-413-9494

Email: tcox@southwaste.com

Fed Tax ID: 203596390

Preparer Information

Firm: Daniel B. Stephens & Associates, Inc.
(Texas Registered Engineering Firm F-286; Registered Texas P.G. Firm #50045)

Preparer: Benjamin Camacho

Engineer: Thomas Golden, P.E.

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Requested Variances and Waivers

Part II

None

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Part II

Acronyms

ADT	average daily traffic
BMPs	best management practices
CGP	Construction General Permit
EDR	Environmental Data Resources
ESA	Environmental Site Assessment
FEMA	Federal Emergency Management Agency
GSS	grease trap waste/septic/sewage sludge
MSW	municipal solid waste
NOI	Notice of Intent
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OIC	Operator in Charge
OSSF	on-site sewage facility
PBR	Permit by Rule
PCB	polychlorinated biphenyls
PBR	Permit by Rule
SSO	sanitary sewer overflows
SWPPP	Storm Water Pollution Prevention Plan
TDWR	Texas Department of Water Resources
THC	Texas Historical Commission
TWBD	Texas Water Development Board
TXDOT	Texas Department of Transportation
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tanks
WOTUS	Waters of the U.S.
yd	yard(s)

Section 8. Existing Conditions Summary

8.1 Historical Land Use

Daniel B. Stephens & Associates, Inc. (DBS&A) performed a Phase I Environmental Site Assessment (ESA) for the property in June 2015. According to the previous property owner, the property was never developed or used to store materials. The property was owned by Sea Corps prior to 1995 and was undeveloped during Sea Corps ownership. Based on a review of aerial photography ranging in dates from 1953 through 2012, the property appears to still be undeveloped.

8.2 Site Specific Conditions

The following property information was observed by DBS&A personnel during the June 2015 Phase I ESA site visit. The property, an approximately 32.209 acre tract of undeveloped land, is covered primarily with vegetation and native soil and does not contain any paved areas. A gravel road is located at the northern portion of the property. A man-made pond was observed in the eastern portion of the property on the day of the site visit. According to the property owner, the pond area was excavated and utilized as a stock pond. No structures, other than an unused wooden shed at the northwestern portion of the property, were observed during the Phase I ESA site visit. No evidence of underground storage tanks (USTs) or hydraulic/stationary lifts was observed. There were no signs of distressed vegetation or standing water observed during the site visit. DBS&A personnel did not observe any areas of staining on soil throughout the undeveloped property, and no unusual odors or stressed vegetation were noted. No storage tanks, drums, or other containers were observed at the property. No fill dirt or evidence of fill activities was observed at the property on the day of inspection. No hazardous materials, petroleum products, or waste storage areas were observed at the property.

Section 9. Climate

The average climate of Austin County is humid subtropical with hot summers. Evaporation and precipitation rates are provided on the Texas Water Development Board (TWDB) web site (http://www.twdb.texas.gov/surfacewater/conditions) for 1-degree quadrangular areas across the state. Austin County falls within quadrangle numbers 711 and 811. The data provided are based on sites operated by the National Weather Service and the Texas Department of Water Resources (TDWR). The average annual evaporation, based on data collected from 1954 through 2014, is 51.6 inches, and average annual precipitation, from 1940 through 2014, is 40.46 inches.

Prevailing winds are southerly March through November and northerly December through February. The Wind Rose, included as Figure 5, illustrates the predominant winds of Houston, Texas, which most accurately emulate the winds at the property.

Section 10. Waste Acceptance Plan

10.1 Sources and Characteristics

Sheet 3 of the Drawings section shows the facility plan and layout, including the permitted Facility, as well as the property boundary, fencing, internal roadways, the grease trap waste/septic/sewage sludge (GSS) processing area (as noted on that drawing, tipping also occurs in this area, and there is not a discrete tipping area at the Facility), post-processing areas, all structures, and other improvements to the property.

An estimated 270,000 tons of liquid feedstock will be composted annually. The quantity of incoming feedstock to be received will not exceed 72 million gallons per year. This quantity is 930 tons per day (22,300 tons per month, assuming 24 operating days per month) or 250,000 gallons per operating day (assuming 7.44 pounds per gallon typical for grease trap waste). Grease trap waste is expected to account for approximately 90 percent of the incoming feedstock at this facility. Expected to account for 10 percent or less of the incoming feedstock, the other feedstocks accepted at the Facility are:

- Municipal sewage sludge;
- Septage; and
- Dairy/food including meat and fish.

The bulking material used in the process will be chipped and shredded wood and vegetation. Bulking material will be either received already chipped and screened or will be received in raw form and chipped at the Facility. Up to 32,000 cubic yards of bulking materials may be in-process on the compost pad at any point in time. Due to reduction in volume from maturation and screening, this volume results in approximately 15,680 cubic yards of finished compost.

All materials entering the Facility, both feedstock and bulking material, will be screened on entry for unauthorized materials as described in Part III.

10.2 Limiting Parameters

The anticipated final product grade of compost will be Grade 1. The intended final use of the Grade 1 composted material will be used as a soil amendment in residential and commercial applications. In the event that final testing indicates that the composted material is Grade 2, it will either be disposed of at a permitted municipal solid waste (MSW) facility or sold only to commercial users and will be labeled as not for use at residences or child-care facilities. In the event that final testing indicates that the composted material is Waste Grade, it will be disposed at a permitted MSW facility.

In order to confirm compost grade classification, two types of sampling and analysis will be performed at the Facility: sampling and analysis for maturity and sampling and analysis for final product grading.

A Maturity Protocol (maturity testing presented in Part III) has been developed to measure the potential for biological activity in the composted materials at the completion of the composting process.

In addition to maturity testing, all batches of final product will be analyzed for the parameters using the methods listed in Table 2, and the analytical results will be used to assign a final product grade. Product grades include Grade 1 Compost, Grade 2 Compost, and Waste Grade Compost. Grade 1 Compost and Grade 2 Compost will not contain foreign matter of a size or shape that can cause human or animal injury and will meet the other applicable standards presented in Table 2. Waste Grade Compost is any material that does not meet the final product standards for either Grade 1 or Grade 2.

Table 2. Final Product Analytical Requirements and Standards

Parameter	Analytical Method	Final Product Standards for Grade 1 Compost	Final Product Standards for Grade 2 Compost
Total metals			
As	SW-846, Method 6020	≤10 mg/kg	≤41 mg/kg [a]
Cd	SW-846, Method 6020	≤16 mg/kg	≤39 mg/kg [a]
Cr (total)	SW-846, Method 6020	≤180 mg/kg	≤1200 mg/kg [a]
Cu	SW-846, Method 6020	≤1020 mg/kg	≤1500 mg/kg [a]
Pb	SW-846, Method 6020	≤300 mg/kg	≤300 mg/kg [a]
Hg	SW-846, Method 7470	≤11 mg/kg	≤17 mg/kg [a]
Mo	SW-846, Method 6020	≤75 mg/kg	≤75 mg/kg [a]
Ni	SW-846, Method 6020	≤160 mg/kg	≤420 mg/kg [a]
Se	SW-846, Method 6020	≤36 mg/kg	≤36 mg/kg [a]
Zn	SW-846, Method 6020	≤2190 mg/kg	≤2800 mg/kg [a]
Maturity / Stability	Maturity Protocol	> 60% Reduction of Organic Matter	> 20 % Reduction of Organic Matter
Weight% Foreign Matter	Dry weight basis	≤1.5% on a 4mm screen	1.5% on a 4mm screen
pH	North Central Regional Method 14 for Saturated Media (SW 9045D)	5.0 to 8.5 [b]	5.0 to 8.5 [b]
Salinity	North Central Regional Method 14 for Saturated Media	10 mmhos/com	10 mmhos/com
Pathogens			
Salmonella	Standard Methods for the Examination of Water and Wastewater, Water Pollution Control Federation	< 3 MPN per 4 grams total solids or meets PFRP	No Value
Fecal Coliform		< 1,000 MPN per gram of solids or meets PFRP	Geometric mean density <2,000,000 MPN per gram of solids or meets PFRP
PCBs	SW-846, Method 8082	1 mg/kg	10 mg/kg

[a] Metals concentrations are for a cured compost. Compost that is semi-mature or mature will have the metal concentrations adjusted to reflect the metal concentration that would be present if the compost met the criteria of a cured compost.

[b] A conductivity or pH outside the indicated range may be appropriate if the compost is specified for a special use.

PFRP = Processes to further reduce pathogens
MPN = Most probable number
PCBs = Polychlorinated biphenyls

Both maturity testing and final product testing are further discussed in Part III and IV.

10.3 Prohibited Wastes and Materials

This facility does not accept:

- Regulated hazardous waste,
- Used or scrap tires,
- Lead acid storage batteries,
- Polychlorinated biphenyls (PCB) wastes,
- Used motor vehicle oil,
- Items containing chlorinated fluorocarbon,
- Used oil filters; and
- Radioactive materials.

No special authorization is requested to accept Conditionally Exempt Small Quantity Generator Waste not listed as feedstock or for the disposal of Special Wastes or Industrial Wastes.

10.4 Un-compostable Materials

Only the designated feedstocks will be accepted at the Facility. Delivery trucks entering the property are inspected by the Operator in Charge (OIC) for the presence of unauthorized materials during unloading. Loads determined to contain unprocessable, prohibited, or unauthorized materials are either refused, or the drivers are directed to remove the unacceptable material from the load and then remove it from the property. In the event that unprocessable, prohibited, or unauthorized materials are discovered after delivery, these materials will be removed from the Facility and disposed of at an authorized MSW facility.

Section 11. Feedstocks and Sources

The liquid feedstock will be pumped into either one of eight 31,500-gallon aboveground storage tanks for temporary storage or to the Facility vacuum truck, or equivalent, to be sprayed directly onto prepared windrows of bulking material located within the processing areas. The storage capacity of the aboveground tanks will allow the liquid feedstocks to be applied in a consistent manner and will provide additional feedstock storage capacity that can be used during periods of rainfall when feedstock application is limited. No feedstock will be accepted in excess of the available capacity of the storage tanks.

The Facility may generate approximately 5,200 cubic yards of finished compost per month. Some chipping and shredding of bulking material is performed in an area outside the lined portion of the Facility. Chipped and shredded bulking material may also be brought to the Facility from off-site locations. Energy and mass balance calculations for the GSS and non-GSS waste composting process are presented in Part III, Section 18.3.

11.1 Grease Trap Waste

Approximately 90 percent of the incoming feedstock accepted at the Facility will be grease trap waste. Grease traps are used by food service and processing establishments to separate out fats, oils, and greases in wastewater from dishwashers, sinks, floor drains, and dumpster pads. If grease and solids accumulations are not routinely pumped out of the trap, the grease overflows the trap, settles in the sewer collection system, and plugs up the sewer, thereby contributing to sanitary sewer overflows (SSO). Increasing public and regulatory concern over the potential public health and environmental impacts of SSO has increased maintenance of grease traps.

Grease trap wastes are siphoned out of traps as a liquid with about 5 to 6 percent total solids content. The waste contains grease, water, and sediment (food particles) that are washed down the drain. The grease is essentially comprised of fats and oils (triglycerides), which are comprised of one unit of a sugar alcohol (glycerol $C_3H_8O_3$) and three units of fatty acids. Fats and oils contain twice the energy of other organic materials.

The high energy content of the grease trap waste is advantageous to composting when high temperatures are needed to ensure pathogen reduction. The grease coats the bulking agent, which offers large surface areas for microbial decomposition in a compost pile. The high energy content encourages a more rapid rise in composting temperatures, which kills the pathogens that make humans ill (BioCycle, 2006). The large surface area accelerates the decomposition of the raw materials.

11.2 OSSF Wastes

On-site sewage facility (OSSF) septage is a slurry (solids content of only 3 to 10 percent) of organic and inorganic material. Septage includes pumpings from septic systems, aerobic treatment unit tanks, holding tanks, composting toilets, chemical or vault toilets, and other systems that receive domestic wastewaters. The exact composition of septage from a particular treatment system is highly dependent upon the activities and habits of its users**.** Table 3 lists the average metal concentration of septage (U.S. EPA, 1993).

Table 3. Comparison of Septage, Biosolids, and Regulatory Concentrations

Parameter	Concentration (mg/L)			
	Septage	Biosolids	Part 503 Limits	Grade 1 Compost
Arsenic	4	10	41	10
Cadmium	3	7	39	16
Chromium	14	120	1,200	180
Copper	140	740	1,500	1,020
Mercury	0.15	5	17	11
Nickel	1.5	43	420	160
Lead	35	130	300	300
Selenium	2	5	100	36
Zinc	290	1,200	2,800	2,190

mg/L = Milligrams per liter

Section 12. Generation Areas

12.1 Service Population

The Facility will serve at least the counties listed in Table 4. The total potential population serviced is 6,412,450 persons (U.S. Census, 2014).

Table 4. Service Area and Population

County	Population 2014	County	Population 2014
Austin	29,114	Grimes	27,172
Bastrop	78,069	Harris	4,441,370
Burleson	17,253	Lee	16,742
Chambers	38,145	Liberty	78,117
Colorado	20,719	Montgomery	518,947
Fayette	24,833	Waller	46,820
Fort Bend	685,345	Washington	34,438
Galveston	314,198	Wharton	41,168
		Total Serviced	6,412,450

12.2 Growth Trends

The U.S. Census Bureau estimates a rural population of 44 persons per square mile. The Austin County population in 2014 was 29,114 (34 percent urban and 66 percent rural); it was 23,590 in 2000 (City-Data 2015), indicating that the county's population has increased at an average rate of 23.4 percent per year from 2000 to 2014. Bellville is the county seat, and other municipalities in the county are Sealy, Wallis, Brazos Country, Industry, and San Felipe. The total area of Austin County is 663 square miles. Austin County is rural in nature, but is networked by two main thoroughfares: U.S. Interstate 10 (I-10) and State Highway 36. The manufacturing, trade, service, agriculture, and local government sectors fuel the county's employment. According to the Texas Labor Market Review for August 2015, Austin County has experienced a 2.0 percent to 3.2 percent job growth rate since 2014 compared to the 2.5 percent Texas average.

A series of aerial photographs (scale of 1 inch equals 2,000 feet) showing the property and areas within a 1-mile radius of the site boundaries are included in Appendix D. The quality of evaluation of aerial photographs is controlled by the photograph's scale and quality. The aerial photographs show the development of the area within 1 mile of the property during the years 1977 to 2014. These photographs indicate a slow growth of the agriculture, commercial, and manufacturing industries with minimal increase to residential development. The Facility is bordered to the north by Brazos 10 Lane and residential properties. A sewage chemical treatment production company (Pencco Sealy) is located northeast of the Facility. The Facility is bordered to the west by undeveloped land and wooded areas. The Facility is bordered to the south by Union Pacific Railroad, wooded areas, and I-10. The Facility is bordered to the east by a custom metal fabrication and manufacturing company (Ram Industries) and wooded areas.

Section 13. Land Use

13.1 Zoning

The Facility is located in an unincorporated area of Austin County, Texas; east of San Felipe, Texas. Neither the City of San Felipe nor Austin County has any zoning restrictions; therefore, there are no zoning restrictions within 1 mile of the Facility. However, the Austin County Planning and Development Department requires a permit application to be submitted for any development that occurs within the county. The permit application and guidelines for obtaining the development permit can be accessed at http://austincounty.com/default.aspx?Austin_County/Permits.

13.2 Land Use Characterization

Land use in the vicinity of the Facility was determined based on a review of U.S. Geological Survey (USGS) topographic maps, aerial photographs, Austin County tax records, and visual observations made from public roads. Land use within a 1-mile radius of the Facility is predominantly agricultural, with some commercial and light industrial sites located adjacent to the property and scattered residential sites (Figure 3).

The following summarizes the quantities of various land use types within 1 mile of the Facility:

- 86 agricultural properties;
- 38 residential properties;
- 11 commercial businesses;
- 3 commercial / industrial businesses; and
- 2 commercial / agricultural businesses.

There are no licensed day cares, cemeteries, schools, recreational sites, recreational facilities, or sites having exceptional aesthetic quality within 1 mile of the Facility. In summary, the area surrounding the Facility and property has a relatively low population density and is used primarily for agricultural purposes. According to the Texas Department of Transportation (TXDOT) Texas Airport Directory Map, the Facility is located approximately 14.87 miles southeast of Grawunder field (code: 06R). The presence and operation of a composting facility is fully compatible with this setting and land use.

A 30-foot easement for Brazos 10 Lane, located at the northern property line, is shown on the survey included in Appendix A. No other easements have been found on the property.

13.3 Site Soils and Geology

The U.S. Natural Resources Conservation Service (NRCS) Web Soil Survey (http://websoilssurvey.nrcs.usda.gov) for Austin County, Texas, was used to identify surface soils in the area of the proposed Facility. The predominant soil map units at the site are Lake Charles Clay, with 3 to 8 percent slopes, and Verland clay loam, with 0 to 3 percent slopes. Styx

loamy fine sand is mapped outside the northeast boundary of the Site with a slight incursion across the north boundary following a topographic contour. An NRCS Custom Soil Resource Report for Austin County, Texas, which presents site soil information, is included in Appendix E.

The Lake Charles series consists of very deep, moderately well drained, very slowly permeable soils that formed in clayey sediments. These soils are on broad, coastal prairies and are mainly in cultivated and native pasture. Common crops on these soils are corn, cotton, rice, and grain sorghum. Native grasses include little bluestem, Indiangrass, eastern gamagrass, switchgrass, big bluestem, and brownseed Paspalum. Most areas have scattered live oak, water oak, elm, hackberry, and huisache trees.

The Verland series consists of very deep, somewhat poorly drained, very slowly permeable soils. These nearly level to very gently sloping soils formed in clayey and loamy sediments of the Beaumont Formation of Pleistocene age. Most of the soil is used for pasture or for growing rice and soybeans. Native vegetation is tall prairie grasses consisting primarily of Andropogons, Paspalums, switchgrass, and Indiangrass. Various species of trees have encroached on some areas.

The Styx series consists of very deep, well drained, moderately permeable soils that formed in sandy and loamy sediments. These nearly level to gently sloping soils are on high stream terraces. Most areas are used for pasture. A few areas are used for growing small grains for cool season grazing and truck crop production. Native vegetation is mainly post and blackjack oak and greenbrier, with an understory of mid and tall grasses.

The Site is located within a stratified sequence of the Cenozoic Era, Quaternary System, and Holocene Group. Based on review of the Bureau of Economic Geology Geologic Atlas of Texas (Fisher, 1974), Seguin 1974 Sheet, the property is located on the Beaumont Formation outcrop. The lithology is dominantly clay and mud of low permeability. The clay has a high water-holding capacity, high compressibility, high to very high shrink-swell potential, poor drainage, and high plasticity. The formation thickness ranges up to 100 feet. Geologic and hydrogeologic information is further discussed in Part III of this application.

13.4 Waterways, Wetland, and Floodplain Use and Characterization

DBS&A personnel reviewed available USGS 7.5-minute topographic quadrangle maps for the site and vicinity, which indicates that the site is located on terrain sloping down to the north-northeast. Based on site observations, the general flow direction of stormwater run-off across the site appears to be in an east and northeast direction. Surface water drains as sheet flow to a man-made stock pond located at the eastern portion of the property. The property is located at the edge of a plateau with elevation of approximately 140 feet National Geodetic Vertical Datum. The Site is relatively level with some relief developing near the west, north, and east boundaries. The area north of the property descends to the Brazos River valley, with the Brazos River located approximately 2 miles east of the Site at its closest point. The nearest watercourse represented on the topographic map is an intermittent stream within the Brazos River valley approximately 0.3 mile north of the property that drains to an unnamed freshwater pond and a tributary to the Brazos River.

A Waters of the U.S. (WOTUS) and wetland determination was conducted at the Facility by W&M Environmental Group, LLC (W&M) in support of a biological assessment. The biological assessment report prepared by W&M and dated October 30, 2015 is included in Appendix F**.** As part of the WOTUS and wetlands determination, W&M reviewed several of the standard record sources for indications of streams and wetlands in the study area. Wetlands features are shown in a U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) map in Figure 6. W&M reviewed the NWI for indications of wetlands on or adjacent to the study areas. The NWI map does not indicate the presence of wetlands on or adjacent to the property. The nearest mapped wetlands are represented within the Brazos River valley north of the property. Based on field observations conducted by W&M, one wetland was identified on the property within a swale in the eastern portion of the property and appears to be created by an excavation and impoundment (man-made pond) at the property. According to W&M, hydrology to the wetland appears to be provided by surface drainage from the property aided by a drainage swale through the cropland. The extent of the wetland as estimated by field observation and records review is 0.4 acre. The swales draining to the impoundment and on the downslope side of the impoundment do not have indications of ordinary high water marks or wetlands beyond the impoundment. The swales and wetland do not have a surface hydrologic connection or significant nexus to a downstream navigable water; therefore, they do not constitute jurisdictional WOTUS.

According to the Federal Emergency Management Agency (FEMA) map Panel 48015C0350E, panel 350 of 475, dated September 3, 2010 (Figure 7), the site is not located in a FEMA flood zone. No mitigation for construction or operation in a flood plain is required.

13.5 Groundwater and Water Wells

A Water Well Report prepared by Environmental Data Resources (EDR) (EDR, 2015a), included as Appendix G**,** reported two public drinking water supply wells, associated with one non-transient, non-community public water system, that exist in the investigative area (Figure 3) but are greater than 500 feet from the site. Additionally, both public supply wells are screened below 350 feet and pressure cemented to surface in accordance with TCEQ requirements.

The Water Well Report further identified 34 domestic, irrigation, and industrial use wells within the investigative area, ranging in depth from 50 feet to 300 feet (EDR, 2015a). None of these wells are within 500 feet of the site. The composting pad will not be located within a 250-foot buffer of private wells or 500 feet of public wells. Wells are documented on Figure 3.

A review of plugged well reports on the TWDB Groundwater Data Viewer revealed no plugged wells within 0.5 mile of the site and only one within the investigative area (TWDB, 2015).

13.6 Other Wells

An Oil & Gas report by prepared by EDR (EDR, 2015b), included as Appendix G, identified four locations in the investigative area and greater than 0.5 mile from the site associated with oil and gas activity (EDR, 2015b). Three of these wells were dry holes and one is listed as a canceled location. There are no American Petroleum Institute numbers registered to the records searched. These wells are plotted on Figure 3.

13.7 Structures and Site Proximity

The nearest occupied structures are residential buildings, owned by the property owner, located approximately 480 feet north of the Facility. The nearest business is Ram Industries, located adjacent to the eastern end of the eastern property line of the Facility. Recreational, community, daycare centers, hospitals, or school sites do not exist within 1 mile of the Facility. Chain link fencing with mesh weave roll or slats will screen the Facility from public view on the east property boundary, and perimeter berms and the southern raised railroad will screen the Facility from public view on the north, west, and south sides of the property.

13.8 Texas Historical Commission Review

A Texas Historical Commission (THC) review has been completed. According to the Texas Historic Sites Atlas published by the Texas Historical Commission, there are no documented historic properties such as cemeteries, museums, historical markers within 1 mile of the Facility. Mitigation for discovered significant sites includes facility set back and road design to eliminate surface disturbance in the significant site. This mitigation has been approved by the THC State Historic Preservation Officer, and a stamped approval form is including in Appendix H.

13.9 Compatibility

The surrounding land uses are agricultural, which will benefit from the Facility's composting operations. Storage and land application of animal waste is common in the surrounding agriculture operations. The residential population is sparse, on farming and ranching operations. The Facility is compatible with the surrounding land uses. The Facility will not impact wetlands, flood plains, or waterways.

Section 14. Water Quality

14.1 Construction Storm Water Discharge Permit

The Facility is required to submit a Notice of Intent (NOI) for the Construction Activity Storm Water Discharge Permit and obtain coverage under the TCEQ Construction General Permit (CGP) TXR150000 since the construction of the Facility will disturb more than 5 acres of ground surface. A Storm Water Pollution Prevention Plan (SWPPP) will be developed to comply with the conditions of the CGP prior to submitting the NOI. Notice of Construction will also be posted.

14.2 Multi Sector Storm Water Discharge Permit

The Facility is required to submit an NOI for the Multi Sector Storm Water Discharge Permit. The NOI will be submitted electronically 24 hours prior to beginning operations. A SWPPP will be developed to comply with the conditions of the General Permit prior to submitting the NOI.

Section 15. Air Quality

15.1 Control of Airborne Emissions

Air emissions from MSW facilities will not cause or contribute to a condition of air pollution as defined in the Texas Clean Air Act. No specifically regulated airborne emissions are anticipated to be generated.

15.2 Minimizing Odors

Odors will be minimized through the use of best management practices (BMPs), including:

- Liquid feedstocks will be stored in enclosed aboveground storage tanks;
- Application of feedstock will not occur during high winds;
- Adequate bulking material will be used; and
- Bulking material will be turned or tilled immediately after feedstocks are applied.

In addition, an olfactory inspection will be performed daily to ensure that odors are minimized, as described in the Sampling and Monitoring section of Part IV of this application. Nuisance odors will be prevented from leaving the boundary of the Facility. If nuisance odors are found to be passing the Facility boundary, the OIC will suspend odor-producing operations until the nuisance is abated.

15.3 Control of Windblown Material

The feedstocks accepted at the Facility are aqueous and therefore not susceptible to being windblown. The bulking material to be used at the Facility consists of chipped and shredded wood and vegetative matter that is not very susceptible to being windblown. The Facility will not accept paper, cardboard, cloth, or other materials that would be more susceptible to being windblown. The application of feedstock and tilling of windrows will not be performed during periods of high wind. In the event that high winds should result in bulking material being blown from windrows or piles, the material will be picked up daily and returned to the windrows or stockpiles from which the material originated. Equipment engines will be maintained in good condition and will be well-tuned and serviced at manufacturers' recommended service schedules.

15.4 Authorizations and Permits

Construction will not begin until Air Quality authorizations to operate, listed below, are complete. Air Quality authorizations do not require registration or notification to TCEQ. This Facility is not a major facility or subject to prevention of significant deterioration review.

Permit by Rule (PBR) will be claimed by the Facility, and documentation will be maintained in the Facility records. The composting operation of the Facility meets all of the applicable PBR requirements and is entitled to this air quality standard permit authorization in lieu of obtaining an air quality permit under Chapter 116. The Facility will operate under the Composting

Standard permit 332.8 and will not hold concurrent Air Quality Permits under Chapter 116 for the composting operation.

The composting operation will comply with the general requirements in §332.4 and 332.8(e). The following authorizations, which meet the requirements of the Air Quality Standard Permit for composting, will be implemented.

A. All permanent in-plant roads and vehicle work areas will be watered or treated with dust-suppressant chemicals for maximum control of dust emissions. Vehicular speeds on non-paved roads shall not exceed 10 miles per hour.

B. An adequate volume of bulking material to blend with or cover the material will be on hand prior to receiving material with a high odor potential and will be processed within 72 hours to prevent nuisances.

C. All activities, such as turning of compost, that could result in increased odor emissions will be conducted in a manner that does not create nuisance conditions. SouthWaste will employ the following:

   - *On-site buffer zones for odor control:* The processing area will be set back from the road with at least a 50-foot buffer from the property lines.
   - Additional waste handling procedures, storage procedures, and cleanup procedures for odor control when accepting putrescible waste: Liquid waste will be stored in storage tanks and transported through pipes. Any spilled feedstock will be cleaned up within 48 hours.

The Facility has been designed to minimize exposure of putrescible waste to the air. Liquid feedstock transfer operations will be controlled to prevent release of nuisance odors to the atmosphere. Putrescible waste holding time will be limited to three days. Putrescible waste will be covered with a layer of wood chips to contain odor.

Section 16. Access Roads

The Facility will use the roads listed in Table 5 for access. Access roadways within 1 mile of the Facility are shown on Figure 8.

16.1 Roadway Data

The access roads to the Facility are I-10, Bartlett Road, and Brazos 10 Lane. Vehicles accessing the Facility are anticipated to arrive via Interstate Highway 10, exit onto and turn north on Bartlett Road, then turn west on Brazos 10 Lane for approximately 0.25 mile. The Facility is located on the south side of Brazos 10 Lane.

The conditions of the access roads are described in Table 5. DBS&A personnel an evaluated Bartlett Road and Brazos 10 Lane and reviewed the Austin County Road and Bridge Report for Precinct #4 (dated June 22, 2015) and information provided by the property owner. According to TXDOT (Yoakum District), no load limits are designated for I-10 and Bartlett Road.

Additionally, there are no proposed public roadway improvements or location restrictions for I-10 and Bartlett Road; therefore, coordination with TXDOT is not required. Brazos 10 Lane is a private road used by the property owner and tenants, including commercial/industrial facilities (Pencco Sealy and Ram Industries).

Table 5. Roadway Data

Roadway	Dimensions	Type of Road	Condition Score	Load Limits	Capacity [a]	Repairs	Source [b]
I-10	2 lanes (each direction) 14-foot lanes Center median Access roads	Asphalt pavement	Good	None	3,580 pch each direction	None	1
Bartlett Road	1 lane (each direction) 12-foot lanes No shoulders (2.83 miles)	Asphalt (blade mix overlay)	Fair / In need of repair	None	2,600 pch	Filled potholes in 2015 with cold mix asphalt	2
Brazos 10 Lane	Private road 14 feet wide (0.35 miles)	Gravel	Good	None	None (private road)	None	3

[a] Capacity calculated by U.S. Department of Transportation methods pch = Passenger cars per hour
[b] 1 = TXDOT Yoakum District
2 = Austin County Precinct 4
3 = DBS&A

16.2 Vehicular Traffic Volume

The initial volume of additional traffic generated by the Facility on the access roads to the Facility is estimated to be 10 vehicles per day. The maximum additional traffic projected at peak operation is estimated to be 50 vehicles per day. The types of vehicles will be medium-size liquid and solid transport vehicles, including vacuum trucks (or equivalent) with a maximum 7,000-gallon storage capacity and dump trucks with a maximum 70.5-ton carrying capacity. As indicated in Section 10.1 and further presented in Part III, the quantity of incoming feedstock is 250,000 gallons per operating day. Based on the storage capacity of transport trucks, the maximum calculated volume of trucks entering the Facility is 35 trucks daily (250,000 gallons ÷ 7,000 gallons = 35 tucks). The initial volume of additional traffic generated by the Facility is estimated at 20 percent of peak operation, or 7 trucks per day. However, not all trucks are filled to capacity upon arrival at the Facility; therefore, a conservative estimate of the traffic volume accounts for 10 to 50 vehicles per day. The build-up to peak Facility operation, along with the accompanying increase in vehicular traffic from 10 to 50 vehicles per day, is expected to occur over 20 years.

The average daily traffic (ADT) on Bartlett road is based on the number of households and businesses that access the road. Bartlett Road traverses in a “horseshoe” like direction from two entry/exit routes on the I-10 frontage road; therefore, the ADT assumes that half the surrounding residences and businesses use the eastern entry/exit route, which is located near the Facility. Each household is expected to have an average trip of 3 trips per adult per day with an average adult population of 2 per household. Business traffic is approximately twice per day assuming 25 vehicles per business. Residential traffic access is approximated at 30 households, which is

equivalent to 180 vehicles per day. Business traffic accounts for approximately 4 businesses, which is equivalent to 200 vehicles per day.

The population of Austin County is expected to grow at an average 7.24 percent annual rate to 2030 (Texas State Data Center, 2014). The projected traffic volumes presented in Table 6 were calculated assuming that traffic volumes would increase at this same rate over 20 years.

The projected traffic (10 vehicles per day) generated by the Facility represents approximately 2.76 percent of the current traffic on Bartlett Road and approximately 0.01 percent of the current traffic on I-10.

Given the limited traffic per day estimated to be generated by the Facility, no significant impact to the roadway system from traffic accessing the Facility is expected at either the existing or the future traffic loads. No measures, such as the construction of turn lanes or other road improvements, are predicted as part of this project.

Table 6. Vehicular Traffic Volume

Roadway	Existing Traffic	Projected Traffic in 20 years				Increased Traffic Due to Facility (%)	Source [a]
		Without Facility		With Facility			
	ADT	ADT	Annual Increase (%)	ADT	Annual increase (%)		
IH-10	52,805	56,628	7.24 [b]	56,638	7.25	0.01	1, 2
Bartlett Road	380	408	7.24 [b]	418	10	2.76	2
Brazos 10 Lane	Private road	—	—	—	—	—	—

[a] 1 = Texas Department of Transportation
2 = DBS&A
ADT= Average daily traffic
[b] Increase over 20 years

16.3 Facility Access Road Design Data

Brazos 10 Lane is a private gravel road that will provide access to the Facility access road. The Facility unloading areas will be constructed for wet-weather operational use.

The access road is provided with a sufficient turning radius of 300 feet to accommodate single deliveries. Vehicle parking is provided for equipment, employees, and visitors. Dust will be controlled by watering the Facility road when needed. Off-site mud tracking will be controlled by maintaining the entrance and loading areas. The access road has been designed to reduce ponding on the road. An inspection and maintenance program has been developed for the access road that will prevent rutting and potholes.

Clearly posted signage at the Facility entrance will specify a 10-mile per hour speed limit on the entrance road. The maximum speed allowed in the processing area will be 5 miles per hour.

16.4 Facility Impact on Roadway System

The current traffic consists of passenger vehicles, farm tractors, commercial transport trucks and trailers, agriculture transport tractor trailer rigs, and livestock/agriculture trailers. The Facility traffic will add passenger trucks and medium-size liquid and solid transport vehicles with 14.1-ton average and 21-ton maximum loads.

The impact on the roadway system is minimal. Due to the limited production, remoteness of the site, and low traffic volume, roads will not be significantly impacted by the additional traffic.

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SouthWaste Disposal, LLC.
Sealy Composting Facility
Municipal Solid Waste Permit Application

PART III

Application Submittal Date: November 16, 2015

Revised: May 27, 2016, August 10, 2016, and November 15, 2016

Project Information

MSW Permit # 2388 ***RN: 108878331***

Project Name: Sealy Composting Facility

Project Location: Intersection of Bartlett Road and Brazos 10 Lane, Austin County, Texas. Near San Felipe, Texas.

Project Description: Project is a composting facility that processes compostable municipal solid waste such as grease trap waste/septic/sewage sludge and distributes final product for sale.

Project Location Description: The facility is located in a rural area east of the corporate city limits of San Felipe, Texas, near the intersection of Bartlett Road and Brazos 10 Lane.

Applicant Information

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Acronyms

ADT	average daily traffic
ALU	aquatic life use
Avg	average
BACT	best achievable control technology
BOD	biological oxygen demand
CCN	Certificate of Convenience and Necessity
cfh	cubic feet per hour
cfm	cubic feet per minute
CR	County Road
CSAP	Closure Sampling Plan
EQ	exceptional quality
°F	Fahrenheit degrees
FM	Farm to Market Road
ft bgs	feet below ground surface
gpm	gallons per minute
hp	horse power
in	inch(es)
kips	kilo pounds per inch
MSS	maintenance, start up, and shut down
MSW	municipal solid waste
NAICS	North American Industry Classification System
NIST	National Institute of Standards and Technology
OSSF	on-site sewage facility
pci	pounds per cubic inch
plf	pounds per linear feet
psi	pounds per square inch
PWS	public water system

RCRA	Resource Conservation and Recovery Act
SC-SM	silty, clayey sand
SDS	safety data sheet
SIC	Standard Classification
SO_2	sulfur dioxide
SOP	Standard Operating Procedures
SSO	sanitary sewer overflows
SUD	Sewer Use District
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality (Executive Director)
THC	Texas Historical Commission
THSC	Texas Health and Safety Code
TMDL	total maximum daily load
TPDES	Texas Pollution Discharge Elimination System
TPH	total petroleum hydrocarbon
TSS	total suspended solids
TWC	Texas Water Code
TXDOT	Texas Department of Transportation
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VCP	Vector Control Program
VTCA	Vernon's Texas Codes Annotated
WoC	Wolfpen loamy fine sand
WSC	water supply company
WWTP	wastewater treatment plant
yd	yard(s)

Section 17. General Facility Design

17.1 Facility Plan and Facility Layout

Sheet 3 in the Drawings section shows the facility plan and layout including the permitted Facility, as well as the property boundary, fencing, internal roadways, the grease trap waste/septic/sewage sludge (GSS) processing area (as noted on that figure, tipping also occurs in this area, and there is not a discrete tipping area at the Facility), post-processing areas, structures, and other improvements to the property. In addition, DBS&A has prepared engineering design drawings showing the GSS composting pad layout and cross sections.

The following drawings are located in the Drawings section:

- Drawing 1 Title Sheet;
- Drawing 2 General Notes and Legend;
- Drawing 3 Site Plan;
- Drawing 4 Grading Plan and Profile - 1;
- Drawing 5 Grading Plan and Profile - 2;
- Drawing 6 Drainage Plan;
- Drawing 7 Civil Details; and
- Drawing 8 Drainage Details

17.2 Facility Access

17.2.1 Operator in Charge

The operator in charge (OIC) will be responsible for monitoring access to the Facility. The OIC will schedule deliveries to ensure staff supervises all unloading operations. Public Access will be prohibited and enforced by the OIC.

17.2.2 Operating Hours

The proposed operating hours are subject to approval by TCEQ for extended waste acceptance hours.

The waste acceptance hours will be between Monday through Sunday, 7:00 a.m. to 7:00 p.m. Operating hours for operating heavy equipment and transporting materials on-site or off-site will be Monday through Sunday from 6:00 a.m. to 8:00 p.m. Since the Facility is located in a sparsely populated area with 24-hour agribusiness operations, the operating hours will not impact area residents or businesses.

Consolidated feedstock from several sources is gathered in bulk and transported in liquid tankers. The operating hours will permit waste haulers to optimize their service routes and accommodate their customers by servicing their grease traps during non-peak hours between 3:00 and 5:00

p.m. Composting operations are sometimes performed outside standard operating hours, as required by weather, holidays, or emergency situations that could result in the disruption of waste management services in the area. When any alternative operating hours are needed to accommodate such conditions, Facility personnel will record the dates, times, and duration in the site operating record.

17.2.3 Facility Sign

A sign will be conspicuously display at the entrance to the Facility, measuring at least 4-feet by 4-feet with letters at least 3 inches in height, stating the Facility name, type of facility, standard hours of operation, the permit number, and Facility rules. The posting of erroneous or misleading information will be prohibited. The potential sign will contain at least the following:

- SouthWaste Sealy Composting Facility;
- Telephone number;
- Permit number;
- Check in at office; and
- No public access allowed.

17.2.4 Facility Access Control

Access to the Facility will be controlled to prevent disposal of unauthorized and prohibited materials and scavenging. The following measures will be implemented:

- At least one OIC will be present at the Facility during operations to monitor visitors or transporters.
- The Facility will be completely enclosed with a perimeter fence, consisting of a 4-foot barbed wire fence with lockable gates.
- The entrance and exit gates will be secured when the Facility is not operational.
- No Trespassing signs will be placed around the perimeter of the Facility.
- The fence, gates, and roads will be inspected on a weekly basis. Any access breach or unsafe condition will be repaired as soon as practical and noted in the Facility weekly log.
- A sign located at the entrance of the Facility will state that all visitors must check in at the office.
- Deliveries are scheduled by the OIC to facilitate orderly unloading.
- Unauthorized access will be prohibited. No public access is allowed.
- All truck traffic will be supervised by on-site personnel and must proceed directly to the loading and unloading areas.

- Only vehicles authorized by the OIC, personal vehicles of employees, and authorized haul vehicles will have access beyond the Facility entrance.
- All inbound and outbound traffic is closely monitored.
- Off-loading, loading, and processing preparation are limited to daylight hours.
- The Facility is located in a remote area. It is set back from Brazos 10 Lane with a landscape barrier that obscures the Facility from normal observation from the road, but maintains inspection capabilities by personnel from the road.
- At the Facility, transport units will be stored within the perimeter fencing and locked gate. The OIC will monitor the units. The cab will be locked. All valves will be locked to prevent discharge of liquids. Solid material will be covered.

17.3 Odor Control

Odors will be minimized through the use of best management practices (BMPs), including:

- Liquid feedstocks will be stored in enclosed aboveground storage tanks;
- Application of feedstock will not occur during high winds;
- Adequate bulking material will be used; and
- Bulking material will be turned and tilled immediately after feedstocks are applied.

In addition, an olfactory inspection will be performed daily to that ensure odors are minimized as described Sampling and Monitoring section in Part IV of this application. Nuisance odors will be prevented from leaving the boundary of the Facility. If nuisance odors are found to be passing the Facility boundary, the OIC will suspend odor-producing operations until the nuisance is abated.

The GSS processing area will be located in a remote area with at least a 50-foot set back distance from the Facility boundary to prevent creating odor nuisances.

17.4 Dust Control

No hoppers will be located or used for waste collection.

Dust will be controlled with water application, as needed. Graveled areas will be maintained to prevent rutting and potholes.

17.5 Storage Units and Equipment Details

17.5.1 Storage Units

Storage units will be purchased from a vendor and will be welded steel tanks that meet at least the standards contained in either (1) the American Petroleum Institute (API) Specification 12F -

Specification for Shop Welded Steel Tanks for Storage of Production Liquids, or (2) the API Standard 650 - Welded Tanks for Oil Storage.

Tanks will be leak resistant, corrosion resistant, and designed to handle thermal stresses for outdoor storage at the Facility. Tanks are planned to be 750 barrels (or approximately 31,500 gallons).

Storage tanks for untested, reclaimed water and liquid waste will be placed on a composite liner surrounded by clay berms designed to provide sufficient secondary containment for the largest tank volume, precipitation from the 25-year, 24-hour design storm, and an additional 1 foot of freeboard.

17.5.2 Compost Pad

The 11-acre GSS processing area includes an approximately 3.5-acre compost pad retention pond and a 7.5-acre compost pad. The entire area will include a composite liner as described in Section 22.1. The compost pad is designed to provide a footprint for approximately 20 windrows approximately 600 feet in length. Based on typical windrow dimensions, more than 100 tons of wood chips can be processed per operating day.

Pending the results of compost demand and feedstock availability, the liner for the compost pad is expected to be built in two phases. A temporary berm will be constructed between the two construction phases to the same specifications as the GSS processing area berms. The entire compost pad retention pond will be constructed during the first construction phase to handle stormwater run-off within the GSS processing area.

17.5.3 Feedstock Storage Area

The feedstock storage area is the receiving area for liquid waste transporters and the liquid feedstock storage area. The area is comprised of eight 31,500-gallon, welded steel storage tanks as specified in Section 17.5.1. Secondary containment for this area is described in Section 17.6. The feedstock storage area is designed to hold a one day supply of feedstock at the maximum incoming daily rate, but will likely provide up to one week of storage under typical daily operations. Feedstock is transferred using the liquid transfer equipment.

17.5.4 Liquid Transfer Equipment

1. *Receiving Transfer.* The transport truck vacuum pump system or equivalent will be used to transfer liquid feedstock into storage tanks.

2. *Liquid Feedstock Transfer.* The Facility vacuum truck or equivalent will extract liquid feedstock from the on-site storage tanks. The pump system on the vacuum truck will be used to spray liquid feedstock directly onto prepared windrows of bulking material located within the processing areas.

17.5.5 Final Product Screening and Stockpile

Finished compost will be stockpiled in an approximately 3.5-acre area north of the compost pad. Assuming a 30 percent volume reduction for compost maturation and an additional 30 percent reduction for screening, the footprint for final product from the 7.5-acre compost pad will be approximately 3.7 acres. The final product area will hold approximately a 90-day supply of finished compost, pending delivery of final product to end users.

17.6 Containment Dikes or Walls

The secondary containment for the feedstock storage area is designed to hold the volume of the largest tank (31,500 gallons) and a 25-year, 24-hour rain event (8.5 inches); in addition, it provides 12 inches of freeboard. The secondary containment area will include a composite liner (geomembrane on top of a clay liner) and will be surrounded by compacted clay berms designed to minimize leakage in the event of a release of feedstock.

Section 18. Process Description and Controls

18.1 Process Diagrams and Drawings

This section specifically describes the GSS composting process at the GSS processing area. Composting of other approved materials will occur at either the GSS processing area or at other areas to the north and west, so long as it does not interfere with site drainage or wash off-site.

SouthWaste will perform GSS feedstock mixing, composting, and post-processing on the lined processing area (the lined pad used for composting and curing). However, as a part of this permit application, SouthWaste is requesting a variance from the Executive Director with regard to the screening and storage of finished compost and bulking material.

A process diagram that displays graphically the narratives is presented in Figure 9.

18.1.1 Variance #1

Variance #1: Storage of bulk material and finished Grade 1 or Grade 2 compost.

SouthWaste is requesting an approval from the Executive Director to chip/shred bulking material and screen and store finished Grade 1 or Grade 2 compost (not Waste Grade) at unlined portions of the Facility. Given that only GSS compost meeting the maturity requirements discussed in Section 18.6 and bulking material would be placed outside the liner in this manner, this should not result in any compromise to public health and safety. The finished materials are intended for use in landscaping, vegetable gardens, and similar uses; therefore, storage of these materials on the unlined ground surface should not represent any potential for damage or impact to groundwater resources. Bulk materials and finished compost managed and stored in lined areas would limit the Facility's composting efficiency, resulting in an unnecessary hardship.

18.2 Equipment

Table 7 presents the minimum amount of equipment normally on-site and the provided equipment's operational capacity to adequately conduct the operation in conformance with the engineering design and industry standard operating procedures.

Table 7. Equipment

Equipment Name	Min No.	Capacity	Function	Inspection and Maintenance
Self-Propelled Tiller (a.k.a windrow turner)	1	Up to 800-1000 m^3/hour	Blends, mixes, and turns compost	▪ Inspect for hydraulic and oil leaks, water, and engine efficiency. ▪ Inspect for caked on residue. ▪ Repair per manufacturer's recommendations. ▪ Remove residue off blades.
Front-end Loader	2	Up to 15 m^3 bucket capacity	Compost and bulking material handling. Compost pad maintenance and spill and small fire control.	▪ Inspect for hydraulic and oil leaks, water, and engine efficiency. ▪ Repair per manufacturer's recommendations.
Excavator	1	Up to 190,204 lb operating weight	Compost and bulking material handling. Compost pad maintenance.	▪ Inspect for hydraulic and oil leaks, water, and engine efficiency. ▪ Repair per manufacturer's recommendations.
Dump Truck	1	Up to 70.5 tons carrying capacity	Compost and bulking material handling.	▪ Inspect for hydraulic and oil leaks, water, and engine efficiency. ▪ Repair per manufacturer's recommendations.
Chipper / Grinder	1	Up to 100 tons/hour	Chips and Shreds raw bulking material	▪ Inspect for hydraulic and oil leaks, water, and engine efficiency. ▪ Repair per manufacturer's recommendations.
Feedstock storage tank	8	31,500 gal	Hold liquid feedstock materials for processing	▪ Inspect piping, gaskets, orifices, and tanks for leaks. ▪ Repair per manufacturer's recommendation.

Table 7. Equipment (continued)

Equipment Name	Min No.	Capacity	Function	Inspection and Maintenance
Vacuum Truck or equivalent	1	Up to 7,000 gal	Unloads liquid feedstock into the storage tanks / distributes feedstock to windrows	▪ Inspect for hydraulic and oil leaks, water, and engine efficiency. ▪ Inspect for tank compartment for leaks. ▪ Repair per manufacturer's recommendations. ▪ Remove residue.
Water storage tanks	1	20,000 gal	Water storage	▪ Inspect piping, gaskets, orifices, and tanks for leaks. ▪ Repair per manufacturer's recommendation.
Pumps	1	Up to 300 gpm	Transfer liquid raw materials and products	▪ Inspect piping, gaskets, orifices, and motor. Repair per manufacturer's recommendation.
Water truck	1	3,000 gal	Dust control	▪ Inspect tanks for leaks. ▪ Inspect and Repair working parts per manufacturer's instructions.

18.3 Feedstock Identification

An estimated 270,000 tons of feedstock will be composted annually. The largest portion of the incoming feedstock will be grease trap waste. Initially, incoming grease trap waste will be brown grease, but yellow grease processing may be included in future operations. Since, the TCEQ does not regulate yellow grease processing, a permit modification will be requested only if the yellow grease operation area is relocated. The Department of State Health and Services will be contacted for authorization to process yellow grease prior to any acceptance of this type of waste. Incoming feedstock to be received will not exceed 72 million gallons per year. This quantity is 930 tons per day (22,300 tons per month, assuming 24 operating days per month) or 250,000 gallons per operating day (assuming 7.44 pounds per gallon typical for grease trap waste). Expected to account for less than 10 percent of the incoming feedstock at this Facility, the other feedstocks accepted at the Facility are:

- Municipal sewage sludge;
- Septage; and
- Dairy/food including meat and fish.

The bulking material used in the process will be chipped and shredded wood and vegetation. Bulking material will be either received already chipped and screened or will be received in raw form and chipped on the property. Up to 32,000 cubic yards of bulking materials may be in-process on the compost pad at any point in time. Due to reduction in volume from maturation and screening, this volume results in approximately 15,680 cubic yards of finished compost. Chipping and shredding of bulking material is performed in an area outside the lined portion of the Facility. In addition, chipped and shredded bulking material may also be brought to the Facility from off-site locations. Energy and Mass Balance calculations for the GSS and non-GSS waste composting process are presented in Table 8. These calculations present the amount of product that will be produced based on anticipated amounts of bulking and feedstock materials.

Table 8. Energy and Mass Balance Calculations

Input Information	Calculations
Bulking Material Calculations:	
▪ 1,600 cy wood chips in each windrow x 20 windrows ▪ Process requires approx. 90 calendar days to mature	▪ 32,000 cy of chips on pad (=1,600 cy chips per windrow * 20 number of windrows) ▪ 356 cy chips used / calendar day (=32,000 cy / 90 calendar days) ▪ 8,000 tons chips / 90 days (=32,000 cy * 0.25 ton / cy) ▪ 111 tons chips / operating day (=8,000 tons / 3 months / 24 operating days per month ▪ 2,667 tons chips / month (=8,000 tons / 3 months)

Input Information	Calculations
Feedstock Calculations:	
▪ 250,000 gal of feedstock per operating day applied to windrows	▪ 930 tons per operating day of feedstock coming in (=250,000 gal * 7.44 lb per gal / 2,000 lb per ton) ▪ 22,320 tons per month of feedstock coming in (=930 tons * 24 operating days per month) ▪ 66,960 tons of feedstock coming in / 90 days (=22,320 tons per month * 3 months) ▪ 267,840 tons per year of feedstock coming in (=22,320 tons per month * 12 months) ▪ 6,000,000 gal / month of feedstock (=250,000 gal * 24 operating days per month)
Product Calculations:	
▪ 30% volume reduction during composting for maturation ▪ ▪30% further volume reduction when screened	▪ 32,000 cy of chips on pad in 90 days ▪ 22,400 cy of compost / 90 days (after 30% reduction for maturation) ▪ 15,680 cy of finished compost / 90 days (after additional 30% reduction for screening of mature compost) ▪ 5,227 cy finished compost / month ▪ 62,720 cy finished compost / year ▪ 29,792 tons of finished compost / year (assuming a finished compost unit weight of 950 lb / cy) ▪ 2,483 tons of finished compost / month ▪ 83 tons of finished compost / calendar day

Assumptions: 7.44 lb / gallon feedstock
950 lb / cy compost
0.25 ton / cy chips
24 operating days / month
12 months / year

Conversion Factors: 2,000 lb / ton
7.48 gal / cf

The operator will visually examine the feedstock during transfer and processing to remove visual un-compostable material (unauthorized materials). Coarse straining may be used to remove non compostable materials in liquid raw material.

The Facility will not accept household wastes, source-separated recycling, or related materials.

18.4 Receiving/Tipping Process

18.4.1 Feedstock

Both pre-chipped and shredded bulking material and raw bulking material will be delivered by truck to the Facility. Raw bulking material will be stored and then chipped and screened in an on-property area east of the processing area (Sheet 3). The Facility will be equipped with a chipper/grinder to chip and grind raw bulk material. The chipper/grinder will be equipped with low-velocity spray nozzles to minimize the generation of dust during operation. The chipped and shredded bulking material will be placed on the processing areas in windrows using a front-end loader.

Feedstock is received at the Facility by tanker trunks. The liquid feedstock will be either pumped into one of eight 31,500-gallon aboveground storage tanks for temporary storage or pumped to the Facility vacuum truck or equivalent to be sprayed directly onto prepared windrows of bulking material located within the processing areas. The storage capacity of the

aboveground tanks will allow the liquid feedstocks to be applied in a consistent manner and provide additional feedstock storage capacity that can be used during periods of rainfall that limit feedstock application. No feedstock will be accepted in excess of the available capacity of the storage tanks. The OIC monitors traffic and off-loading to prevent spills, leaks, and unauthorized materials or dumping. A Manifest or Bill of Lading is required for each load that describes the load's source, contents, and volume. Haulers are required to have the appropriate licenses or registrations.

Due to the way the liquid feedstocks are handled, the potential for spillage outside the lined processing area will be minimal. In the event that liquid feedstock is spilled outside the composting pad, the feedstock and affected surface soils will be promptly recovered using a front end-loader and incorporated into the composting process. In the event that bulking material is spilled onto the ground, it will be promptly recovered with a front-end loader and returned to the windrows. The front-end loader and shovels will be used daily to maintain the tipping area and windrows.

18.5 Processing

18.5.1 Material Processing

Feedstocks will be applied to the windrows using a vacuum truck or equivalent equipped with a 3- or 4-inch hose. Once the feedstock is applied to a windrow, the windrow will be immediately turned, mixed, and re-homogenized using a self-propelled tiller to thoroughly mix feedstock and bulking material. This process allows the feedstocks to be evenly distributed through the windrows and prevents moisture or liquids from collecting at the base of the compost material.

Once tilled, the windrows will be monitored to ensure the moisture content and carbon to nitrogen ratio are consistent to maintaining adequate composting. Measurements of nitrogen and carbon ratios will be monitored daily.

The desired initial moisture content of the compost is 40 to 60 percent by weight. Moisture content will be evaluated and measured daily. Moisture content will be determined during the composting process using the "squeeze test." The squeeze test is performed by manually gathering and squeezing a handful of the compost material. If water drips out while the compost is under hand pressure, the material is too wet. If the material crumbles apart when the pressure is released, it is too dry. Squeeze test samples will be collected from varying depths and areas of the windrows to evaluate the moisture content throughout the windrow. High moisture contents will be corrected by adding additional bulking material and/or by additional tilling. Low moisture content will be corrected by adding potable water, liquids collected in the retention pond (for GSS composting only), or liquid feedstock, and then tilling.

Once a windrow is considered to have the appropriate moisture content and mixture of bulking material and feedstock, it will be monitored for 15 days. During the monitoring period, the windrow temperature will be measured and recorded regularly using a bi-metal thermometer with a 4-foot probe. Temperature measurements will be collected every 5 to 10 feet along the length of the windrow at a depth of approximately one-third of the windrow height. A temperature of at least 55 degrees centigrade (131 degrees Fahrenheit) will be maintained during

the monitoring period. During the 15-day monitoring period, the windrow will be turned a minimum of five times to maintain an even temperature throughout in order to aid in consistent, thorough composting and to reduce pathogens. The temperature will be measured and recorded each time the windrow is turned during the monitoring period. Once the 15-day monitoring period is completed, the composted material will enter the post- processing phase.

In order to avoid contaminating the final product, no feedstocks or retention pond liquids will be added to a windrow once it enters the monitoring period. In the event that additional feedstocks are inadvertently added to material during the monitoring period, the monitoring period for that material will start over.

18.6 Post-Processing

After the monitoring period, the final GSS product will be placed in a stockpile on the lined processing area for a curing period of at least 60 days. Each batch of final product will be placed in a separate stockpile and assigned a batch number. Each batch will be physically separated to prevent co-mingling of different batches. Each batch will be tested for maturity and final product parameters as described in Section 35.3 in Part IV of this application and will then be assigned a final product grade as described in Section 35.3.2 in Part IV of this application.

Batches that do not meet the maturity parameters will remain on the processing area and continue to be monitored until the maturity parameters are reached. Batches that meet the maturity parameters but do not meet the final product parameters for either Grade 1 or Grade 2 compost (Waste Grade compost) will be disposed off-site at an authorized municipal solid waste facility.

Cured compost meeting either Grade 1 or Grade 2 maturity parameters will be processed through a ½-inch screen to remove over-sized material in the post-processing area outside the lined composting pad. Over-sized material separated during screening will be returned to the windrows to be re-composted.

18.7 Product Distribution

18.7.1 Compost

Compost will be sold only in bulk form. At some point in the future, the Facility may sell containerized compost. Bulk product will be loaded into the purchaser's truck using a front-end loader. The Facility anticipates producing approximately 62,700 cubic yards annually of Grade 1 compost material at peak production (produced from 2,700 tons per month of wood chips and 22,300 tons per month of incoming liquid feedstock). The Facility does not currently plan to produce any Grade 2 compost, but may at some time in the future. The intended final use of the Grade 1 composted material will be as a soil amendment in residential and commercial applications. In the event that final testing indicates that the composted material is Grade 2, it will either be disposed of at a permitted municipal solid waste (MSW) facility or sold only to commercial users and labeled as not for use at residences or child-care facilities. Grade 1 and Grade 2 compost products will not be tracked. The batch number, the permit number of the disposal facility, dates, and the disposed volumes will be tracked for all batches of Waste Grade

compost (i.e., compost to be disposed off-site). The product parameters for each grade of compost are described in Part IV of this application.

The OIC will supervise the delivery of bulking material, directing them to the appropriate storage area. The bulking material will be inventoried daily to ensure that the amount needed to cover or process feedstock is on hand. Record inspections and volume of bulking material will be recorded on the weekly log.

All compost sold will be labeled in accordance with 30 Texas Administrative Code (TAC) §332.74. Compost sold in bulk form will be labeled in the form of vouchers. A voucher will be provided to the buyer with each load of compost. In the future, if the Facility elects to sell compost in containers, a label will be attached to each container. Each voucher and label will include the following information grouped together and printed in both English and Spanish:

1. *For Grade I Compost*: "This product is considered Grade 1 Compost and meets the requirements and standards described in 30 Texas Administrative Code, §332.72 and has unrestricted use. It is recommended that compost be mixed into the top 6 inches (15 centimeters) of soil."

   For Grade 2 Compost: "This product is considered Grade 2 Compost and meets the requirements and standards described in 30 Texas Administrative Code, §332.72 and cannot be used at a residence or licensed child-care facility. It is recommended that compost be mixed into the top 6 inches (15 centimeters) of soil."

2. *Feedstocks from which the compost was derived (grease trap waste, etc.)*. Feedstocks will be listed in descending order of predominance by wet weight. (Added water is not considered a feedstock.)

18.8 Sanitation

18.8.1 Run-on and Run-off Control

The Facility is designed to control rainfall run-on and run-off. A raised railroad adjacent to the south property boundary and an elevated roadway for Bartlett Road adjacent to the east property boundary will minimize the amount of run-on to the site. The GSS processing area (i.e., the lined pad used for composting and curing) is self-contained (i.e., surrounded by berms that prevent run-on) and is sloped toward a stormwater retention pond on the west side of the bermed area to collect run-off from the composting area, designated the compost pad retention pond. Perimeter berms along the west and north property boundary will be used to route on-site run-off to a central point of concentration near the Facility access gate (north of the office). This centralized location will aid stormwater monitoring without increasing run-off north of the site. This will also improve stormwater management as pre-construction run-off from this property was routed through the residential property to the north.

Secondary containment surrounding the liquid feedstock tanks will allow stormwater to be monitored prior to being repurposed. Accumulated stormwater from the liquid feedstock area will either be applied to the windrows or discharged to the compost pad retention pond.

18.8.2 Cleaning Equipment and Connections

SouthWaste intends to install at least one potable, non-public supply water well to supply water to the office and maintenance building. The water well plumbing will be equipped with multiple connections to distribute water to support the composting process. These water connections will be equipped with a back flow check valve to prevent cross contamination. One connection will be used for weekly cleanup activities which may include sweeping, mopping, and/or washing down with water. A pressure washer will be used periodically to remove residuals not removed with the more conservative cleaning methods. The operator may hire a contracting company to perform the pressure washing, as needed. Washing activities will occur on the lined compost pad and will consist of washing hand tools and chemical-free equipment that come into contact with the composting operations. Equipment containing hydrocarbons or chemicals (e.g., vehicles, tractors, chipper/grinder) will not be washed at the Facility. In the event that equipment containing hydrocarbons or chemicals requires washing, then these types of equipment will be washed off-site at an approved washing facility.

18.9 Non Hazardous Waste Storage and Disposal

18.9.1 Non-Hazardous Waste

Solid waste will be stored in a dumpster. Non-hazardous wastes will be transported and disposed of at a permitted landfill on an as needed basis.

18.9.2 Hazardous Wastes

Every effort will be made to exclude hazardous material from the processing system, but in the unlikely event that hazardous wastes are generated, the OIC will apply for a "One-Time Waste Shipment" registration. Hazardous waste will be transported and disposed of at a permitted hazardous waste facility.

Section 19. Endangered Species Protection

DBS&A contracted W&M Environmental Group, LLC (W&M) to conduct a biological assessment (BA) for the Facility. The BA was prepared by a qualified biologist in accordance with standard procedures of the U.S. Fish and Wildlife Service and the Texas Parks and Wildlife Department (TPWD). W&M's qualifications are presented in Section 8.0 of the BA and a letter dated May 20, 2016 affirming W&M's qualification is included in Appendix F. The BA included review of multiple records, site reconnaissance, and interviews with agency representatives to identify whether the proposed activity associated with the composting permit/operations would have an effect on state or federally listed threatened, endangered, or candidate species or critical habitat. The BA evaluated the potential effects of the proposed action (i.e., construction and operation of the Sealy Composting Facility) on listed and candidate species and listed and proposed critical habitats to determine whether any such species or habitat are likely to be adversely affected by the action, in accordance with the requirements of the Endangered Species Act (ESA) and Title 30 of Texas Administrative Code TAC §330 (municipal solid waste [MSW] permits). The BA was used to determine whether formal consultation (with state and federal wildlife agencies) or conference is necessary. The BA is to

be reviewed by state agencies and does not require a full National Environmental Policy Act (NEPA)-compliant review. The BA reported that none of the listed or candidate species with current or historical ranges near the Facility would be negatively affected by the proposed project and no critical habitat for listed or candidate species would be impacted by the proposed development. The BA report is included as Appendix F.

The BA was submitted to the TPWD Wildlife Habitat Assessment Program for their review and approval. The results of the BA are summarized on the TPWD Review Request Form in Appendix A of the BA report (Appendix F). The TPWD received the BA on November 2, 2015. On December 11, 2015, the TPWD Wildlife Habitat Assessment Program indicated that based on the project description, they do not anticipate significant adverse impacts to rare, threatened or endangered species, or other fish and wildlife resources. The cover page of the BA (Appendix F) includes the TPWD-signed acknowledgement stamp.

The Facility is designed to limit the alteration or modification of a potential habitat. To prevent alteration or adverse modifications of a potential habitat and/or endangering an encountered endangered species, the following precautions will be applied during construction:

- Trees and natural vegetation will be maintained as practical.
- Construction workers will be trained to identify endangered species.
- If an endangered species is encountered during a construction activity, and the construction activity endangers it, that construction activity will cease, the owner will be notified, and mitigation will be developed.
- If trees and vegetation must be removed for fire protection and/or safety, the removal will avoid the migration or nesting times of known species.
- During Facility operations, trees and vegetation will only be removed if they pose a fire, vector, or safety concern. The Facility will manage trees and vegetation to prevent potential fires and control vectors in a manner that will not alter or adversely modify any potential habitat.

Section 20. Surface Water Protection Plan

20.1 Run-On and Run-Off Management System

The Facility is designed to control rainfall run-on and run-off. A raised railroad adjacent to the south property boundary and an elevated roadway for Bartlett Road adjacent to the east property boundary will minimize the amount of run-on to the Facility. The GSS processing area (i.e., the lined pad used for composting and curing) is self-contained (i.e., surrounded by berms that prevent run-on) and is sloped toward the compost pad retention pond on the west side of the bermed area to collect run-off from the composting area. Perimeter berms along the west and north property boundary will be used to route on-site run-off to a central point of concentration near the Facility access gate (north of the office).

The composting process is performed and managed so that leachate should not be produced by the application of feedstocks. However, in the event that leachate is produced by direct rainfall, it will be contained within the processing area by the engineered composite liner system and compost pad retention pond. Details of the berms, composite liner system, and retention pond that provide run-on and run-off control for the processing area are included in the Drawings section.

The compost pad retention pond was sized to contain a 25-year, 24-hour rainfall event on the composting pad. In addition to the minimum capacity needed to contain this design storm (approximately 2.5 million gallons), the 3-acre compost pad retention pond has more than 5 million gallons of additional surplus capacity. Given the nature of the Facility's setting (i.e., net evaporative based on mean precipitation and evaporation data), the pond is not anticipated to accumulate significant volumes of water. However, the pond has been designed to maintain sufficient capacity to handle a series of larger rainfall events. Pond liquids will also be used as needed to adjust the moisture content of composting materials. Evaporation and the use of pond liquids in the composting process are the primary means of maintaining adequate capacity in the pond. If this approach is inadequate to maintain capacity, then water will be pumped from the pond and trucked to a permitted off-site treatment facility.

Currently on-site drainage includes three primary drainage reaches (Figure 10). On the west side of the site, stormwater flow is directed off-site to the northwest to natural drainage features located on adjacent properties and then to an unnamed tributary to the Brazos River. Run-off from the central portion of the property travels to the north through existing residential property prior to discharging to the same unnamed tributary to the Brazos River. The eastern portion of the property drains to an on-site, man-made stormwater pond along the eastern property boundary.

Following construction of the Facility, stormwater outside of the GSS processing area will either be collected in a single ditch along the north property boundary or allowed to drain to the existing stormwater pond (Figure 11). The northern portion of the site will be regraded to direct all stormwater from west to east to a single discharge point located near the Facility access gate. This centralized location will aid stormwater monitoring without increasing run-off north of the site (due to a reduction in contributing acreage, the peak flow decreased by nearly 18 percent). This will also improve stormwater management by re-routing run-off around the existing residential property to the north. Run-off from the eastern portion of the property will continue to be directed to the on-site stormwater pond. An overflow culvert will be added under the Facility access road to direct stormwater into the ditch along the north property line.

Run-off from the ditch will be directed through a 12-inch-diameter corrugated high density polyethylene (CHDPE) culvert system and riprap outfall structure to existing drainage ways. The proposed locations of the stormwater collection ditch and outfall structures are shown on the drainage plan drawing (Sheet 6). Cross sections of the ditches and details of the riprap outfall structures are also provided in the Drawings section. Stormwater calculations are provided in Appendix I. The riprap outfall structures will separate and trap suspended material while allowing controlled discharge of stormwater.

Stormwater collection ditches will be periodically inspected, cleaned, and regraded as necessary to maintain unobstructed flow. Riprap outfall structures will be inspected following each rain event. Sediment and other materials trapped at the rock outfall will be removed before the material accumulates to a depth equal to one-fourth the outlet height.

Chipped and shredded wood materials are used for temporary erosion control as needed outside the lined and bermed GSS processing area. In addition, the elevated railway and roadway upgradient from the site will minimize run-on, reducing potential erosion of on-site surfaces. Within the GSS processing area, the composite liner system includes base coarse and filter fabric designed to reduce erosion of materials above the geomembrane.

20.2 Drainage Calculations

The compost pad retention pond sizing calculations are presented in Appendix I. The required minimum volume of the pond was determined using the Natural Resources Conservation Service Curve Number method and the 25-year, 24-hour design storm. This precipitation amount was determined based on the United States Geological Survey (USGS) Depth-Duration Frequency Atlas for Texas published in 2004 in cooperation with Texas Department of Transportation (TxDOT) (USGS, 2004). The retention pond volume was then increased to handle a series of larger rainfall events.

As specified in the TxDOT Bridge Division Hydraulic Manual (TxDOT, 2011), drainage calculations for determination of peak run-off using the Rational Method are also presented in Appendix I for both pre-construction and post-construction conditions. The 25-year design storm most similar to the time of concentration was used to determine peak flow. The self-contained GSS processing area reduced the area contributing run-off to the point of concentration; therefore, construction of the Facility is not expected to impact downgradient properties.

20.3 Erosion Control

Erosion and stormwater controls consist of earthen berms constructed around the perimeter of the processing area and along the western and northern Facility boundaries. In addition, one primary stormwater collection ditch will be used in conjunction with existing drainage features to collect and control run-off from the areas of the Facility lying outside the lined and bermed GSS processing area. These features have been designed to reduce stormwater flow velocities to minimize erosion and scour.

Given the physical and chemical nature of the materials stored in these areas (i.e., wood chips, brush, and mature compost), these materials are not anticipated to be capable of generating leachate that contains dissolved chemicals of concern. However, there is some potential that stormwater run-off may suspend particles of mature compost or wood chips. The stormwater collection features outside the processing area are designed to collect and control both stormwater and any entrained and suspended particulates, and to control the migration of suspended particulates beyond the Facility boundaries.

20.4 Drainage Maps and Plans

Pre- and post-construction on-site drainage maps are provided as Figures 10 and 11. Plan and profile drawings of the Facility GSS processing area and compost pad retention pond are included as Sheets 4 and 5 in the Drawings section. Cross sections of proposed stormwater collection ditches and rock outfall structures are also provided in the Drawings. There are no areas of the property that lie within the 100-year flood plain or contain wetlands. Wetlands features are shown in a U.S. Fish and Wildlife Service National Wetlands Inventory (NWI) map in Figure 6. According to the NWI map, the site is not located in a NWI area.

According to the Federal Emergency Management Agency (FEMA) map Panel 48015C0350E, panel 350 of 475, dated September 3, 2010 (Figure 7), the site is not located in a FEMA flood zone. No mitigation for construction or operation in a flood plain is required.

Section 21. Geological Report

The geologic/hydrogeologic report was prepared by Beronica Lee-Brand, a State of Texas Licensed Professional Geoscientist (TX PG #10465). The following sections discuss the general geologic and hydrogeologic conditions in the vicinity/region of the property and also site-specific conditions beneath the proposed Facility from data collected during the subsurface investigation.

21.1 Regional and Local Geology/Hydrogeology

According to the Bureau of Economic Geology, Geologic Atlas of Texas, Seguin Sheet (1974), the property is located within the Beaumont Clay Formation (Pleistocene) and is surrounded by Quaternary-age lithology. A portion of that sheet, showing the location of the property, is provided as the geologic map for this application (Figure 12). The Oligocene-aged sediments make up the base of the Gulf Coast Aquifer in Texas and include the Tertiary rocks into the Frio Formation, the Anahuac Formation, and the Catahoula Tuff or Sandstone (early Miocene); the Oakville Sandstone and the Fleming formation (mid- to late-Miocene); the Goliad Sand (Pliocene); the Willis Sand, Lissie Formation, and the Beaumont Clay (Pleistocene); and the alluvium (Holocene) (Baker, 1979). A regional stratigraphic column showing hydrostratigraphic divisions for corresponding stratigraphic units is provided on Figure 13 (Baker, 1979).

The Gulf Coast Aquifer is a major aquifer that underlies the Facility; no minor aquifer underlies the Facility. The Chicot Aquifer is the shallowest unit of the Gulf Coast Aquifer. The Gulf Coast Aquifer forms an irregularly shaped belt that parallels the Texas coastline and extends northeastward to the Louisiana border. Groundwater quality in the Gulf Coast Aquifer is generally good northeast of the San Antonio River but declines to the southwest. There are multiple water wells within a half mile of the Facility completed in the Gulf Coast Aquifer, as discussed in Section 21.4. The well reports and boring logs presented in the Environmental Data Resources (EDR) half mile and mile radius water well report indicate alternating clay and sands down to over 200 feet (Appendix G).

Locally and regionally, the Beaumont Formation sand bodies are isolated in floodplain muds and lack the interconnected sand bodies that exist in the Lissie Formation; because of this, the

Beaumont Formation provides a measurable amount of protection to water level change by hydraulically isolating shallow wells completed within the Beaumont Formation [e.g., wells screened less than 200 feet below ground surface (ft bgs)] from the underlying Lissie Formation (Young, 2015).

21.2 Subsurface Soil Investigation

As described in Section 21.1, the Beaumont Formation is found at the surface at the Facility. The Beaumont is composed of clay-rich sediments transected by sandy fluvial and deltaic-distributary channels (Young, 2012). The Geologic Atlas of Texas (GAT sheet) (Fisher, 1974) described the Beaumont Formation as clay, silt, and sand with concretions of calcium carbonate, iron oxide, and iron-manganese oxides common in zones of weathering with a thickness of about 100 feet. Two subunits are distinguished in the Seguin Sheet: (1) dominantly clay and mud of low permeability; and (2) dominantly clayey sand and silt of low to moderate permeability.

As part of this permit application, a boring plan was prepared by DBS&A on July 22, 2015 and revised on October 14, 2015 in accordance with Title 30 of the TAC, Chapter 332.47 (30 TAC 332.47), specifically, Part (6)(B)(iv) of 30 TAC 332.47 (DBS&A, 2015). On October 26, 2015, the boring plan was approved by the TCEQ (Tracking Number 19844155). The approved boring plan is included as Appendix J.

The data acquired from the subsurface investigation were used to support the completion of this Geologic/Hydrogeologic evaluation, including design and installation of required piezometers [proposed Part (6)(B)(v)], completion of a groundwater investigation report [proposed Part (6)(B)(v)], and development of a groundwater monitor system [proposed Part (6)(C)(ii)].

The subsurface investigation was conducted on two occasions during September and October 2015. As part of the investigation, five soil borings were installed at the Facility using hollow-stem auger drilling methods. Each boring was logged in order to characterize soils, collect geotechnical samples, and characterize the shallow groundwater-bearing unit encountered below the property.

Currently, the western portion of the property contains thick grasses and large pecan trees, and the east side of the Facility contains plowed fields. Soil borings SB-1 and SB-4 were installed in the western portion of the Facility and SB-2, SB-3, and SB-5 were installed on the eastern portion of the Facility. The borings were located at the boundaries of the proposed composting pad and were converted to 2-inch-diameter monitoring wells for future groundwater monitoring locations. Sheet 3 illustrates the surveyed locations of the monitoring wells.

The borings were advanced using 8¼-inch-outer diameter hollow stem augers. A 5-foot, 3-inch-diameter core barrel was advanced inside of the augers to allow for continuous sampling, and a 2.5-foot, 3-inch-diameter Shelby tube was advanced in front of the augers to allow the collection of geotechnical samples. Soil cores were inspected by the DBS&A geologist and screened for the presence of hydrocarbons using a photoionization detector (PID) with an 11.2-electron volt lamp. There were no elevated PID responses for any interval of any boring. During the field exploration activities, the DBS&A geologist recorded detailed soil descriptions using the Unified Soil Classification System, including the symbol, soil type, color, texture, grain size, sorting,

plasticity, and moisture content. Soil borings SB-1 and SB-5 were continuously logged using the core barrel sampler. SB-2 was continuously logged down to 10 feet and then logged by observing the soil cuttings at surface as the augers were advanced to desired depth. SB-3 and SB-4 were logged using soil cuttings only.

Organic soil with sand was encountered at each boring ranging from 1 to 1.5 ft bgs. Below the organic soils, silty and lean clays of low to moderate permeability were logged to a depth of 6 feet at SB-1, 9 feet at SB-2, 15 feet at SB-3, 15 feet at SB-4, and 12 feet at SB-5. Silty and poorly graded sands with silt and gravel were encountered at each boring below the silty and lean clays. At each boring, sands extended down to 85 feet in SB-1, 82 feet in SB-2, 81 feet in SB-3, 83 feet in SB-4, and 82 feet in SB-5. Below the sands, a clay with gravel layer was encountered followed by a stiff, waxy clay at each boring. A claystone was encountered at 87.5 feet in SB-5. Cross sections using the information from each boring and depicting the generalized strata are presented on Figure 14. Boring logs are provided in Appendix K. Based on the information obtained from the soil borings, DBS&A confirms that the Facility overlies the Beaumont Formation as shown by the alternating fine grained clays, silts, sands, and some gravel. The evaluation of the five soil borings indicated no underlying hydraulically interconnected aquifers below the Facility. A discussion of the confining unit identified at the Facility is provided in the Section 21.3 and 21.5.

21.3 Groundwater Investigation

Following soil boring installation and sampling, each boring was completed as a permanent above-grade monitoring well (SB-1/MW-1 through SB-5/MW-5). MW-1, MW-2, MW-3, and MW-4 were screened from 45 to 65 ft bgs. MW-5 was screened from 49 to 69 ft bgs. Well completion diagrams are included on the boring logs provided in Appendix K. The wells were completed with 20 feet of 2-inch-diameter, 0.010-inch slotted polyvinyl chloride (PVC) screen, and sufficient 2-inch-diameter PVC riser pipe to extend from the top of the well screen to approximately 3 feet above the ground surface. The well screen was set to straddle the top of the saturated zone, extending at least 15 feet below the observed saturated zone. A graded clean silica sand filter pack was emplaced in the annulus of the screened interval from the total depth of the soil boring to approximately 2 feet above the top of the screened interval. A hydrated bentonite seal was placed above the sand filter pack.

On October 16, 2015, static water levels from ground surface were measured at 48.00 ft bgs at MW-1, 51.48 ft bgs at MW-2, 58.17 ft bgs at MW-3, 49.83 ft bgs at MW-4, and 56.75 ft bgs at MW-5. The average groundwater gradient at the Facility is 0.00086 feet per foot and flow is to the south (Figure 15). In preparing the boring plan for this Facility, surrounding water well reports were reviewed and a generalized cross section was prepared (Figure 16). Based on the generalized cross section A to A', it appears that there are multiple confining clay units below the shallow groundwater bearing unit at the Facility. As shown in Table 9, the surrounding wells are screened at much deeper depths than the on-site monitoring wells, but static water levels range from 30 to 95 ft bgs, indicating a shallow confined groundwater bearing unit. This is consistent with the Beaumont Formation description in Section 21.1 having isolated sand bodies in flood plain muds. The geotechnical sample results are discussed in Section 21.5.

The groundwater data collected from the Facility to date and in the future will be used to establish and present the groundwater flow characteristics at the site, including groundwater elevation, groundwater gradient, direction, flow characteristics, and most likely pathway(s) for potential pollutant migration.

Table 9. Surrounding Well Information

Well ID	Distance to Site Boundary (mile)	Well Depth (ft bgs)	Static Water Level (ft bgs)	Confining Clay Interval (ft bgs)	Screen Interval (ft bgs)
228635	0.49	200	66	101-163	166-186
113203	0.22	307	95	98-120	287-307
8(5)	0.06	160	60	80-110	140-160
53981	0.04	368	70	92-150	379-389
82106	0.16	271	55	105-125	217-267
284690	0.4	216	30	80-100	205-215
66168AA	0.61	143	55	83-134	135-143

21.4 Surrounding Water Wells

Well data for wells within one mile of the site were aggregated from various sources by EDR and presented in the Texas Water Well Report (2015a) and the Texas Oil & Gas Report (2015b). Additional research was conducted by DBS&A personnel using the TWDB's Water Data Interactive viewer to expand the search radius slightly to encompass an area one mile from the site boundary, rather than the site center. Some older wells found in the TWDB groundwater database are identified by an eight-digit well identification (ID) that corresponds to the specific State Well Grid number in which the well is located and the order in which the well was cataloged. Other wells are identified by a five- or six-digit State of Texas Well Report Tracking Number. All other wells have either incomplete well IDs or no ID associated with them and were assigned map IDs by EDR. The present use of groundwater withdrawn from aquifers in the vicinity of the Facility is domestic, irrigation, industrial, and public supply.

There are no active oil or gas wells within the investigative area, although three dry holes and one canceled location were identified by EDR during their records search (EDR, 2015b). These four locations are greater than 0.5 mile from the site.

There are 38 water wells identified by EDR and DBS&A personnel within the investigative area; 22 of the wells are within 0.5 mile of the site, but all are more than 500 feet from the site (EDR, 2015a; TWDB, 2015). Table 10 presents the wells within 1 mile of the site found during the records search.

Geographic coordinates for Map ID 53981 indicate that the well is less than 500 feet from the site. However, these coordinates lack precision, and site visits have not revealed the presence of a well indicated on the map. It is likely that this well is located closer to the building owned by Vital Link.

Geographic coordinates for Map ID 8(5) are not recorded on the well log. The location by street address, as plotted by EDR, is in the middle of I-10. It is highly unlikely that there is a domestic well at that location, and it is safe to assume that the well, if it exists, is greater than 500 feet from the site.

Field observations have not observed any wells within 500 feet of the site.

Table 10. Wells within 1 Mile

Map ID	Well ID	Owner	Distance to Site Boundary (mile)	Latitude	Longitude	Elevation (feet)	Well Depth (feet)	Static Water Level (feet)	Use [a]
1	82106[1]	Pencco	0.16	29.776667	–96.072222	135	271	55	I
2	8(1)[1]	David & Terri Windsor	0.13	NR	NR	NR	194	30	D
3	37049[1]	Vital Link	0.25	29.774242	–96.070847	NR	389	70	P
4	53981[1]	Vital Link	0.04	29.774167	–96.074722	NR	368	70	I
5	8(3)[1]	Vital Link	0.18	29.775425	–96.071541	NR	401	81	P
6	6616807[1]	Rendrag, Inc.	0.13	29.774443	–96.072777	150	248	54	I
7	8(5)[1]	Bob Young	0.06	NR	NR	NR	160	60	D
8	6616808[1]	Steve Silva	0.23	29.771943	–96.073054	150	78	46	D
9	6616809[1]	Frank Lezak	0.26	29.771943	–96.072221	151	86	35	D
10	U1[1]	I. Zapolac	0.28	NR	NR	NR	80	53	D
11	8(4)[1]	James Ford	0.23	NR	NR	NR	274	NR	D
12	24756[1]	AEM	0.12	29.773056	–96.08	NR	163	52	D
13	6616806[1]	Frank Kucera	0.13	29.773054	–96.081110	150	50	NR	D
14	113203[1]	Adan Chavez	0.22	29.771944	–96.080833	NR	307	95	D
15	38315[1]	Al Konvicka	0.29	29.770556	–96.079444	NR	143	67	D
16	6616804[1]	NR	0.75	29.788055	–96.076110	126	NR	26.55	S
17	396529[1]	Frank Ehon	0.73	29.787222	–96.074167	132	180	35	D
18	175239[1]	Val Eschenberg	0.7	29.786944	–96.074167	NR	167	34	D
19	8(6)[1]	Cliff Jones	0.76	NR	NR	NR	216	27	D
20	66168AA[1]	John Scheffer	0.61	NR	NR	NR	143	55	D
21	284690[1]	Brian Bro	0.4	29.779444	–96.068887	NR	216	30	Ir
22	274817[1]	Brian Bro	0.39	29.774167	–96.068333	NR	218	80	Ir
23	6616811[1]	Vick Boyd	0.49	29.773888	–96.066943	140	300	NR	D
24	6616801[3]	V. L. Boyd	0.84	29.772777	–96.061111	142	100	46.3	U
25	6616802[3]	V. L. Boyd	0.93	29.776388	–96.059444	130	300	38.15	D
26	6616810[1]	Johnny Wells	0.40	29.771666	–96.069443	150	257	52.2	D
27	8(7)[1]	Joseph Manak	0.57	NR	NR	NR	92	50	D
28	66168A[1]	Donald Hamil	0.66	NR	NR	NR	88	48	D
29	8(2)[1]	Adela Hundl	0.82	NR	NR	NR	96	52	D
30	175236[1]	Larry and Cindy Siska	0.65	29.765278	–96.079722	NR	200	64	D
31	66168CC[1]	Charles Mlcak	0.41	NR	NR	NR	86	48	D
32	228635[1]	Larry Siska	0.49	29.767778	–96.081667	NR	200	66	D

Map ID	Well ID	Owner	Distance to Site Boundary (mile)	Latitude	Longitude	Elevation (feet)	Well Depth (feet)	Static Water Level (feet)	Use [a]
33	96325[1]	Apex Stone LLC	0.33	29.773889	–96.085833	NR	240	60	I
34	6616702[1]	Ronnie Ross	0.83	29.774721	–96.094166	150	98	48	D
35	66168K[1]	George Smith	0.65	NR	NR	NR	78	50	D
36	209680[1]	Jose Benitez	0.77	29.782222	–96.091111	NR	220	83	D
37	322099[1]	Jose Arriaga	0.83	29.783056	–96.091111	167	228	91	D

Table 10. Wells within 1 Mile (continued)

Map ID	Well ID	Owner	Distance to Site Boundary (mile)	Latitude	Longitude	Elevation (feet)	Well Depth (feet)	Static Water Level (feet)	Use [a]
38	10070[1]	Debbie Thomas	0.78	29.785278	–96.088611	NR	140	55	D
39	1[2]	NA - dry hole	0.73	29.7853	–96.0680	—	—	—	—
40	2[2]	NA - dry hole	0.6	29.7737	–96.0650	—	—	—	—
41	3[2]	NA - dry hole	0.77	29.7729	–96.0622	—	—	—	—
42	4[2]	NA - canceled	0.55	29.7712	–96.0667	—	—	—	—

[a] D = Domestic
I = Industrial
P = Public Supply
Ir = Irrigation
S = Stock
U = Unused

Sources: [1] EDR Texas Water Well Report, 2015
[2] EDR Texas Oil & Gas Report, 2015
[3] TWDB Water Data Interactive, 2015

NR = Not reported
NA = Not applicable
— = No well

21.5 Geotechnical Study

During the subsurface investigation, DBS&A personnel advanced Shelby tubes for the collection of geotechnical samples at six intervals. The samples were submitted to the DBS&A Soil Testing and Research Laboratory in Albuquerque, New Mexico and were analyzed for dry bulk density (ASTM D7263), moisture content (ASTM D7263, ASTM D2216), calculated porosity (ASTM D7263), saturated hydraulic conductivity (ASTM D 2434), falling head rising tail (ASTM D5084), particle size analysis, USCS (ASTM) Classification (ASTM D422, ASTM D2487), USDA Classification (ASTM D422, USDA Soil Textural Triangle), Atterberg Limits (ASTM D4318), and visual-manual description (ASTM D2488). Geotechnical reports for samples obtained during the subsurface investigation include tabulated results and are provided in Appendix L.

Undisturbed geotechnical samples could not be collected from the base of soil borings SB-1 and SB-5 due to the center drill rod locking up from flowing sands at SB-1 and the extremely hard nature of the claystone encountered at 87.5 ft bgs at SB-5. However, clay was observed as it adhered to the last hollow stem auger advanced at both locations. At each boring, the clay was described as dry to moist clay with gravel with medium plasticity. The clay and claystone encountered at the terminal depth of the borings are consistent with the information presented in the generalized cross section (Figure 16); this observation confirms the clay confining unit of the

uppermost aquifer. In addition, two disturbed bottom samples were collected at soil boring SB-5 from the 84-85 feet and 85-87.5 feet depth intervals. These samples were submitted to the laboratory and analyzed for the geotechnical parameters listed above. Based on the geotechnical laboratory report, the two SB-5 bottom samples indicate very low saturated hydraulic conductivities, which further confirms the aquiclude encountered within the uppermost aquifer. Results of the saturated hydraulic conductivities are summarized in Table 11.

Table 11. Saturated Hydraulic Conductivities

		Method of Analysis	
Sample Identification	K_{sat} (cm/s)	Constant Head Flexible Wall	Falling Head Flexible Wall
SB-1 (6'-8.5') Horizontal	7.3×10^{-3}	X	
SB-1 (12'-14.5') Vertical	1.8×10^{-2}	X	
SB-2 (6'-8.5') Horizontal	1.1×10^{-5}		X
SB-4 (3'-5.5') Horizontal	3.3×10^{-7}		X
SB-5 (6'-8.5') Horizontal	3.37×10^{-7}		X
SB-5 (12'-14.5') Vertical	3.68×10^{-6}		X
SB-5 (84'-85') Disturbed	6.42×10^{-9}		X
SB-5 (85'-87.5') Disturbed	4.08×10^{-9}		X

21.6 Active Geologic Processes

There are no differential subsidence or active geologic processes within ½ mile of the site including faults and/or subsidence in the area of the Facility. The nearest fault is approximately 15 miles northeast of the Facility. Faults are noted on the geologic map (Figure 12), as presented in the GAT sheet prepared by the Bureau of Economic Geology digital data set. Active faults are not known to exist within ½ mile of the property; therefore, the Facility is not required to investigate for unknown faults. There are no areas experiencing withdrawal of crude oil, natural gas, sulfur, etc., or significant amounts of groundwater; therefore, the possibility of differential subsidence or faulting investigation is not required.

Section 22. Groundwater Protection Plan

The Facility has been designed and will be constructed and operated to protect groundwater from impact from the Facility operations. The groundwater protection measures in place include a composite geomembrane liner system underlying the GSS processing area, management practices used in the composting process, and a groundwater monitoring system. Protection of the groundwater includes perched water or shallow surface infiltration.

22.1 Liner and Pad System

Composting and processing operations will be performed within an area constructed specifically for this purpose. To reduce the potential for run-off from the lined area, he composting area will be surrounded on all sides by earthen berms. These berms will also reduce the potential for run-

on to the composting pad, minimizing the potential presence of liquids above the liner. Three ramps will be constructed to allow access to the processing pad by vehicles and equipment. The ramps will be elevated above the surrounding ground surface, further preventing run-on to the pad. The composting pad has been designed to slope away from the ramps and toward the stormwater retention pond, preventing run-off from the pad.

A composite liner system will be constructed under the compost pad retention pond to provide an equivalent hydraulic conductivity of 1 x 10^{-7} centimeters per second (cm/s) or less. The subgrade will be excavated at least 6 inches below the liner and re-compacted to provide a uniformly compacted finished surface. The liner will include 2 feet of compacted, on-site clay soils, placed in 6-inch lifts, under a 40-mil double-textured HDPE liner. Protective soil over the liner will include 1 foot of on-site sandy soils and a minimum 6-inch layer of base-coarse. A 10-ounce nonwoven geotextile will be installed between the sand and base-coarse to provide soil stability and filtration capacity between the two materials. The fabric will also be a visual warning to scour and will help preserve the life of the underlying geomembrane.

Based on the DBS&A soils testing laboratory report (Appendix L), soil samples representative of on-site clay soils consist of more than 30 percent passing a number 200 sieve and have a liquid limit greater than 30 and a plasticity index greater than 15 as required in TAC 330.339.

22.2 Liner Quality Control Plan

In order to document the construction of the composite liner and subgrade, a Liner Quality Control Plan has been developed as the basis for the type and rate of quality control testing performance for the Liner Evaluation Report (LER) as required in 30 TAC §330.341of this title. This report will include an evaluation of both the soil and geomembrane components of the liner system and will be prepared in accordance with the approved Liner Quality Control Plan. The Liner Quality Control Plan is provided in Appendix M.

All field sampling and testing, both during construction and after completion of the lining, will be performed by, or under the direct supervision of, a qualified professional experienced in geotechnical engineering and/or engineering geology. All liners will have continuous on-site inspection during construction by the professional of record, or his designated representative.

All quality control testing of soil liners will be performed during the construction of the liner. Under no circumstance will any quality control field or laboratory testing be undertaken after completion of liner construction, except for that testing which is required of the final constructed lift, confirmation of liner thickness, or cover material thickness.

All soil testing and evaluation of either in situ soil or constructed soil liners will be complete prior to installing the leachate collection system or, if a leachate collection system is not required, prior to adding the 1 foot of protective cover on the evaluation area.

Soil and liner density will be expressed as a percentage of the maximum dry density and at the corresponding optimum moisture content specified as appropriate by a licensed professional engineer experienced in geotechnical engineering. Upon testing in either the laboratory or at a test pad in the field, the compacted soils must demonstrate a coefficient of permeability no greater than 1 x 10^{-7} cm/s.

Unless alternative construction procedures have prior written approval by the executive director, all constructed soil liners will be keyed into an underlying formation of sufficient strength to ensure stability of the constructed lining.

22.3 Management Practices

Composting operations will be performed to minimize the potential for uncontained free liquids on or off the pad. In the absence of free liquids, the potential for contaminant transport from the composting operations is minimized. Management practices that either contain or minimize free liquids include:

- Containment of all liquid feedstocks in steel, aboveground storage tanks, placed within a bermed spill control area.
- Limitation of feedstock application rates to avoid free liquid formation on the GSS composting pad or approved non-GSS waste composting areas.
- Use of highly sorptive bulking material (i.e., shredded wood and brush).
- The prompt mixing of windrows after feedstock application to maximize absorption of the feedstock liquids.
- Containment of rain falling directly on the GSS composting pad within a lined retention pond.

22.4 Groundwater Monitor System

The groundwater monitoring system is designed to reasonably assure detection of any contamination of the groundwater before it migrates beyond the boundaries of the site. The groundwater monitoring system consists of the five monitoring wells that were installed during the subsurface/groundwater investigation described in Section 21. The groundwater monitoring wells were installed around the perimeter of the processing area (Sheet 3), providing up-, cross-, and downgradient locations, and are screened within the uppermost water-bearing zone observed during drilling and logging activities. Given the construction and placement of the monitoring wells, if groundwater impact were to occur from composting operations, the well system will reasonably assure its detection.

A groundwater sampling program has been developed and is discussed in the Sampling and Monitoring section in Part IV of this application.

Section 23. Facility Closure Plan and Financial Assurance

23.1 Closure Plan Requirements

The following timeline will be used to implement the final closure plan:

1. 90 days prior to the initiation of closure activities, the Owner/Operator will:

a. Submit written notification to TCEQ of the intent to close the Facility and place this notice of intent in the operating record.

b. Provide a public notice for final closure in the newspaper(s) of largest circulation in the vicinity of the Facility. This notice will provide the name, address, and physical location of the Facility, the permit number, and the last date of intended receipt of waste.

2. 10 days prior to final closure, the Owner/Operator will:

   a. Submit a certification of final closure to the TCEQ for approval.

3. Upon TCEQ approval of closure plan certification and date, the Owner/Operator will:

   a. Make available an adequate number of copies of the approved final closure plan for public access and review.

   b. Post a minimum of one sign at the main entrance and all other frequently used points of access for the Facility notifying all persons who may use the Facility or site of the date of closing for the Facility and the prohibition against further receipt of waste materials after the stated date.

4. Date of closure, the Owner/Operator will:

   a. Terminate operations.

   b. Install suitable barriers at all gates to adequately prevent the unauthorized dumping of solid waste at the closed Facility.

5. 180 from date of closure the, Owner/Operator will:

   a. Complete final closure activities for the Facility in accordance with the approved final closure plan unless additional time is approved in writing by TCEQ.

   b. Submit, if required, a request to the Executive Director for an extension for the completion of final closure activities. The request will include all applicable documentation necessary to demonstrate that final closure will take longer than 180 days, and all steps have been taken and will continue to be taken to prevent threats to human health and the environment from the site.

6. 9 days after completion of all final closure activities the Owner/Operator will submit to the TCEQ, for review and approval:

   a. A closure report and certification, signed and sealed by an independent Texas Licensed Professional Engineer, verifying that final closure has been completed in accordance with the approved final closure plan. The submission will include all applicable documentation necessary for certification of final closure.

   b. Certification and request for post closure maintenance variance.

   c. Request a voluntary revocation of the Facility permit.

7. Upon TCEQ approval of the final closure certification, the approved certification will be placed in the operating record.

23.2 Operation Termination Requirements

The following steps will be taken to terminate operations.

1. Place barriers to prevent access for disposal of solid wastes at the Facility;
2. Cease accepting all solid waste deliveries;
3. Process materials on hand;
4. Deliver products on hand to vendors or customers;
5. Terminate all operations; and
6. Engage the services of a qualified Texas Licensed Professional Engineer, who will:
    a. Inspect the site for signs of possible releases and review past release records;
    b. Implement a sampling and analysis plan;
    c. Implement a site cleanup or mitigation plan;
    d. Certify removal and disposal of residual materials, decontamination of equipment and processing/storage areas, and mitigation results;
    e. Prepare or review and seal the closure report; and
    f. Submit a signed and sealed certification verifying that final closure has been completed in accordance with the approved final closure plan.

23.3 Procedure for Closure of Facility by Owner/Operator

After operation termination, the closure of the Facility would be conducted by the Owner/Operator in the following sequence.

23.3.1 Removal

The Owner/Operator will process material on hand and mitigate residual materials with the following protocol:

1. Empty liquid feedstock storage tanks;
2. Remove sludge from storage/tanks;
3. Remove materials and equipment from GSS processing and bulk material storage areas;
4. Sample and analyze soil and groundwater in accordance with the closure sampling and analysis plan (CSAP) presented in Section 23.4;
5. Transport liquid and/or sludge to a TCEQ-approved disposal or recycling facility;

6. Dispose or recycle chemicals in storage based on manufacturers' recommendations or results of analytical characterization in accordance with the CSAP; and
7. Test finished compost materials planned for use during revegetation for maturity and/or final product parameters as described in Section 35.3 in Part IV of this application.

23.3.2 Decontamination

1. Power wash tanks, hard plumbed pipes, and exposed equipment with a surfactant/water solution;
2. Circulate the surfactant/water solution through piping and ancillary equipment;
3. Rinse decontaminated units and areas, as necessary, with a power wash unit containing water until all surfactant/water solution and residuals are removed;
4. Collect wash waters and any remaining materials and place in appropriate transport containers;
5. Sample and analyze wash down waters and any remaining materials in accordance with the CSAP; and
6. Transport material(s) to an authorized disposal or re-use facility.

23.3.3 Compost Pad Retention Pond

1. If present, collect, transport, and dispose accumulated stormwater off-site at an authorized disposal or re-use facility;
2. Backfill pond using on-site soils in 12- to 24-inch lifts; and
3. Compact soil lifts to similar density and water content as native on-site materials.

23.4 Closure Sampling and Analysis Plan

The following is a preliminary CSAP based on proposed operations and chemical use.

23.4.1 Sampling

23.4.1.1 Residual Materials

Representative composite grab samples will be collected for wash water and residual materials.

Eight to ten individual grab samples will be collected from each matrix to prepare a composite sample of each matrix.

Each matrix composite sample will be analyzed as describe in the CSAP, as appropriate.

23.4.1.2 Chemicals in Storage

Safety Data Sheets (SDS) will be used to characterize chemicals in storage at the time of closure. To characterize chemicals lacking SDS sheets, samples will be collected and analyzed.

23.4.1.3 Soil and Groundwater

Soil and groundwater will be sampled based on evidence of releases and/or visual impacts to soil and groundwater using the following scenarios:

No release evident scenario. If no releases are evident, the following sampling protocol will be implemented:

1. Collect a minimum of four surface soil samples from native material at a minimum depth of 1 foot bgs from the GSS processing area;
2. Check for visual impacts at minimum depth; and
3. If visual impacts are absent, then sampling is concluded.

Release evident or visual impact scenario. If a release is evident or visual impacts are present, the following sampling protocol will be implemented:

1. Collect samples based on evidence of past releases or visual impact observations;
2. Collect subsurface and groundwater samples based on the presence of visual impacts;
3. Sample at 1 foot intervals until visual impact is no longer evident;
4. Conduct analyses described in the CSAP; and
5. Conduct additional analyses based on the nature of chemicals stored in the vicinity of the release.

23.4.2 Analysis

Wash water and residual materials samples, at a minimum, will be analyzed for pH, hazardous metals as defined by the Resource Conservation and Recovery Act (RCRA), and total petroleum hydrocarbons using methods approved by TCEQ or U.S. Environmental Protection Agency. A Laboratory certified to analyze RCRA metals and total petroleum will be used to analyze samples off-site.

23.5 Reporting

The following will be submitted to TCEQ within 10 days of final closure activities:

- Closure report;
- Certification verifying that final closure has been completed in accordance with the approved final closure plan;
- Certification that the Facility is not subject to post-closure care maintenance requirements for MSW management units and request for variance; and
- Request for voluntary revocation of the Facility permit

A qualified Texas Professional Engineer will prepare or review and sign and seal the closure report and certifications. The closure report and certification will include all applicable documentation necessary to demonstrate that closure of the Facility, with no post-closure maintenance, is sufficient to protect human health and the environment and complies with the approved closure plan.

23.6 Procedure for Closure of Facility by an Independent Third Party

The closure of the Facility would be conducted by an independent third party in the following sequence, if required:

1. Characterize contents in the liquid feedstock s tanks, processing equipment, and processing areas.
2. Remove and transport liquid and solids to an appropriate disposal or recycling facility.
3. Characterize sludge from tank bottoms and equipment and transport to an authorized off-site waste disposal facility.
4. Pressure wash empty tanks, hard plumbed pipes, and other equipment with a surfactant/water solution.
5. Decontaminate piping and equipment by circulating the surfactant/water solution through the piping and ancillary equipment.
6. Rinse the tanks and equipment, as necessary, using a pressure washer until all surfactant and residuals are removed.
7. Characterize wash water and transfer to an appropriate transport container for disposal or recycling at an off-site facility.
8. Characterize and dispose or recycle remaining chemicals and equipment at the Facility.
9. Observe the site for signs of possible releases.
10. Sample and analyze soil and groundwater as described in the CSAP.
11. Prepare closure report for submission to TCEQ. The closure report must be prepared or reviewed and sealed by a qualified professional engineer.

The development of an independent third party closure plan should not be construed as the Owner/Operator's authorization for voluntary third party closure.

23.7 Financial Assurance

The closure cost estimate included as Appendix N was prepared under the direction of a qualified professional engineer licensed in the State of Texas who has affixed the Professional Engineer’s Seal to the cost estimate. The current cost of the anticipated closure is estimated to be $798,636.

In accordance with 30 TAC §37.31, financial assurance documentation will be submitted to the TCEQ at least 60 days after the permit is signed by the executive director or commission.

The Owner/Operator will review and adjust the Facility's closure cost annually to compensate for inflation. The closure cost will be verified that the current active areas match the areas on which the closure cost estimates are based. If for some reason, the closure cost estimate changes (either increases or decreases) at any time during the life of the Facility, changes to the final closure plan and financial assurance will be made and detailed justification will be provided to the TCEQ. Changes to the closure cost estimate and the financial assurance may be made under a permit modification. Within 10 days prior to final closure, the Owner/Operator will submit a certification of final closure to the TCEQ for approval.

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SouthWaste Disposal, LLC.
Sealy Composting Facility
Municipal Solid Waste Permit Application

PART IV

Application Submittal Date: November 16, 2015

Revised: May 27, 2016 and August 10, 2016

Project Information

MSW Permit # 2388 ***RN: 108878331***

Project Name: Sealy Composting Facility

Project Location: Intersection of Bartlett Road and Brazos 10 Lane, Austin County, Texas. Near San Felipe, Texas.

Project Description: Project is a composting facility that processes compostable municipal solid waste such as grease trap waste/septic/sewage sludge and distributes final product for sale.

Project Location Description: The facility is located in a rural area east of the corporate city limits of San Felipe, Texas, near the intersection of Bartlett Road and Brazos 10 Lane.

Applicant Information

CN: 603436114

Owner/Operator: SouthWaste Disposal, LLC.

Address: 9575 Katy Freeway, Suite 130 Houston, Harris County, Texas 77024

Telephone: 866-413-9494

Email: tcox@southwaste.com

Fed Tax ID: 203596390

Preparer Information

Firm: Daniel B. Stephens & Associates, Inc.
(Texas Registered Engineering Firm F-286; Registered Texas P.G. Firm #50045)

Preparer: Benjamin Camacho

Engineer: Thomas Golden, P.E.

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Table of Contents

Part IV *Site Operating Plan, Sampling and Monitoring Plan, and Quality Assurance and Quality Control for a composting facility. This document provides guidance from the design engineer to site management and operating personnel in sufficient detail to enable day-to-day operations in a manner consistent with the engineer's design.*

List of Tables

List of Appendices

Acronyms

ADT	average daily traffic
ALU	aquatic life use
Avg	average
BACT	best achievable control technology
BOD	biological oxygen demand
CCN	Certificate of Convenience and Necessity
cfh	cubic feet per hour
cfm	cubic feet per minute
CR	County Road

CSAP	Closure Sampling Plan
EPA	United States Environmental Protection Agency
EQ	exceptional quality
°F	Fahrenheit degrees
FM	Farm to Market Road
FOG	fats, oil, and grease
ft	feet
gpm	gallons per minute
GTW	grease trap wastes
hp	horse power
in	inch(es)
kips	kilo pounds per inch
LCN	laboratory case narrative
MCL	maximum contaminate level
MSS	maintenance, start up, and shut down
MSW	municipal solid waste
NAICS	North American Industry Classification System
NIST	National Institute of Standards and Technology
OIC	Operator In Charge
OSSF	on-site sewage facility
pci	pounds per cubic inch
plf	pounds per linear feet
psi	pounds per square inch
PWS	public water system
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance and Quality Control Plan
RCRA	Resource Conservation and Recovery Act
ROM	reduction in organic matter

SDS	safety data sheet
SC-SM	silty, clayey sand
SIC	Standard Classification
SO_2	sulfur dioxide
SOP	Standard Operating Procedures
SSO	sanitary sewer overflows
SUD	Sewer Use District
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality (Executive Director)
TCLP	toxic characteristic leaching procedure
THC	Texas Historical Commission
THSC	Texas Health and Safety Code
TLAP	Texas Land Application Permit
TMDL	total maximum daily load
TPDES	Texas Pollution Discharge Elimination System
TPH	total petroleum hydrocarbon
TSS	total suspended solids
TWC	Texas Water Code
TWDB	Texas Water Development Board
TXDOT	Texas Department of Transportation
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VCP	Vector Control Program
VTCA	Vernon's Texas Codes Annotated
WoC	Wolfpen loamy fine sand
WSC	water supply company
WWTP	wastewater treatment plant
yd	yard(s)

Section 24. Personnel

24.1 Operator in Charge

The operator in charge (OIC) will be present at the Facility when visitors or transporters are present. Deliveries will be scheduled by the OIC.

24.1.1 Training

The following training program will be developed for each OIC at the Facility:

- Identification of material sources and characteristics and manifests;
- Composting operations management of the windrows and feedstock;
- Sampling, inspection, and monitoring;
- Heavy equipment operation;
- Emergency response actions of this plan; and
- Waste acceptance and handling.

24.1.2 Duties

The OIC will be responsible for, at least, the following (new responsibilities will be added to this list as needed):

- Perform day to day operations;
- Schedule waste acceptance and processing;
- Train and supervise staff;
- Implement and supervise emergency response actions and spill clean-up;
- Implement safety and security;
- Complete manifests and return the generator copy, as required, within the stipulated time frame; and
- Sample and monitor feedstocks and products.

24.2 Laborers

Laborers will work under the supervision of the OIC. Laborers will perform day-to-day operations under the supervision of the OIC. A training program for laborers will be developed to include the following:

- Day to day operations;
- Composting operations, including operating equipment, mixing, and tilling;
- Spill reporting;
- Security and safety procedures;
- Pollution prevention;
- Emergency response actions;
- Proper use of chemicals;
- Personal protection equipment; and
- Heavy equipment operation.

Section 25. Equipment

25.1 Equipment Type, Function, Inspection, and Maintenance

The primary pieces of equipment used in the composting process are front-end loader(s), a self-propelled tiller, vacuum truck(s), aboveground storage tanks, a mobile chipper/grinder, and a mechanical screen. At least one of each piece of equipment is required to perform the composting process.

The aboveground storage tanks will be used to store liquid feedstocks until needed in the composting process. Bulking material will either delivered to the Facility already chipped and shredded from off-property sources, or it may be brought to the Facility in raw form and chipped and shredded on the property. A chipper/grinder will be present at the Facility to produce bulking material before it is placed on the processing areas. The front-end loader will be used to build and maintain the stockpiles and windrows and to move compost materials within the processing area. Vacuum trucks, or equivalent, will be used to apply feedstock to the windrows. The self-propelled tiller will be used to mix the bulking material and feedstocks within the windrows. The mechanical screen will be brought to the Facility on an as-needed basis to remove undesirable and oversized material from the mature compost.

Equipment will be inspected according to the standards outlined in Table 7, included in Part III, Section 18.2 of this application. Additional inspection and maintenance will be added to Table 7 as equipment is added.

Inspection, repairs, and maintenance records will be maintained in a weekly log.

Section 26. Production Processes

26.1 Control of Unloading for Unauthorized Materials

Only the designated feedstocks will be accepted at the Facility. The following will be implemented to control the unloading of un-compostable material (unauthorized materials):

- Feedstock will be received by authorized transport vehicles only.
- A sign will be placed at the property entrance that indicates the type of facility, permit number, standard hours of operation, and allowable feedstocks.
- Delivery trucks entering the property are inspected by the OIC for the presence of unauthorized materials during unloading. Loads determined to contain unprocessable, prohibited, or unauthorized materials are refused. In the event that unprocessable, prohibited, or unauthorized materials is discovered after delivery, these materials will be removed from the Facility and disposed of at an authorized municipal solid waste facility.
- Coarse straining may be used to remove non compostable materials in liquid feed stock.
- Manifests or Bill of Lading are examined for each load to ensure that they describe the load's waste source, contents, and volumes.
- The OIC will confirm that all haulers have the appropriate licenses or registrations.

26.2 Material Processing

26.2.1 Liquids

An estimated 270,000 tons of feedstock will be composted annually. The largest portion of the incoming feedstock will be grease trap waste. The quantity of incoming feedstock to be received will not exceed 72 million gallons per year. This quantity is 930 tons per day (22,300 tons per month, assuming 24 operating days per month) or 250,000 gallons per operating day (assuming 7.44 pounds per gallon typical for grease trap waste). The estimated quantities of grease trap, septage, and dairy/food (including meat and fish) wastes to be received are 225,000, 12,500, and 12,500 gallons per operating day, respectively.

Feedstock is received at the Facility by tanker trunks. The liquid feedstock will be either pumped into one of eight 31,500-gallon aboveground storage tanks for temporary storage or pumped to the Facility vacuum truck to be sprayed directly onto prepared windrows of bulking material located within the processing areas. The storage capacity of the aboveground tanks will allow the liquid feedstocks to be applied in a consistent manner and provide additional feedstock storage capacity that can be used during periods of rainfall that limit feedstock application. The maximum amount of feedstock stored on-site at any one time will not exceed 252,000 gallons (the combined capacity of the storage tanks). No feedstock will be accepted in excess of the available capacity of the storage tanks. The OIC monitors traffic and off-loading to prevent spills, leaks, and unauthorized materials or dumping. A Manifest or Bill of Lading is required for each load that describes the load's source, contents, and volume. Haulers are required to have the appropriate licenses or registrations.

Due to the way the liquid feedstocks are handled, the potential for spillage outside the lined processing area will be minimal. In the event liquid feedstock is spilled outside the composting pad, the feedstock and affected surface soils will be promptly recovered using a front-end loader and incorporated into the composting process. In the event that bulking material is spilled onto

the ground, will be promptly recovered with a front-end loader and returned to the windrows. The front-end loader and shovels will be used daily to maintain the tipping area and windrows.

26.2.2 Solids

The OIC will supervise the delivery of bulking material and chemicals and will direct deliveries to the appropriate storage area. Bulking material will be inventoried daily to ensure an adequate amount is on-site to cover or process the feedstock. Record inspections and volume of bulking material will be recorded on the weekly log.

Both pre-chipped and shredded bulking material and raw bulking material will be delivered by truck to the property. An estimated 111 tons of chipped bulking material will be received daily. The maximum amount of bulking material stored on-site at any one time will not exceed 32,000 cubic yards (8,000 tons). Raw bulking material will be stored and then chipped and screened in an on-property area east of the processing area (Figure 2). A chipper/grinder will be present at the property to chip and grind raw bulk material. The grinder will be equipped with low-velocity spray nozzles to minimize the generation of dust during operation. The chipped and shredded bulking material will be placed on the processing areas in windrows using a front-end loader.

- Bulking materials
  - Remove solids from the dewaterer onto the intermediate transfer station where it is inspected for un-compostable material.
  - Divert un-compostable material to the waste storage area.
  - Load compostable material with bulking material in composter or moved to the Feed stock storage area for accumulation.
  - Cover solids with bulking material if there is a potential for odor production.
- Receiving solids
  - Receiving solids are materials with less than 50 percent moisture and bulking materials. Receiving solids will be stored in the feedstock holding area.
  - Cover solids that may attract vectors or produce orders with bulking material and process within 72 hours.
  - Limit materials that have a potential for spontaneous combustion to storage depth of 4 feet.
  - Load solids and bulking material into the in-vessel composter at 40 percent moisture.

26.2.3 Composting

Feedstocks will be applied to the windrows using a vacuum truck, or equivalent, equipped with a 3- or 4-inch hose. Once the feedstock is applied to a windrow, the windrow will be immediately turned, mixed, and re-homogenized using a self-propelled tiller to thoroughly mix feedstock and bulking material. This process allows the feedstocks to be evenly distributed through the windrows and prevents moisture or liquids from collecting at the base of the compost material.

Feedstock and bulking material will not exceed the capacities described above. The maximum and average time the feedstock and bulking material will remain on the composting pad is 90 days. The maximum and average processing time will be 90 days, the time required for a compost windrow to reach maturity.

Once tilled, the windrows will be monitored and measurements will be taken daily to ensure the moisture content and carbon to nitrogen ratio are consistent to maintaining adequate composting.

The desired initial moisture content of the compost is 40 to 60 percent by weight. Moisture content is evaluated and measured daily. Moisture content will be determined during the composting process using the "squeeze test." The squeeze test is performed by manually gathering and squeezing a handful of the compost material. If water drips out while the compost is under hand pressure, the material is too wet. If the material crumbles apart when the pressure is released, it is too dry. Squeeze test samples will be collected from varying depths and areas of the windrows to evaluate the moisture content throughout the windrow. High moisture contents will be corrected by adding additional bulking material and/or by additional tilling. Low moisture content will be corrected by adding potable water, liquids collected in the compost pad retention pond (for GSS composting only), or liquid feedstock, and then tilling.

Once a windrow is considered to have the appropriate moisture content and mixture of bulking material and feedstock, it will be monitored for 15 days. During the monitoring period, the windrow temperature will be measured and recorded regularly using a bi-metal thermometer with a 4-foot probe. Temperature measurements will be collected every 5 to 10 feet along the length of the windrow at a depth of approximately one-third of the windrow height. A temperature of at least 55 degrees centigrade (131 degrees Fahrenheit) will be maintained during the monitoring period. During the 15-day monitoring period, the windrow will be turned a minimum of five times to maintain an even temperature throughout in order to aid in consistent, thorough composting and to reduce pathogens. The temperature will be measured and recorded each time the windrow is turned during the monitoring period. Once the 15-day monitoring period is completed, the composted material will enter the post- processing phase.

In order to avoid contaminating the final product, no feedstocks or retention pond liquids will be added to a windrow once it enters the monitoring period. In the event that additional feedstocks are inadvertently added to material during the monitoring period, the monitoring period for that material will start over.

26.3 Waste Storage and Disposal

26.3.1 Non-Hazardous Waste

Non-hazardous solid wastes will be stored in a dumpster near the maintenance shop area. Non-hazardous wastes will be transported and disposed of at a permitted landfill on a minimally weekly basis, more often to prevent nuisance conditions.

26.3.2 Hazardous Wastes

Every effort will be made to exclude hazardous material from the processing system. In the unlikely event that hazardous material does accumulate at the Facility, a "One-Time Waste

Shipment" registration will be applied for. Hazardous waste will be segregated from non-hazardous waste and transported and disposed at a permitted hazardous waste facility.

26.4 Product Distribution

Under the proposed variance, storage of finished Grade 1 or Grade 2 compost (not Waste Grade) will be placed on an unlined portion of the Facility. Given that only GSS compost meeting the maturity requirements discussed in Section 35.3.1 and bulking material would be placed outside the liner in this manner, this should not result in any compromise to public health and safety. The finished material is intended for use in landscaping, vegetable gardens, and similar uses; therefore storage on the unlined ground should not present any potential for damage or impact to groundwater resources.

Currently, compost will be sold only in bulk form. At some time in the future, the Facility may sell containerized compost. Bulk product will be loaded into the purchaser's truck using a font-end loader. The Facility does not currently plan to produce any Grade 2 compost, but may at some time in the future. The intended final use of the Grade 1 composted material will be used as a soil amendment in residential and commercial applications. In the event that final testing indicates that the composted material is Grade 2, it will either be disposed of at a permitted MSW facility or sold only to commercial users and labeled as not for use at residences or child-care facilities. Grade 1 and Grade 2 compost products will not be tracked. The batch number, the permit number of the disposal facility, dates, and disposed volumes will be tracked for all batches of Waste Grade compost (i.e., compost to be disposed off-site).

Section 27. Alternate Disposal

27.1 Non Standard Products

Compost that does not meet the compost Grade 1 or Grade 2 standards will be transported to and disposed of at a permitted landfill.

Compost characterized as hazardous waste will be transported to and disposed of at a permitted hazardous waste facility.

Non-compostable material will be transported to a permitted landfill.

Section 28. Pollution Prevention Plan

28.1 Unauthorized Material

The control of unauthorized material entering the Facility will be enforced by implementing the following:

- At least one employee will be on-site during receiving hours to inspect each delivery of feedstock or bulking agents to ensure that no unauthorized or prohibited material is incorporated into the feedstock.

- Waste unloading will be confined to designated areas, and signs will be maintained that indicate where vehicles unload.
- Traffic will be directed to use only gravel roads. Gates will be locked when not accepting waste. Transporters' licenses will be checked at the Facility entrance.
- Solid waste that will cause or may cause problems in maintaining full and continuous compliance will not be accepted.
- Unloading of waste in unauthorized areas will be prohibited.
- Waste deposited in an unauthorized area will immediately be removed and disposed of properly. Prohibited waste will immediately be returned to the transporter or generator of the waste.

28.2 Sanitation and Litter

28.2.1 Facility Generated Wastes

Non-compostable material, plastics, and metal aggregate found in the feedstock will be transferred to the waste holding area and transferred to a permitted municipal solid waste (MSW) landfill. Wastes will be limited to 1.5 percent of dry weight of solids.

The dumpster will be emptied at an interval that would prevent nuisance conditions but at least weekly. Septage generated by the Facility's septic tank during routine septic maintenance and cleaning will be processed as feedstock.

Washing activities will be performed using freshwater and will not interfere with the feedstock processing, feedstock application, or final compost grade. Washing activities will occur on the lined compost pad and will consist of washing hand tools and chemical-free equipment that come into contact with the composting operations. Equipment containing hydrocarbons or chemicals (e.g., vehicles, tractors, chipper/grinder) will not be washed at the Facility. In the event that equipment containing hydrocarbons or chemicals requires washing, then these types of equipment will be washed off-site at an approved washing facility.

The Facility's septic sludge will be recycled and processed as feedstock. Septic sludge passing the Paint Filter Liquids Test, (United States Environmental Protection Agency (EPA) method 9095) as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" (EPA Publication Number SW-846, September 1986) is acceptable at MSW landfills. If for some reason septic sludge cannot be processed as feedstock, the sludge will be screened using a Paint Filter Liquids Test prior to disposal at an off-site permitted landfill. In addition to the Paint Filter Liquids Test, sludge disposed at an off-site MSW facility will not exceed the standards presented in Table 12.

Table 12. MSW Disposal Limits

Contaminant	Total Limit (mg/Kg)	TCLP Limit (mg/L)
Benzene	10	0.5
Lead	30	1.5
Total petroleum hydrocarbons (TPH)	1,500	NA

mg/Kg = Milligrams per kilogram
TCLP = Toxicity characteristics leaching procedure'
mg/L = Milligrams per liter

Septic sludges exceeding these limits will not be disposed in MSW landfills. Septic sludges and composts that are non-hazardous will be disposed at a MSW landfill with dedicated Class 1 solid waste cells. Sludges and composts that are characterized as a hazardous waste will be sent to an authorized treatment, storage, or disposal facility for further processing or disposal.

28.2.2 Storage Requirements

Non-hazardous solid waste will be stored in covered dumpsters.

Liquid feedstock will be pumped into one of eight 31,500-gallon aboveground storage tanks for temporary storage or pumped to the Facility vacuum truck, or equivalent, to be sprayed directly onto prepared windrows of bulking material located within the processing areas.

Haulers and generators will be responsible for storage and transportation of waste in a safe manner prior to delivery to the Facility.

28.2.3 Materials along the Route to the Facility

Vehicles hauling liquid feedstock to the Facility will consist of an enclosed tank hold to effectively secure the load to prevent the escape of any part of the load by blowing or spilling. Vehicles hauling bulking material will be equipped with a tarpaulin, net, or other means to effectively secure the load.

Signs will be posted to direct materials to proper storage areas and to prohibit unauthorized materials or disposal.

Offenders will be reported to proper law enforcement officers or the TCEQ. Surcharges will be charged for unauthorized dumping.

28.2.4 Work Area Sanitation

Potable water will be provided to the Facility. Water connections will be provided with a back flow check valve to prevent cross contamination. This connection will be used for weekly cleanup activities which may include sweeping, mopping, and/or washing down with water. A pressure washer will periodically be used to remove residuals not removed with the more conservative cleaning methods. The owner/operator may hire a contracting company to perform the pressure washing, as needed.

28.2.5 Employee Sanitation Facilities

Potable water and sanitary facilities will be supplied for employees and visitors.

28.2.6 Control of Windblown Material

The feedstocks accepted at the Facility are aqueous and therefore not susceptible to being windblown. The bulking material used at the Facility consists of chipped and shredded wood and vegetative matter that is not susceptible to being windblown. The Facility does not accept paper, cardboard, cloth, or other materials that would be more susceptible to being windblown. The application of feedstock and tilling of windrows is not performed during periods of high wind. In the event that high winds should result in bulking material being blown from windrows or piles, the material will be picked up daily and returned to the windrows or stockpiles from which the material originated. Equipment engines will be maintained in good condition and well-tuned and serviced at manufacturers' recommended service schedules.

Windblown material and litter will be collected and placed in a waste container as necessary, and at least once per day on days that the Facility is in operation.

28.2.7 Road Maintenance

If applicable, the county road servicing the Facility will be swept as needed.

On-site roads and paved areas will be repaired and graded to minimize depressions, ruts, and potholes. On-site roads and paved areas will be watered to control dust.

In response to the recommendation by TxDOT in their letter to TCEQ dated July 1, 2016 (Appendix O), the Facility will remove all litter from the highway right-of-ways attributable to Facility operations, to standards and at frequencies to be determined by TxDOT. Prior to initiating operations, the Owner/Operator will contact TxDOT to discuss the litter removal criteria. Additionally, the Facility will accommodate and execute provisions requested by TxDOT to prevent the tracking of mud onto the highway.

28.3 Ventilation and Odor Control

An odor audit will be completed daily. If detected odors are creating a nuisance, then an odor investigation will be conducted. The protocol for the audit and investigation is detailed in Section 35.2.

Odors will be minimized through the use of best management practices (BMPs), including:

- Storing liquid feedstocks in enclosed aboveground storage tanks;
- Suspending application of feedstocks during high winds;
- Using adequate bulking material, and
- Turning or tilling bulking material immediately after feedstocks are applied.

If the odor investigation indicates that the compost is the source of the odor, turning rates for the compost will be increased and, if needed, production method modifications will be made, such as adding a layer of bulking material on top of the composted material.

Nuisance odors will be prevented from leaving the boundary of the Facility. If nuisance odors are found to be passing the Facility boundary, the Facility OIC will suspend odor-producing operations until the nuisance is abated.

28.4 Overloading and Breakdown

28.4.1 Design Capacity

The design capacity of a processing will not be exceeded during operation. The Facility will not accumulate waste in quantities that cannot be processed within a time frame that will preclude the creation of odors, insect breeding, or harborage of other vectors. If such accumulations occur, additional waste will not be received until the adverse conditions are abated.

28.4.2 Equipment Failures

Equipment that has failed will be promptly repaired to minimize disruption of normal operations. The necessary equipment to perform normal operations is commonly available for rent. In the event that any piece of equipment cannot be repaired in a timely fashion, the necessary equipment will be rented from a local supplier. In addition, the surplus tankage volume on-site would typically allow the continued acceptance and storage of feedstocks during equipment down time.

If a significant work stoppage should occur due to a mechanical breakdown or other causes, the Facility will restrict the receiving of waste. If the work stoppage is anticipated to last long enough to create objectionable odors, insect breeding, or harborage of vectors, steps will be taken to remove the accumulated waste from the Facility and transport it to an approved backup processing or disposal facility.

The OIC will refuse wastes or divert wastes to a permitted landfill or processing/disposal facility if processing or disposal procedures for the waste becomes inoperable for periods exceeding 24 hours or if the volume of feedstock within the storage tanks approaches maximum capacity.

28.4.3 Back Up Processing or Disposal

Backup processing facilities include landfills permitted to take liquid wastes and wastewater treatment systems that accept the typical wastes accepted at the Facility. A list of wastewater treatment plants (Wets), MSW processing facilities, and landfills that will accept wastes will be maintained at the Facility.

28.5 Final Product Use

The anticipated final product grade of all compost is Grade 1. The intended final use of the Grade I composted materials is as a soil amendment in residential and commercial applications. In the event that final testing indicates that the composted material is Grade 2, it will either be

disposed at a permitted MSW facility, or sold only to commercial users and will be labeled as not for use at residences or child-care facilities. In the event that final testing indicates that the composted material is Waste Grade, it will be disposed at a permitted MSW facility.

All compost sold will be labeled in accordance with 30 Texas Administrative Code (TAC) §332.74. Compost sold in bulk form will be labeled in the form of a voucher provided to the buyer with each load of compost. In the future, if the Facility elects to sell compost in containers, a label will be attached to each container. Each voucher and label will include the following information grouped together and printed in both English and Spanish:

- For Grade I Compost: "This product is considered Grade 1 Compost and meets the requirements and standards described in 30 Texas Administrative Code, §332.72 and has unrestricted use. It is recommended that compost be mixed into the top 6 inches (15 centimeters) of soil."
- For Grade 2 Compost: "This product is considered Grade 2 Compost and meets the requirements and standards described in 30 Texas Administrative Code, §332.72 and cannot be used at a residence or licensed child-care facility. It is recommended that compost be mixed into the top 6 inches (15 centimeters) of soil."
- Feedstocks from which the compost was derived (grease trap waste, etc.) will be listed in descending order of predominance by wet weight. (Added water is not considered a feedstock.) The label will identify one or more of the following general descriptions of feedstock:
    - Source-separated organic materials;
    - Source-separated meat, fish, or greases;
    - Municipal sewage sludge; or
    - Grease trap waste.

Section 29. Vector Control Plan

This Facility controls vectors that include rodents, insects, birds, scavenging animals, bacteria, and viruses through the following vector control (VC) program.

The locations in or around the Facility where vectors maybe problematic are feedstock storage, processed material storage, final product storage, and surrounding landscapes.

29.1 Inspection and Monitoring

Weekly inspections: The OIC or designee will perform an inspection weekly to identify problems and corrective actions needed to prevent and/or manage vector infestations. The OIC will plan and schedule corrective actions.

For current, recent, or likely vector infestations, a weekly monitoring program to detect vector infestations may be implemented as follows:

- Rodents: Baited rodent traps will be placed at the maintenance shop and office and will be checked and emptied as needed.
- Insects: Sticky cardboard monitors will be used to monitor for ants and cockroaches at the maintenance shop and office, as needed.
- All other vectors: Weekly monitoring by visual inspection will be performed by designated staff indoors and outdoors.
- Vector identification: When vectors are detected, the specific identification of the vector will be obtained using professional resources, as needed. The OIC will consult with professional resources to determine methods that will control vectors without impacting the quality of the final products.

Vectors will be controlled through the use of BMPs, including:

- No storage or acceptance of unapproved wastes;
- The immediate incorporation of feedstocks into the bulking material or their storage in steel storage tanks until they are used;
- The use of a selected group of microbes, fungi, yeast, molds, and enzymes in the composting process that accelerate decomposition rate of the feedstocks and that also deter the reproduction of flies and fly larvae;
- A 25-foot vegetative buffer surrounding the processing area will be mowed to reduce habitat of vectors.
- Along with sanitation and maintenance actions to eliminate food, water, shelter, and entryways for vectors, traps will be used to reduce vectors when practicable and effective.
- The maintenance of a temperature of at least 55 degrees centigrade in composting materials which discourages pathogen growth; and
- The immediate cleanup of spills.

29.2 Facility Program Evaluation

The Facility VC plan will be evaluated every at least once a year. The OIC will consult with professional resources to evaluate the effectiveness of the VC program and to develop improvements as needed.

The Facility reserves the right to train its employees and obtain applicable licenses and/or certifications to apply pesticides at the Facility or contract with a professional service provider. The Facility will not apply fungicides, herbicides, insecticides, or other pesticides that contain constituents listed in 40 CFR Part 261, Appendix VIII-Hazardous Constituents, or on the Hazardous Substance List as defined in the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). The Facility will also not incorporate

pesticides into feedstocks, in-process materials, or processed materials. Authorized fungicides, herbicides, insecticides, or other pesticides would be applied in accordance with manufacturers' instructions and in conformance with applicable federal, state, and local regulations.

29.3 Records and Documents

A weekly log will be kept on file by the OIC, or designee, and will include:

- Vector inspection results;
- Applications of pesticides, including type, brand, and purposes; and
- Vector activity sightings, including identification of the vector (if known), number seen, other evidence (such as animal droppings), date, time, and location.

Section 30. Security

30.1 Facility Access

Access to the Facility will be controlled to prevent disposal of unauthorized and prohibited materials, and scavenging. The following measures will be implemented:

- Unauthorized access will be prohibited.
- The Facility will be enclosed with fencing and vehicle access will be controlled through a locked entry gate.
- No trespassing and notification signs will be maintained around the perimeter of the Facility.
- All truck traffic must proceed directly to the material unloading area and supervised by the on-site staff.
- The facility will have a sign at the entrance indicating the type of facility, the permit number, hours of operation, and the allowable feedstocks.
- Clearly posted signage at the Facility entrance will specify a 10-mile per hour speed limit on the entrance road. The maximum speed allowed in the processing area will be 5-miles per hour. Parking will be allowed only in designated areas.
- Only vehicles authorized by the OIC, personal vehicles of employees, and authorized haul vehicles will have access beyond the Facility entrance, and all vehicles will be closely monitored.
- The Facility business hours are Monday through Sunday, 7:00 a.m. to 7:00 p.m. During these times, the Facility is open to sell compost. Feedstock receiving, off-loading, loading, and processing preparation will be 7:00 a.m. to 7:00 p.m. Operating hours for operating heavy equipment and transporting materials on-site or off-site will be Monday

through Sunday from 6:00 a.m. to 8:00 p.m. Composting operations will sometimes be performed outside those hours as required by weather, holidays, or emergency situations that could result in the disruption of composting services in the area.. When any alternative operating hours are needed, Facility personnel will record the dates, times, and duration in the site operating record.

- Security lighting will be provided in the vicinity of the Facility entrance and office trailers.
- The entrance/exit gates will be secured when the Facility is not operational. After-hours access will be allowed only with prior arrangement with the Facility manager.
- Security personnel will be present on-site outside of operating hours. Security personnel will be made aware of the site hazards and will be provided the list of emergency contact information.
- The fence, gates, and roads will be inspected on a weekly basis. Any access breach or unsafe condition will be repaired as soon as practical and will be noted in the Facility weekly log.
- Facility personnel will coordinate with local law enforcement officials (i.e., police/sheriff, highway patrol, emergency medical corps units, fire department, and utility emergency teams) in the event of any emergency situation.

Section 31. Emergency Action Plan

The following plans will be implemented in each emergency.

31.1 Spills

Spills at the Facility will follow steps outlined in the Spill Containment and Contingency Plan described in Section 33.

31.2 Fire

The OIC or designee will perform the following:

- Attend to the immediate safety of personnel and visitors.
- Call 911 and report any fires. All staff will carry cellular phones which will be used to contact emergency assistance.
- If the fire is small and localized, control the spread of the fire.
- If needed, use a loader, bull dozer, or other earth moving equipment to create a fire break or extinguish small fires with dirt.
- The local fire response has equipment and experience to fight rural fires.

31.3 Medical

The OIC or designee will perform the following:

- See to the immediate safety of the injured person(s), personnel, and visitors.
- If the injury is not critical and only requires first aid, first aid will be applied.
- Call 911 and report the medical emergency, if needed. All staff will carry cellular phones which will be used to contact emergency assistance.
- MSDS sheets will be provided in the event of a chemical exposure.

31.4 Adverse Weather

Adverse weather includes tornados, lightening, and high wind conditions. In the event of adverse weather conditions, the OIC will perform the following:

- Receive advance notification from the local weather station as to the extent and nature of the impending weather emergency.
- Relay emergency actions required to staff and visitors.

31.5 Health and Safety Training

Facility personnel will be trained in the Facility's health and safety plan to include required OSHA training. The OIC will assess training needs and develop a training program to meet regulatory requirements.

Section 32. Fire Prevention and Control Plan

32.1 Fire Response

The Sealy Fire Department and San Felipe- Frydek Volunteer Fire Department will receive Tier I reports that list the amount and types of stored materials on a facility map, annually. Additionally, SouthWaste will provide these departments with a description of the nature of the Facility and its location, as well as a copy of this Fire Prevention and Control Plan.

Staff will attempt to control small fires using rural firefighting techniques. Staff will call 911 if the fire is too large to control.

Staff may install fire breaks during fires to reduce off-site migration of the fire. Fire breaks generally consist of plowed areas around fire perimeter or perimeter fencing.

Equipment for staff response to fires consists of fire extinguishers, area soil, and front-end loader.

In the event of a fire with visible flames, SouthWaste will immediately notify the local fire department. Emergency contact information is provided in Table 13.

Table 13. Emergency Contact Information

Agency	Emergency Phone Number	Non-Emergency Phone Number
Sealy Fire Department 1207 Highway 90 W Sealy, TX 77474	911	(979) 885-2222
San Felipe- Frydek Vol. Fire Department 15023 Fm 1458 Rd Sealy, TX 77474	911	(979) 885-7081
Austin County Sherriff 417 N. Chesley St. Bellville, TX 77418	911	979-865-3111

32.2 Fire Prevention

The Facility is not located within a city limit; therefore, local city fire codes do not apply. Austin County follows the guidelines set forth by the State Fire Marshal's Office. The National Fire Protection Association Life Safety Code (NFPA 101) is the adopted inspection standard of the State Fire Marshal's Office. The State Fire Marshal utilizes other NFPA fire codes for guidance in assessing and directing remediation of fire hazards in other than occupied buildings. This Fire Prevention and Control Plan is intended to comply with the requirements of the NFPA fire code.

Non-hazardous materials handled by the Facility do not typically pose fire hazards but staff must stay alert for signs of fire such as smoke, steam, or excessive heat. As a cooperative rural community, adjacent agricultural operations will stay alert to signs of fire to assist neighboring operations in the control of fires.

Fire prevention techniques include:

- Equipment will be regularly cleaned to remove combustible waste and caked material which can cause overheating and increase fire potential.
- Smoking will not be permitted near material management areas. Designated smoking areas at the office will be equipped with proper disposal containers.
- No smoking signs will be placed near material management areas.
- The presence of the earthen berms surrounding the processing area will inhibit the spread of fire to or from the composting material.
- Fire lanes will be maintained around the Facility, including feedstock storage tanks and processing areas.
- The potential for fires within the composting material will be limited by the maintenance of a moisture content near 60 percent.

- Vegetation within 25 feet of the processing and storage areas will be watered and mowed as much as practicable.
- As required by the 2003 International Fire Code, bulking material storage piles and compost material piles will not exceed 25 feet in height, 150 feet in width, or 250 feet in length.
- All storage piles will be accessible by fire-fighting equipment via access roads.
- Sufficient ABC type fire extinguishers are located on-site.
- Staff will be alert to signs of fire such as smoke, heat, or odors.
- Fire extinguishers are visually inspected monthly by staff with an annual inspection/maintenance completed by a State licensed fire protection contractor.
- Compost materials that may generate heat will be turned periodically to reduce internal temperature.

32.3 Fire Control

Water will be available for firefighting from a potable well water source. Additionally, water for firefighting will be obtained from the Facility's compost pad retention pond.

The local fire department has vehicles specifically outfitted to pump water, including carrying a water reservoir and using drafting and water tenders to obtain further supply typically used in a rural area.

Rural firefighting techniques that include fire breaks and other firefighting techniques will be applied. Equipment available on-site for the use in firefighting will include:

- Fire extinguishers;
- Compost pad retention pond, pump, and hoses;
- Vacuum truck, or equivalent; and
- Front-end loader.

In the event of a smoldering fire (i.e., evidenced by smoke but with no visible flames), the vacuum truck, or equivalent, can be filled using water from either the compost pad retention pond or the municipal water supply, and then can spray the water directly on the fire and surrounding combustible materials. The front-end loader will be used, as necessary, to physically separate any smoldering or burning materials from other combustible materials. After the fire is extinguished, the front-end loader will be used to break apart the burnt material to allow the material in the interior of the pile or windrow to be saturated with water to prevent re-ignition or smoldering.

Firefighting equipment is readily available for small fires. For fires too large for the Facility staff to handle, the county has an emergency response system that responds to fires. The jurisdictional fire department will respond to fires that cannot be controlled by staff.

32.4 Staff Training

All staff will be trained in fire prevention, to recognize signs of fire, and to inspect equipment. Staff will be trained to properly use fire extinguishers and emergency evacuation procedures.

The OIC will have additional training in fire break construction and fire buffer maintenance to prevent off-site fire migration.

The local fire department will be called in the event the fire is too large for staff to control.

Section 33. Spill Containment and Contingency Plan

Storage and processing areas are designed to control and contain spills or contaminated water from leaving the Facility. The design is sufficient to control and contain a worst case spill or release from the largest tank volume within the liquid feedstock storage area and precipitation from a 25-year, 24-hour storm. Secondary containment calculations are provided in Appendix I.

33.1 Leak Detection

33.1.1 Storage Tanks

A daily inspection of liquid feedstock storage tanks for leaks or spills will be performed. Accumulated stormwater within the secondary containment berm surrounding the storage tanks will be pumped out and sprayed onto the composting pad.

33.1.2 Liner

The geomembrane liner will be periodically inspected for cracks to prevent pollutant transport. Repairs will be made within two weeks. Damaged areas identified throughout the synthetic liner will be replaced or repaired in accordance with the Liner Quality Control Plan (Appendix M). Repairs for the clay liner include rewetting and packing the surface layer to a depth of 6 inches.

33.2 Spill Prevention and Control

Spill prevention and control have been developed for receiving and transfer areas. The following discusses each measure for each area. When a spill is discovered, the emergency action plan for spills will be followed.

33.2.1 Receiving and Liquid Feedstock Transfers

Liquid feedstock will be pumped into the liquid feedstock storage tank unless it is being directly sprayed onto the composting pad. Liquid waste haulers are directed to the designated unloading area located near the storage tanks.

Liquid feedstock within the storage tanks will be routinely measured to determine the volume stored within each tank. An attendant monitors transfer hoses for leaks and spills.

The tanks will be contained in the secondary containment system and daily inspection will be performed to check for leaks and spills. Spills will be cleaned up by vacuuming liquids and transferring the material into the liquid feedstock storage tanks. Residual solids will be excavated and disposed off-site to a permitted MSW landfill.

Accumulated stormwater is pumped out and sprayed onto the compost pad for processing.

33.2.2 Sanitation

Washing activities will be performed using freshwater and will not interfere with the feedstock processing, feedstock application, or final compost grade. Washing activities will occur on the lined compost pad and will consist of washing hand tools and chemical-free equipment that comes into contact with the composting operations. Wash-water will be collected and diverted to the liquid feedstock storage tanks for processing. The OIC will monitor the clean-up and collection procedures for leaks and spills. Spills will be cleaned up and liquids will either be applied to the windrows or diverted to the liquid feedstock storage tank. Equipment containing hydrocarbons or chemicals (e.g., vehicles, tractors, chipper/grinder) will not be washed at the Facility. In the event that equipment containing hydrocarbons or chemicals requires washing, then these types of equipment will be washed off-site at an approved washing facility.

33.3 Spill Emergency Actions

The emergency action plan procedures in the event of a spill occurrence outside the composting pad are:

- Liquid spills will consist of the following actions:
  - If spill is outside secondary containment, then earthen berms or spill booms will be utilized in order to contain the spill.
  - If feedstock spills, the reclaimed material will be returned to the liquid feedstock storage tanks.
  - If fuel and chemical spills, the material will be remediated and disposed of to provide the most effective mitigation.
- Solid spills, primarily in the form of sludge, will consist of the following actions:
  - Solids will be protected from stormwater incursion
  - Using the front-end loader, solids will be collected, transported, and applied to the composting pad.
- Upon completion of remedial activities, the area of the spill will be assessed for signs of impact.

- Reportable quantities will be reported as required by federal, state, or local rules or regulations.

Section 34. Recordkeeping and Reporting Requirements

34.1 Recordkeeping

A copy of the permit, the approved permit application, and any other required plans or other related document will be maintained at the Facility at all times during construction.

After completion of construction, an as-built set of construction plans and specifications will be maintained at the Facility. The plans will be made available for inspection by agency representatives or other interested parties. These documents will be considered a part of the operating record for the Facility.

The OIC will promptly record and retain, in an operating record, the following information:

- All location-restriction demonstrations;
- Inspection records and training procedures;
- Closure plans and any monitoring, testing, or analytical data relating to closure requirements;
- All cost estimates and financial assurance documentation relating to financial assurance for closure;
- Copies of all correspondence and responses relating to the operation of the Facility, modifications to the permit, approvals, and other matters pertaining to technical assistance;
- All documents, manifests, shipping documents, trip tickets, involving special waste;
- Any other document(s) as specified by the approved authority or by the executive director; and
- Record retention provisions for trip tickets as required by 30 TAC §312.145.

The following records will be maintained on-site permanently, or until facility closure:

- TCEQ facility operating permit;
- Sampling plan and procedures;
- Staff training and certification records;
- Maturity protocol test results; and
- Annual groundwater sampling results.

Records will be maintained on-site and available for inspection by the executive director for a period consisting of the two most recent calendar years of the following:

- A log of abnormal events at the Facility, including, but not limited to, hazardous constituents uncovered, fires, explosions, process disruptions, extended equipment failures, injuries, and weather damage; and
- Results of monthly final product testing report. Documentation of final product testing will be maintained for a period of three years after the final product is shipped off-site or after facility closure.

Copies of the annual reports will be kept on-site for a period of five years following submittal to the TCEQ.

34.2 Signatory

For signatories to reports, the following conditions apply:

- The owner or operator will sign all reports and other information requested by the executive director as described in §305.44(a) or by a duly authorized representative of the owner or operator.
- If an authorization is no longer accurate because of a change in individuals or position, a new authorization satisfying the requirements of 30 TAC §330.219(c) must be submitted to the executive director prior to, or together with, any reports, information, or applications to be signed by an authorized representative.
- Any person signing a report will make the certification in accordance with 30 TAC §305.44(b).

34.3 Reporting Requirements

All plans described in the site operating plan presented above will be furnished upon request to the executive director and will be made available at all reasonable times for inspection by the executive director.

The Facility will retain all information contained within the operating record and the different plans required for the Facility for the life of the Facility.

34.3.1 Documentation and Reporting of Final Product Testing

Final product documentation maintained will include:

- Batch numbers identifying the final product sampling batch;
- Quantities, types, and sources of feedstocks received and the dates received (this information is typically documented on the manifest form that accompanies each delivery of feedstock);

- The quantity of final product and final product standard code assigned;
- The final product grade or permit number of the disposal facility receiving the final product if it is not Grade 1 or Grade 2 compost;
- Date of sampling; and
- Analytical results used to characterize the final product including laboratory quality assurance and quality control (QA/QC) data and chain-of-custody documentation.

A monthly final product testing report will be submitted to the TCEQ within two months after the end of the reporting period. The monthly final product testing report will include the above information for each batch of final product sampled that month.

34.3.2 Annual Reporting

An annual report will be prepared and submitted to the TCEQ. The annual report will provide the following information for the year of the report:

- Documentation of compost input and output quantities;
- Description of the end-product distribution;
- All results of any required compost laboratory testing; and
- Groundwater sampling results.

Annual reports will be prepared and submitted to the TCEQ not later than 45 days following the calendar year.

Section 35. Sampling and Monitoring

35.1 Facility Inspections

35.1.1 Inspection Locations and Procedures

The Facility will be inspected for the items listed in Table 14.

Table 14. Facility Inspections

Item	Task	Frequency
Fence/gates	Inspect perimeter fence and gates for damage. Make repairs if necessary.	Weekly
Windblown material or waste	Check working area, access roads, entrance areas, and perimeter fence for loose trash. Clean up as necessary.	Daily
Facility access road	Inspect Facility access road for damage from vehicle traffic, erosion, or excessive mud accumulation. Maintain as needed.	Daily
Facility signs	Inspect all Facility signs for damage, general location, and accuracy of posted information.	Weekly

Table 14. Facility Inspections (continued)

Item	Task	Frequency
Run off or pooled water	Inspect all areas that are exposed to stormwater for erosion or pooling. Inspect all areas for liquids pooled on the composting pad and storage areas. Clean up within 2 weeks. Repair or redesign as necessary.	Weekly
Unauthorized entry	Inspect for signs of unauthorized entry of humans and animals. Make repairs or review security plan.	Weekly
Equipment	Inspect loader, excavator, chipper/grinder, and transfer trucks for leaks, and operation efficiency. Repair as needed.	Weekly
Geomembrane liner	Inspect weekly for cracks. Repair as needed. Wet Clay liner periodically to prevent cracking. Re-compact if crack compromises the integrity of the liner. Patch material can be used as specified by the manufacturer for the synthetic liner.	
Seepage in and around the composting facility.	Inspect areas around the liners for seepage. Makes repairs as needed.	Weekly

35.1.2 Reporting Requirements

Inspections logs will be maintained in Facility records. Noncompliance items will be reported if required to TCEQ.

35.2 Odor Audit/Investigation

Matrix and Location. Monitoring will be conducted along the route to and from the Facility, at the gate, and at the Facility. Particular attention should be paid to odors that are detected beyond the 50-foot buffer of the Facility.

Purpose. The purpose of the audit is to determine the cause of the odor and corrective actions and as a preventive measure for nuisance conditions.

Frequencies. A daily audit will be performed during operations hours. A frequency, intensity, duration, and offensiveness (FIDO) (TCEQ, 2007) inspection will be performed if an odor is detected.

Collection Procedures. If an odor is detected, the OIC will perform an odor investigation:

1. Locate and assess the odor

    a. Describe the intensity and offensiveness of any odors observed using the TCEQ Odor Log, which can be downloaded for the TCEQ website at http://www.tceq.texas.gov/assets/public/compliance/odor-log-public.pdf

    b. Describe any physical effects experienced by the investigator which are indicative of adverse effects upon health (burning eyes, nose, throat, headache, vomiting, etc.)

    c. Determine and document the extent of the odor plume. Document on a map of the vicinity the odor survey route, the time the investigator was at each location, and the odor observations at each location. This survey should include upwind and downwind observations at least.

2. Locate the source(s) of the odor.
3. Locate the specific cause of the odor (i.e., the specific compound, equipment, or process emitting the odor, and the reason(s), such as a plant upset).
4. Document estimates of wind speed and direction, temperature, humidity, precipitation, and sky cover.
5. If odors have been detected at the same location at other times, document a comparison of the current observations with the prior observations.
6. Correct or initiate procedures for odor control and eliminate nuisance conditions. Nuisance conditions exist if "an odor has been emitted in such concentration and duration as to be injurious to or adversely affect human health, welfare, animal life, vegetation, or property, or interfere with normal use and enjoyment of animal life, vegetation, or property."

FIDO results will be maintained in Facility records. Corrective actions will be maintained in the Facility records.

35.3 Compost

Compost will have visual inspections and lab analysis as required by TCEQ Compost rules 30 TAC §332.71. Two types of sampling and analysis will be performed; sampling and analysis for maturity and sampling and analysis for final product grading.

35.3.1 Sampling and Analysis for Maturity

At the completion of the composting process, a maturity protocol will be developed by SouthWaste to measure the potential for biological activity in the composted materials. Maturity protocol testing will be performed during the first 18 months after permit issuance.

Development of the maturity protocol will include sampling to measure the reduction of organic matter (ROM) in composting material from the time it is initially mixed until it is mature. The ROM will be calculated using the Loss-on-Ignition Organic Matter (LOI) method. To address seasonal variations in compost feedstock during maturity protocol development, four sets of maturity protocol samples will be collected and analyzed as follows:

1. Sample 1 batch when initially mixed during the first quarter of the first operating year, and then at 60 days, at 120 days, and at 180 days after initial mixing.
2. Sample 1 batch when initially mixed during the second quarter of the first operating year, and then at 60 days, at 120 days, and at 180 days after initial mixing.
3. Sample 1 batch when initially mixed during the third quarter of the first operating year, and then at 60 days, at 120 days, and at 180 days after initial mixing.
4. Sample 1 batch when initially mixed during the fourth quarter of the first operating year, and then at 60 days, at 120 days, and at 180 days after initial mixing.

The results of the ROM analysis of the initially mixed samples will be compared to the ROM results of the 60-day, 120-day, and 180-day samples. Compost will be considered "mature," when the reduction of organic matter from the initially mixed material is between 40 and 60 percent. Compost will be considered cured when the reduction of organic matter from the initially mixed material is greater than 60 percent.

The maturity testing sampling results will be evaluated to establish a typical baseline organic matter content for initial mixes, a typical baseline organic matter content for cured compost, and an estimated composting duration necessary to achieve cured compost. This information will be used to develop recommended maturity testing methods and frequencies to allow the classification of compost into maturity grades, and the identification of materials that are stable but not mature. This will constitute the maturity protocol. The maturity protocol will be submitted to the TCEQ for review and approval, as well as for any future revision. Once approved, the maturing protocol will be used to classify all future compost.

Maturity protocol testing and the maturity testing results for final products for classification will be documented and maintained as described in Section 35.3.1.

35.3.2 Sampling and Analysis of Final Product

In addition to maturity testing, all batches of final product will be analyzed for the parameters listed in Table 15. The executive director may at any time request that additional parameters be tested.

Table 15. Final Product Analytical Requirements and Standards

Parameter	Analytical Method	Final Product Standards for Grade 1 Compost	Final Product Standards for Grade 2 Compost
Total Metals			
As	SW-846, Method 6020	≤ 10 mg/kg	≤ 41 mg/kg [a]
Cd	SW-846, Method 6020	≤ 16 mg/kg	≤ 39 mg/kg [a]
Cr (total)	SW-846, Method 6020	≤ 180 mg/kg	≤ 1,200 mg/kg [a]
Cu	SW-846, Method 6020	≤ 1,020 mg/kg	≤ 1,500 mg/kg [a]
Pb	SW-846, Method 6020	≤ 300 mg/kg	≤ 300 mg/kg [a]
Hg	SW-846, Method 7470	≤ 11 mg/kg	≤ 17 mg/kg [a]
Mo	SW-846, Method 6020	≤ 75 mg/kg	≤ 75 mg/kg [a]
Ni	SW-846, Method 6020	≤ 160 mg/kg	≤ 420 mg/kg [a]
Se	SW-846, Method 6020	≤ 36 mg/kg	≤ 36 mg/kg [a]
Zn	SW-846, Method 6020	≤ 2,190 mg/kg	≤ 2,800 mg/kg [a]
Pathogens			
Salmonella	Standard Methods for the Examination of Water and Wastewater, Water Pollution Control Federation	< 3 MPN per 4 grams total solids or meets PFRP	No Value
Fecal Coliform		< 1,000 MPN per gram of solids or meets PFRP	Geometric mean density <2,000,000 MPN per gram of solids or meets PFRP

Table 15. Final Product Analytical Requirements and Standards (continued)

Parameter	Analytical Method	Final Product Standards for Grade 1 Compost	Final Product Standards for Grade 2 Compost
Other Parameters			
Maturity / Stability	Maturity Protocol (see Section 35.3.1)	> 60% Reduction of Organic Matter	> 20 % Reduction of Organic Matter
Weight% Foreign Matter	Dry weight basis (Recommended Test Methods for the Examination of Composts and Composting, Composting Council, 1995)	1.5% on a 4mm screen	1.5% on a 4mm screen
pH	North Central Regional Method 14 for Saturated Media	5.0 to 8.51	5.0 to 8.5 1
Salinity	North Central Regional Method 14 for Saturated Media	10 mmhos/cm	10 mmhos/cm
PCBs	SW-846, Method 8082	1 mg/kg	10 mg/kg

[a] Metals concentrations are for a cured compost. Compost which is semi-mature or mature will have the metal concentrations adjusted to reflect the metal concentration that would be present if the compost met the criteria of a cured compost.

[b] A conductivity or pH outside the indicated range may be appropriate if the compost is specified for a special use.

PFRP = Processes to further reduce pathogens
MPN = Most probable number
PCBs = Polychlorinated biphenyls

A final product grade will be assigned prior to sale based on the standards listed in Table 15 above. The following paragraphs describe sample collection and analyses requirements for final products.

The following paragraphs describe sample collection and analyses requirements for final products.

Collection. At a minimum, one sample will be collected either for every 3,000 cubic yards of final product, or one sample will be collected monthly, whichever is more frequent. Each sample will consist of nine grab samples which will be collected as follows:

- Three grab samples will be collected from the base of the windrow or stockpile, at least 12 inches into the pile at ground level.
- Three grab samples will be collected from the exposed surface of the windrow or stockpile.
- Three grab samples will be collected from a depth of 2 feet from the exposed surface of the windrow or stockpile.

The nine grab samples will be combined and thoroughly mixed to form a composite. A single sample will be collected and analyzed from the composited sample material.

After one year of final product testing, a request for an alternative testing frequency may be submitted to the TCEQ in accordance with 30 TAC §332.71 (f)(3).

Sample Analysis. Final product samples will be analyzed for the parameters and by the methods listed in Table 15, and the analytical results will be used to assign a final product grade. Product grades include Grade 1 Compost, Grade 2 Compost, and Waste Grade Compost. Grade 1 Compost and Grade 2 Compost will not contain foreign matter of a size or shape that can cause human or animal injury, and will meet the other applicable standards presented in Table 15. Waste Grade Compost is any material that does not meet the final product standards for either Grade 1 or Grade 2.

35.4 Groundwater

After completion of the following analysis, an original and two copies of each analysis will be sent to the executive director and a copy will be maintained on-site.

35.4.1 Background Samples

Four background groundwater samples of the monitor well will be provided to TCEQ within 24 months from the date of the issuance of the permit.

Background levels will be established from samples collected from each well at least once during each of the four calendar quarters: January to March; April to June; July to September; and October to December. Samples from any monitoring well will not be collected for at least 45 days fo11owing the collection of the previous sample from that well, unless that new sample is intended as a replacement. At least one sample per well will be collected and submitted to a laboratory for analysis within 60 days of permit issuance.

Background groundwater samples will be analyzed for the laboratory and field parameters listed in Table 16.

Table 16. Groundwater Sampling Parameters

Sampling Parameter	Background Sampling	Annual Sampling	Method
Heavy metals			
Arsenic	X		EPA 6020
Barium	X		EPA 6020
Cadmium	X		EPA 6020
Chromium	X		EPA 6020
Copper	X		EPA 6020
Iron	X	X	EPA 6020
Lead	X		EPA 6020
Mercury	X		EPA 7470A
Selenium	X		EPA 6020
Zinc	X		EPA 6020
Other parameters			
Calcium	X		EPA 6020
Magnesium	X		EPA 6020
Manganese	X	X	EPA 6020

Table 16. Groundwater Sampling Parameters (continued)

Sampling Parameter	Background Sampling	Annual Sampling	Method
Other parameters (cont.)			
Sodium	X		EPA 6020
Carbonate	X		SM2320B
Bicarbonate	X		SM2320B
Sulfate	X		EPA 300
Fluoride	X		EPA 300
Nitrate (as N)	X		EPA 300
Total Dissolved Solids	X	X	SM2540C
Phenolphthalein Alkalinity as CaCo3	X		SM2320B
Alkalinity as CaCo3	X		SM2320B
Hardness as CaCo3	X		SM2340B
pH	X	X	In-field measurement
Specific Conductance	X		In-field measurement
Anion-Cation Balance	X		Calculated based on anion/cation lab data
Total Organic Carbon (4 replicates will be collected per sample)	X	X	ASTM D2974/EPA 415.1
Chloride	X	X	EPA 300

Background sampling results will be reported to the TCEQ as discussed in Section 36.1.12.

35.4.2 Annual Samples

Following the completion of background groundwater sampling described in Section 35.4.1, each groundwater monitoring well will be sampled annually. Depth to groundwater and pH will be measured and documented each time a monitoring well is sampled. Annual groundwater samples will be analyzed for total organic carbon (4 replicates per sample), iron, manganese, chloride, and total dissolved solids. Analytical methods for these parameters will be the same as those used for background sampling (Table 16).

35.4.3 Analytical Methods

The analytical methods are noted in Table 16 conform to TCEQ and U. S. Environmental Protection Agency (EPA) approved testing methods. The practical quantitation limits for the constituents of concern will be set by standard methods or detection limits, whichever is lower. The detection limits will be below the maximum contaminant level values or as low as practicably feasible.

The quantitation limits will be set and reviewed with the contract laboratory. The review of limits will take place at least annually or when a new contract laboratory is used.

35.5 Data Precision and Accuracy

Data precision and accuracy will comply with the methods used for each matrix and parameter. The contract laboratory will document the data precision and accuracy requirements and any deviations.

35.6 Documentation

Field conditions and analysis will be documented on the chain of custody for each sampling event. Laboratory analysis procedures, QA/QC, and any deviations will be documented in the Laboratory Case Narrative.

35.7 Reporting Requirements

Sample analytical results will be reported to the TCEQ in a data package that contains, at a minimum, the analytical test reports documenting the analytical results and methods for each sample and analyte. The test reports will include the method-required quality control information needed to evaluate the analytical results of sampling and analysis with comparison to quality control standards and corrective action upon failure.

SouthWaste will ensure that the results of each test analysis carried out by the laboratory will be reported:

- Accurately, clearly, unambiguously, and objectively, and in accordance with any specific instruction in the test method, work plan, permit, or program.
- In a test report and include all the information required for TCEQ submission and necessary for the interpretation of the test results and all information required by the method used, project quality objectives, or permit.
- Unless otherwise specified by project objectives, all analytical results reported for sludge, compost, soil, and sediment samples will be reported on a dry weight basis with the percent solids (or percent moisture) also reported on the test reports, to allow back calculation of the result to a wet weight basis.
- Includes at least the following information, unless the laboratory has valid reasons for not doing so:
    - A title (e.g., "test report");
    - The name and address of the laboratory or facility and the location where the test and calibrations were carried out;
    - Unique identification of the test report, and on each page an identification in order to ensure that the page is recognized as a part of the test report;
    - Name and address of the owner;
    - Identification of the analytical method used;
    - Dates of measurements, as well as the report date;

- Reference to the sampling plan and procedures used by the laboratory where these are relevant to the validity or application of the results;
- The test results and units of measurement;
- The names, functions, and signatures or equivalent identification of persons authorizing the test report; and
- Where necessary for the interpretation of the test results, a laboratory case narrative as described below.

Section 36. Quality Assurance and Quality Control

36.1 Sampling, Monitoring, and Inspection

A sampling QA/QC program has been developed and will be periodically revised to reflect analysis and contract laboratory QA/QC requirements. The contracts laboratory will be periodically reviewed to ensure the standards in this chapter and future standards are met.

The QA/QC program establishes field and laboratory sampling and analysis procedures for all tested analytes to ensure proper collection preparation and analysis of representative samples. The QA/QC program also evaluates completeness, correctness, and conformance or compliance of a specific data set against method, procedural, or contractual requirements.

To achieve accuracy (correctness) and completeness, the owner adopts acceptable data quality standards and ensures that all sample collection, preparation and analyses, and data management activities are conducted in accordance with the standards. These activities will be reviewed regularly to ensure compliance with the standards. QC checks must be performed and corrective action taken when indicated.

36.1.1 Records Control

The OIC will ensure that all QA/QC records are legible and stored and maintained in such a way that they are readily retrievable and stored in an acceptable environment to prevent damage, deterioration, or loss. At a minimum, analytical records retention will meet a five-year record retention schedule.

36.1.2 Matrix Spikes and Matrix Spike Duplicates

The OIC will ensure that:

- The data package will include matrix spikes and matrix spike duplicate sample recovery percentages and relative percent differences for each matrix and analyte.
- The subset will include analytes representative of the chemical properties of the project analytes of concern, if analytes are not specified for a project only a subset of the project analytes are evaluated with matrix spikes and matrix spike duplicates.
- Each matrix spike and matrix spike duplicate test report will include the following:

- Spike concentration added to the sample;
- Measured concentration of the analyte in the unspiked sample;
- Measured concentration of the analyte in both the matrix spike and matrix spike duplicate;
- Calculated percentage matrix spike/matrix spike duplicate recoveries and relative percent difference; and
- Laboratory and/or method quality control limits (acceptance criteria) for both matrix spike/matrix spike duplicate recovery and relative percent difference.

- The data set will include the laboratory batch number and the laboratory identification number of the sample spiked.
- The laboratory will perform matrix spikes at a minimum frequency of one out of every 20 samples per matrix type, except for analytes for which spiking solutions are not available (e.g., total dissolved solids, total volatile solids, total solids, pH, color, temperature, or dissolved oxygen).

When results of the matrix spikes and matrix spike duplicate are outside of the acceptable limits, The OIC will arrange for the laboratory to check other quality control results (e.g., laboratory control sample), and, if appropriate, have the laboratory qualify the results or use another analytical method. The results of the matrix spikes and matrix spike duplicate are sample and matrix- specific and may not normally be used to determine the validity of the entire batch of samples.

36.1.3 Method Blanks

The OIC will ensure that the laboratory reprocess any sample associated with the contaminated blank that exceeds a concentration greater than one-tenth of the measured concentration of any sample in the associated batch or exceeds the concentration present in the samples and is greater than one-tenth of a specified regulatory limit for analysis or the results reported with appropriate data-qualifying codes and submitted in the data package. These are minimum criteria to be used in cases where blank acceptance criteria are not defined in the referenced methodology used for analysis.

36.1.4 Laboratory Control Samples and Laboratory Control Sample Duplicates

The laboratory control sample and laboratory control sample duplicate are composed of a sample matrix that is free from analytes of interest and spiked with known amounts of analytes or material containing known and verified amounts of analyses. The laboratory control sample and laboratory control sample duplicate are used to establish intra-laboratory or analyst-specific precision and accuracy of certain parts of the analytical methodology.

The OIC will ensure that the laboratory:

- Analyzes laboratory control samples at a minimum of 1 each per batch of 20 samples or less, per matrix type, except for analytes for which spiking solutions are not available. A

laboratory control sample duplicate will be processed with the batch where needed to demonstrate precision.

- Calculate the results of the laboratory control sample to assess precision based on the recovery percentages of the analytes of interest within the analytical methodology.

36.1.5 Surrogates

The OIC will have the laboratory review the surrogate recoveries used to measure method efficiency. The laboratory can, with qualifications, estimate the overall method efficiency.

36.1.6 Data Reduction, Evaluation, and Review

The OIC will ensure that a data reviewer consider the project data quality objectives to determine if the sample test results meet the project needs with regard to completeness, representativeness, and accuracy (bias and precision).

The OIC will review all data prior to submittal for commission review. The data review will include examination of the quality control results and other supporting data, including any data review by the laboratory, and will identify any potential impacts such as bias on the quality of the data using qualifiers in the test reports tied to explanations in footnotes and in the laboratory case narrative.

The criteria used to evaluate each quality control parameter will be defined in the OIC's sampling and analysis plan, project quality objectives, and/or other reference(s) of documented analytical laboratory or method criteria.

The OIC will ensure that the recordkeeping system allow historical reconstruction of all laboratory activities used in the data reduction, validation, and review of the analytical data.

36.1.7 Matrix Interferences and Sample Dilutions

The OIC will ensure that the laboratory:

- Documents and reports problems and anomalies observed during analysis that might have an impact on the quality of the data. The laboratory must document any evidence of matrix interference or any situation where the analysis is out of control (quality control results outside of laboratory or method limits), as well as the measures taken to eliminate or reduce the interference or corrective action to bring the analysis back into control.

- Uses the smallest dilution factor needed to overcome or minimize a problem of matrix interference or to bring an analysis back into control

36.1.8 Chain of Custody

Chain of custody forms are used to document custody of the samples during collection, transport, and initial receipt of samples at the analytical laboratory. A laboratory may also use chain of custody forms to document the movement and analysis of samples within the laboratory.

The Operator will ensure that the laboratory:

- Submit all data packages with completed field chain of custody forms and other documentation, including the following:
  - Field sample identification;
  - Date and time of sample collection;
  - Preservation type;
  - Analytical methods requested and/or analytes requested;
  - Signatures of all personnel with custody prior to receipt by the laboratory;
  - Signature of laboratory personnel taking custody samples; and
  - Date and time of custody transfers.
- Document if samples are received outside of the recommended holding times for a particular analyte or method.
- Record, upon receipt, the condition of the sample, including any abnormalities or departures from standard conditions as prescribed in the relevant test method.
- Have procedures for checking the chemical preservation using readily available techniques prior to or during sample preparation or analysis.
- Store samples according to the conditions specified by preservation protocols.

All samples that require thermal preservation will be considered acceptable if the arrival temperature is either within 2 degrees Celsius (°C) of the required temperature or the method specified range. For samples requiring thermal preservation to 4°C, a temperature ranging from just above the freezing temperature of water to 6°C will be acceptable.

36.1.9 Sample Collection and Preparation

The OIC will:

- Collect adequate sample volumes for all analytical needs for subsequent testing or analyses, when possible.
- Base sampling plans, whenever reasonable, on appropriate statistical methods. Sampling procedures should describe the selection, sampling plan, collection, and preparation of a sample or samples from a waste or medium.
- Collect representative samples of the waste or medium. The concentration of the analyses of interest, the types of analyses, and the sample media will determine the sample volume requirements.
- Ensure that the method and federal regulatory program requirements for these sample management aspects be followed for all methods of testing and, if violated, have the data flagged and qualified.

- Ensure that field personnel have procedures for recording relevant characteristics and other data relating to the sampling operations that form part of the testing or measurement that is undertaken.

- Ensure that chain of custody records and field notes include the sampling procedure used, the identification of the sampler, environmental conditions (if relevant), diagrams, or other equivalent means to identify the sampling location, and all associated sample identification numbers.

36.1.10 Analytical Method Detection Limits and Method Performance

The OIC will ensure that:

- The laboratory determines detection limits by the protocol in the mandated test method or applicable federal or state regulation.

- The laboratory uses a test method that provides a detection limit that is appropriate and relevant for the intended use of the data and establishes procedures to relate method detection limits with the practical quantitation limits.

- All samples are analyzed according to methods specified by TCEQ or U.S. EPA programs.

- If the protocol for determining detection limits is not specified in the test method, the selection of a procedure must reflect instrument limitations and the intended application of the test method. Whenever possible, analytical methods must have method detection levels that are one-fifth to one-third of the regulatory action level.

- It reviews all quality control data within the data package subject to compliance with the TCEQ and federal programs which will include information regarding precision, bias, and accuracy.

- Data with quality control results outside of the quality control limits should be flagged in the data package with explanation of problems encountered by the laboratory and the corrective action(s) attempted to resolve the analytical problems.

- The laboratory documents all corrective action associated with the analysis and maintains all records.

Failure to meet the quality control goals in accordance with the data quality standards of the study does not necessarily mean the data are unusable.

36.1.11 Instrument and Equipment Calibration and Frequency

The OIC will ensure that:

- The laboratory maintain equipment in proper working order and calibrate equipment and devices that may not be the actual test instrument, but are necessary to support laboratory operations and measurements as often as recommended by the manufacturer, using

National Institute of Standards and Technology (NIST) traceable references when available, over the entire range of their use. These include, but are not limited to: balances, ovens, refrigerators, freezers, incubators, water baths, and temperature measuring devices. Calibration results will be within the specifications required for each application or measurement for which this equipment is used.

- The laboratory will maintain records of corrective actions implemented to correct all measurements.
- Standards used for the calibration of field instruments are, when available, traceable to certified standards or reference material.
- The laboratory equipment is calibrated or standardized against NIST traceable reference materials and standards.
- Documentation of the certificate of analysis and traceability of the standards and reagents is maintained by field or laboratory personnel.
- Calibration of field instruments and equipment is performed at approved intervals as specified by the manufacturer or more frequently as conditions dictate. Calibrations may also be performed at the start and completion of each test run.
- Records of calibration, repair, or replacement are filed and maintained by the designated field staff.
- Calibration and standardization of laboratory equipment are based on procedures described in each contract laboratory quality assurance plan or standard operating procedure.
- Records of calibration, repair, or replacement are filed and maintained by the designated laboratory personnel performing quality control activities in accordance with manufacturer requirements.
- Calibration records are filed and maintained at the laboratory location where the work is performed and subject to commission review during a quality assurance audit.

36.1.12 Laboratory Case Narrative

The OIC will ensure that the laboratory case narrative:

- Explains each failed precision and accuracy measurement determined to be outside of the laboratory and/or method control limits, and the effect of the failure on the results (positive or negative bias) when reporting QC results (precision and accuracy).
- States the exact number of samples, identification numbers, testing parameters, and sample matrix, as well as the name(s) of the laboratory(ies) involved in the analysis.
- Includes a statement of the test objective regarding the samples.

- Identifies the applicable QA/QC samples that require special attention by the reviewer, including field, trip, and laboratory blank(s); duplicate(s); field spike(s); QA audit sample(s); and laboratory control samples.
- Includes an acknowledgment and reference to current standards regarding sample holding, extraction, and analytical times along with a statement explaining whether the standards were met.
- Describes the extent of the delay and, if possible, provides an estimate of the bias within the data if samples are not analyzed within the prescribed holding times.
- Includes a statement that the laboratory conducting the analyses for environmental decision making have a QA program run by a QA officer to include the following:
    - System audits of field and/or laboratory operations using field surrogate samples;
    - Instrument calibration check samples used to determine the accuracy of the instrumentation;
    - Blind spikes of blanks, where the concentration of the blind spike is known only to the QA officer;
    - Verification of calibration accuracy via calibration check standard;
    - Internal surrogate spikes for determination of analytical extraction recovery; and
    - Overall assessment of the data quality based upon the reported QC data.
- Includes all QC results included in each data set that affect the quality of the data.
- Describes the bias within each data set as either positive or negative, when QC results are outside the method established and/or data quality objectives of the Facility groundwater sampling and analysis plan.
- Presents clearly the precision and accuracy determinations with all results calculated.
- Explains each failed precision and accuracy measurement determined to be outside of the method control limits and the effect of the failure on the results.
- Includes a review with comments that identify the problems associated with the sample results and explains the limitations on data usability.
- Includes a statement on the estimated uncertainty of analytical results of the samples involved and/or within the QC of the analytical method of the permit, project, and/or program required analytical recoveries information, when appropriate and/or requested.
- Includes all deviations from, additions to, or exclusions from the test method, and information on specific test conditions.
- Includes a statement of compliance/noncompliance with requirements and/or specifications, where relevant (e.g., holding times, dilutions).

36.2 Final Product Compost QA/QC

Quality control and assurance procedures will include careful examination of feedstocks. Final compost will be tested and inspected as described in "Test Methods for the Examination of Composting and Compost," US Composting Council [http://compostingcouncil.org].

References

Texas Commission on Environmental Quality (TCEQ). 2007. *Odor complaint investigation procedures*. September 18, 2007.

U. S. Environmental Protection Agency (EPA). *Test methods for evaluating solid wastes, physical/chemical methods.* September 1986. <http://www3.epa.gov/epawaste/hazard/testmethods/index.htm>.

Appendix N

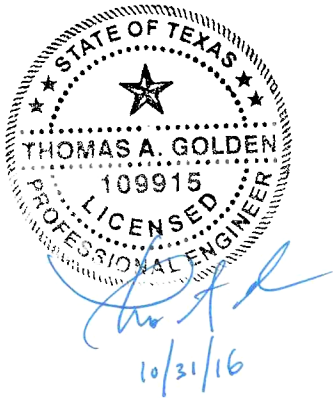
Closure Cost Summary & Estimate

CLOSURE COST SUMMARY
SEALY COMPOST FACILITY, AUSTIN COUNTY, TX

CLOSURE COST SUMMARY	
COMPOSTING PAD & COMPOST PAD RETENTION POND REMOVAL AND BACKFILL	$534,950
CONCRETE AREAS REMOVAL - SLUDGE PROCESSING PADS	$16,925
FACILITY CLOSURE (INCLUDING TANKS, GRADING, BUILDINGS, MISC EQUIPMENT)	$111,290
ADMINISTRATIVE COSTS	$72,867
SUBTOTAL CLOSURE COST	$736,032
Contingency (10%)	$73,603
TOTAL CLOSURE COST	$809,636
Required Financial Security	$809,636

Assumptions

1) The facility is in compliance with the conditions of the permit at the time of closure.
2) Final closure work will be completed by independent contractors. No equipment from the facility will be used
3) The compost pad retention pond is full at the time of closure, and stormwater will be collected, transported, and disposed off-site
4) The compost pad will be demolished and removed. The compost pad and compost pad retention pond will be backfilled with on-site soils and graded to match site topography
5) The office trailer and other structures will be demolished or recycled and removed
6) Surface tanks will be washed out, disinfected, and hauled away for disposal/recycle.
7) Soil from the earthen berms will be used on-site for grading and backfill.
8) Remaining finished compost materials will be used during revegetation. Finished compost will be used during reseeding, and bulking materials will be chipped and spread as mulch
9) This closure cost estimate accounts for all materials on-site, including the maximum amount of feedstock, compost products, and stormwater stored on-site at any one point in time



CLOSURE COST ESTIMATE
SEALY COMPOST FACILITY, AUSTIN COUNTY, TX

Item / Material	Units	Quantity	Unit Price	Subtotal	REFERENCES
COMPOSTING PAD & COMPOST PAD RETENTION POND REMOVAL AND BACKFILL					
Mob/demob dozer/grader/mulcher - 3 pieces of equipment	RND TRP	3	$1,020	$3,060	RS Means 01 54 36.50 0100
Removal of liner material & handling of protective material (1' thick)	CY	17,747	$5.45	$96,719	RS Means 31 23 16.46 3220
Transportation of materials by truck, disposal located approximatley 26 miles from the site. Assumes approximately 160 loads.	CY	3,221	$6.95	$22,388	RS Means 31 23 23.20 4098/4100
Dispose of 6" of liner material at landfill	TON	5	$155	$799	RS Means 02 81 20.10 6000
Collection, transportation, and disposal of compost pad retention pond stormwater	GAL	7,910,365	$0.04	$316,415	Professional opinion
Fill pond excavation, incl. compaction	CY	39,168	$2.44	$95,570	RS Means 31 23 23.14 5420\.23 5050
SUBTOTAL				**$534,950**	
CONCRETE AREAS REMOVAL SLUDGE PROCESSING PADS					
Demolition of concrete sludge processing pads	CY	81	$202	$16,362	RS Means 02 41 13.33 4320
Transportation of materials by truck, disposal located approximatley 26 miles from the site.	CY	81	$6.95	$563	RS Means 31 23 23.20 4098/4100
SUBTOTAL				**$16,925**	
FACILITY CLOSURE (INCLUDING TANKS, GRADING, BUILDINGS, MISC EQUIPMENT)					
Site and pit closure work supervision (consultant)	DY	20	$1,200	$24,000	Based on engineer's field consultant rate
Washout, disinfect, and haul for disposal/recycle, 31,500 gal steel tank	EA	8	$3,288	$26,300	RS Means 02 65 10.30 0863/1029
Berm removal material used as on site fill	CY	6,252	$0	$0	Use demolition equipment to spread
Seeding: Rye grass, tractor spreader	MSF	1,488	$26	$38,677	RS Means 32 92 19.14 3400
Sedimentation fencing	LF	4,460	$1.21	$5,397	RS Means 31 25 14.16 1100
Washout, disinfect, demob office trailer and maintenance shop for sale/reuse	EA	2	$220	$440	RS Means 01 52 13.20 0890
Washout, disinfect, remove, dispose/salvage miscellaneous on-site equipment	LS	1	$5,000	$5,000	Professional opinion
Sight security - light towers and existing fencing	DY	20	$371	$7,424	RS Means 01 54 33 3500
Land apply any remaining bulking materials and finished compost	AC	32	$127	$4,053	RS Means 01 54 33 2860/2900
SUBTOTAL				**$111,290**	
ADMINISTRATIVE COSTS					
Site survey	LS	1	$9,400	$9,400	RS Means 02 21 13.16 1510
Preparation of engineering plans, bid documents, and closure notification	LS	1	$53,053	$53,053	RS Means 01 11 31.30 0900
Closure sampling (soil and groundwater)	LS	1	$5,000	$5,000	Professional opinion
Compost sampling (maturity and final product)	LS	1	$5,000	$5,000	Professional opinion
Facility closure sign	SF	12	$34.50	$414	RS Means 01 58 13.50 0020
SUBTOTAL				**$72,867**	
TOTAL				**$736,032**	

RS Means - RS Means Heavy Construction Cost Data, 28th edition, 2014

Eight (8) 31,500-gallon feedstock storage tanks are the only on site tanks.
Earthen berm is 4 feet high by 8 feet wide at the base for perimeter and pond berms, 2 5 feet high by 5 feet wide at the base for the tanks berms.
Two concrete sludge processing pads measure 40 feet by 50 feet, 0.5-foot thick, sloped toward compost pad.
Removal of office trailer, portable toliet, above ground piping, carport, misc equipment, empty mobile frac tanks

Notes.

CY	Cubic yard
DY	Day
EA	Each
GAL	Gallon
LS	Lump sum
MSF	Million square feet
RND TRP	Round trip
SF	Square feet

Appendix S

Waters of the U.S. Delineation and Jurisdictional Determination Report and October 14, 2016 Correspondence

October 14, 2016

Mr. Mark Garza
U.S. Army Corps of Engineers
Galveston District
Regulatory Division Compliance Branch
2000 Fort Point Road, Galveston, Texas 77550

RE: Waters of the U.S. Delineation and Jurisdictional Determination Transmittal Letter
Proposed Sealy Compost Facility in Sealy, Austin County, Texas
USACE Project No. SWG-2016-00417; W&M Project No. 1057.028.002

Dear Mr. Garza:

W&M completed the enclosed Waters of the U.S. (WOTUS) Delineation and Jurisdictional Determination for the proposed Sealy Compost Facility in Sealy, Austin County, Texas (Site). The report is being submitted on behalf of Daniel B. Stephens & Associates, Inc. and their client, SouthWaste. The delineation identified one wetland within a manmade stock pond impoundment and two swales that guide storm water runoff toward the impoundment. These aquatic features appear to have been constructed in an upland area that does not have a current or historical hydrologic connection to a navigable water. None of the aquatic features at the Site meet the current definition of a WOTUS under the Code of Federal Regulations Title 33, Chapter 2, Part 328.3e (33 CFR 328.3e). Although the rule is currently stayed by a federal court, the aquatic features also do not meet the definition of WOTUS published in the Federal Register, Vol. 80, No. 124, June 29, 2015 (Clean Water Rule). Based on these findings, the proposed construction of the Sealy Compost Facility at the Site does not require a Section 404 Clean Water Act (CWA) permit or Section 10 River and Harbors Act of 1899 permit.

An approved jurisdictional determination (AJD) is requested on behalf of SouthWaste, if the U.S. Army Corps of Engineers (USACE) determines an AJD is necessary to provide a letter that no permit is necessary for the proposed activity. Additionally, it may benefit the solid waste permit process if the USACE can respond to the Texas Commission on Environmental Quality (TCEQ) public comment request clarifying that no coordination with the USACE is required if there are no WOTUS present at the Site, but an AJD is necessary for the Corps to comment on whether WOTUS are present.

If you have any questions, please feel free to contact me at 512-501-4085.

Very truly yours,
W&M ENVIRONMENTAL GROUP, LLC

Aaron Brewer, P. G.
Project Manager

Enclosure

October 14, 2016

Mr. Ben Camacho
Daniel B. Stephens & Associates, Inc.
4030 West Braker Lane, Suite 325
Austin, Texas 78759

RE: Waters of the U.S. Delineation and Jurisdictional Determination Report
Proposed Sealy Composting Facility
Austin County, Texas
W&M Project No. 1057.028.002

Dear Mr. Camacho:

W&M Environmental Group, LLC (W&M) completed a *waters of the U.S.* (WOTUS) delineation and jurisdictional determination report for the proposed Sealy Composting Facility located in Austin County, Texas (Site). The Site is a gently sloping fallow agricultural field in a mixed agricultural and industrial area east of Sealy, Texas. The Site location is indicated on **Figure 1** and the Site layout is presented on **Figure 2**.

One wetland was delineated within an impoundment constructed on the west side of the Site. However, this impoundment was excavated in uplands and has no connection to a WOTUS; therefore, the wetlands within it are not WOTUS. Impacts to the wetland from the proposed construction of the Sealy Compost Facility, if any, would not require a Section 404 Clean Water Act (CWA) permit from the U.S. Army Corps of Engineers (USACE) District Engineer.

PURPOSE

This delineation and jurisdictional determination was conducted by W&M on behalf of Daniel B. Stephens & Associates, Inc. to support their client, SouthWaste Disposal, LLC, in their pursuit of a Municipal Solid Waste (MSW) permit from the Texas Commission on Environmental Quality (TCEQ). The purpose of this delineation and jurisdictional determination is to determine the aerial extent of jurisdictional WOTUS and other wetlands at the Site. The secondary purpose is to form an opinion regarding whether the waters are jurisdictional WOTUS that would fall under the jurisdiction of the USACE and, if so, what Section 404 CWA and/or Section 10 River and Harbors Act (RHA) permits may apply to the proposed project.

METHODS

The first step in the delineation process is to identify and delineate wetlands and other aquatic features such as streams, ditches, and ponds at the Site. The second step is to make a jurisdictional determination for each aquatic feature identified at the Site. The opinion on whether a Section 404 and/or Section 10 permit is recommended is based on the jurisdictional determination of each aquatic feature and the nature of the proposed project.

The wetland determination was conducted in general accordance with the *Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1* (January 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0), dated November 2010. The selected determination method was a routine determination with an on-Site inspection. Streams were delineated based on the presence of an ordinary high water mark (OHWM) as defined in Title 33 of the Code of Federal Regulations, Chapter 2, Part 328.3e (33 CFR 328.3e) and the USACE Regulatory Guidance Letter 05-05, dated December 7, 2005. Although currently stayed by a federal court, consideration was given to the federal definition of WOTUS published in the Federal Register, Vol. 80, No. 124, June 29, 2015.

RECORDS REVIEW

W&M reviewed several standard record sources to identify soil and topographic conditions and possible aquatic features (i.e. streams, ditches, ponds, emergent wetlands, etc.) at the Site. The sources are referenced or included in **Attachment A**.

Antecedent Hydrologic Conditions Analysis

The antecedent precipitation conditions at the Site were evaluated prior to conducting the field work using the National Resource Conservation Service (NRCS) method for estimating antecedent moisture conditions as documented on the Rainfall Documentation worksheet in **Attachment A**. The method utilizes National Weather Service Preliminary Monthly Climate Data (CF6) precipitation totals from the nearest reporting station (Brenham, Texas) for the previous 3 months compared to historical ranges of normal precipitation as reported in the NRCS Climate Analysis for Wetlands (WETS) table for the nearest reporting station (Bellville, Texas). Based on this evaluation, the antecedent precipitation was within the normal range at the time the delineation was completed on October 4, 2016.

The 2011 through 2015 aerial photographs, available through Google Earth, depict the water level in the pond as at or below the current wetland boundary, with the exception of the November 21, 2015 aerial photograph, which depicts the water level as exceeding the current wetland boundary. The Rainfall Documentation worksheet (**Attachment A**) for the period from August 2015 through October 2015 indicates rainfall was within the range of normal. However, the precipitation in October 2015 was 7.44 inches, which was more than twice the average rainfall for October. That abnormally high rainfall likely resulted in the water level of the impoundment exceeding the wetland boundary when the November 2015 photograph was captured.

Previous Delineation Results

W&M completed a Biological Assessment (BA) at the Site in October 2015. The field work for the BA was completed on October 15, 2015, prior to the unusually high rainfall that occurred in October 2015. During the BA, a wetland was identified within the impoundment, as determined by a test plot (TP-1A); however, a delineation was not completed in accordance with the USACE Manual (1987) as it was not necessary to complete the BA.

W&M referenced the National Wetland Inventory (NWI) map during this assessment. No wetlands were identified on or adjacent to the Site in the NWI Map.

Records Review Summary

In general, the Site appears to have been used for agricultural cropland and pasture. The impoundment at the Site appears to have been excavated in a swale that traverses the east portion of the Site from south to north. The USGS topographic map indicates that at least the north portion of the swale may have been

natural, but the swale may have been expanded to the south during excavation of the pond. There is no indication of a natural stream at the Site or topographically downgradient to the north of the Site.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for the Site (48015C0350E), the study area is entirely within, and adjacent to, areas mapped as Zone X, which are outside the 100-year floodplain. The nearest floodplain is associated with the Brazos River valley, located north of the Site.

Details of the soil units mapped at the study area were obtained from the Soil Series Descriptions (USDA, 2015) and the Web Soil Survey (USDA Soil Survey, 2015). The predominant soil map units at the Site are Lake Charles Clay, 3 to 8 percent slopes, and Verland clay loam, 0 to 1 percent slopes (southeast corner) and 1 to 3 percent slopes. Styx loamy fine sand is mapped outside the northeast boundary of the Site with a slight incursion across the north boundary, following a topographic contour.

The Lake Charles series consists of very deep, moderately well drained, very slowly permeable soils that formed in clayey sediments. These soils are on broad coastal prairies and are mainly in cultivated and native pasture. They have a hydric rating of zero, which corresponds to a zero percent incidence of hydric (wetland) soils associated with this map unit. Common crops cultivated on these soils are corn, cotton, rice, and grain sorghum. Native grasses include little bluestem, Indiangrass, eastern gamagrass, switchgrass, big bluestem, and brownseed Paspalum. Most areas have scattered live oak, water oak, elm, hackberry, and huisache trees.

The Verland series consists of very deep, somewhat poorly drained, very slowly permeable soils. These nearly level to very gently sloping soils formed in clayey and loamy sediments of the Beaumont Formation of Pleistocene age. The Verland clay loam, 0 to 1 percent slopes, has a hydric rating of 5, indicating 5 percent of the map unit area is typically hydric. The Verland clay loam, 1 to 3 percent slopes, has a hydric rating of zero. Most of the soil is used for pasture or for growing rice and soybeans. Native vegetation consists of tall prairie grasses which typically includes Andropogons, Paspalums, switchgrass, and Indiangrass. Various species of trees have encroached on some areas.

The Styx series consists of very deep, well drained, moderately permeable soils that formed in sandy and loamy sediments. These nearly level to gently sloping soils occur on high stream terraces. They have a hydric rating of zero. Most areas are used for pasture. A few areas are used for growing small grains for cool season grazing and truck crop production. Native vegetation is mainly post oak and blackjack oak, and greenbrier, with an understory of mid and tall grasses

SITE OBSERVATIONS AND FINDINGS

Mr. Aaron Brewer of W&M, Texas-licensed Professional Geoscientist (P.G.), observed the Site on October 15, 2015 and October 4, 2016 for indications of wetlands and other aquatic features. The federal definition of a wetland generally requires that a feature meet specific criteria for each of three categories to be designated a wetland. Those three criteria are: 1) wetland (hydrophytic) vegetation; 2) wetland hydrology; and 3) wetland (hydric) soils. Observations for each of these criteria are summarized in field data forms in **Attachment B**. Photographs of the Site are presented in **Attachment C**.

W&M utilized the current State Wetland Plant List (Texas 2016) from the USACE to identify the appropriate wetland indicator status, as follows:

- OBL – obligate wetland species

- FACW – facultative trending wet and usually found in wetlands
- FAC – facultative found in wetlands and uplands
- FACU – facultative but usually found in uplands
- UPL – upland species
- NI – plants with no indicator; usually considered upland species

The location of boundaries and course of aquatic features were marked by global positioning system (GPS) in accordance with the USACE Galveston District Standard Operating Procedure dated April 21, 2016. The GPS data were recorded utilizing the parameters listed below:

- Equipment: Fulcrum data recording application was accessed with a Samsung 4S smartphone utilizing a SXBlue II antenna by Geneq, Inc., which has real-time differential GPS with sub-60-centimeter accuracy (95% confidence).
- Spatial data was recorded in the NAD 83 datum in decimal degrees with a degree of precision at least six digits past the decimal point.
- Benchmark: Monitoring well B-2
- Satellites: Minimum of 11 used
- Accuracy: Within 1.5 meter

Normal Circumstances, Problematic Areas, and Atypical Situations
The USACE wetland delineation manual (1987), regional supplement (2010), and regulatory guidance letters (RGL 82-02 and 86-09) define the terms Normal Circumstances, Problematic Areas, and Atypical Situations. W&M observed for these conditions during the delineation. Normal circumstances were observed at the Site unless otherwise described herein. No problem areas or atypical situations were encountered unless described herein.

The impoundment at the Site appeared to have been graded during construction of the depression and dike. The excavation disturbed the natural soils and altered hydrology. The grading and past agricultural use have affected the vegetation at the Site. These ground disturbances are historical and have had time for normal circumstances to adjust. The area around the wetland was apparently mowed within this fall season. Test plots, constructed as part of this delineation, were shifted to adjacent, un-mowed areas to ensure recent mowing did not affect the results.

Aquatic Feature Delineation and Inventory
One impoundment was identified at the Site that contains a wetland within the man-made depression. The wetland and boundary were delineated based on the results of test pits TP-1A, TP-1B, and TP-1C, which reflected a transition between vegetation communities associated with an apparent transition in hydrologic indicators.

Two swales were observed at the Site that appeared to have been constructed to facilitate Site drainage and to capture runoff in the Site pond. No OHWM was observed in the swales, which were populated with plants that did not indicate the presence of wetlands. The dominant plants in the swales included bermudagrass (*Cynodon dactylon*, FACU), perennial ragweed (*Ambrosia psilostachya*, FAC), hogwort (*Croton capitatus*, NI), doveweed (*Croton monathogynus*, NI), wireweed (*Aster subulatus*, NI), horseweed (*Conyza canadensis*, NI), perennial broomweed (*Gutierrezia sarothrae*, NI), Texas vervain (*Verbena texana*, NI), and king ranch bluestem (*Bothriochloa ischaemum*, NI).

The dimensions and jurisdictional status of observed aquatic features are presented in Table A below:

Table A: Aquatic Feature Inventory (On-Site)

ID	Description	Linear Feet	OHWM Width (ft)	OHWM Height (ft)	Acres	Jurisdictional Status
Impoundment-1	Livestock pond	NA	NA	NA	0.39	Non-jurisdictional
Wetland-1	Emergent, freshwater wetland	NA	NA	NA	0.10	Non-jurisdictional
Swale-1	Swale	470	NA	NA	NA	Non-jurisdictional
Swale-2	Swale between fields	1,200	NA	NA	NA	Non-jurisdictional

NA = Not applicable

REGULATORY CONSIDERATIONS

Preliminary Jurisdictional Determination

Once aquatic features are identified at a property, the next regulatory consideration is whether the features are jurisdictional WOTUS subject to Section 404 of the CWA as administered by the USACE and U.S. Environmental Protection Agency (EPA). Jurisdictional status of delineated streams and other aquatic features are described below and summarized above in **Table A**.

In the USACE/EPA CWA regulations (33 CFR 328.3(a)), the term "waters of the U.S." is defined as follows:

1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. All interstate waters including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (iii) Which are used or could be used for industrial purpose by industries in interstate commerce;
4. All impoundments of waters otherwise defined as waters of the U.S. under the definition;
5. Tributaries of waters identified in lines 1 through 4 above;
6. The territorial seas;
7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in lines 1 through 6 above.

None of the aquatic features identified at the Site meet these criteria of WOTUS. Additionally, they do not meet the definition of WOTUS under the federal definition published in the Federal Register, Vol. 80, No. 124, June 29, 2015, which is currently stayed by a federal court.

The USACE and EPA have not delegated the authority to make jurisdictional determinations; however, our jurisdictional determination opinions expressed herein are based on the records review, Site observations, experience, joint USACE and EPA guidance[1], and the federal definition of *waters of the U.S.* published in the Federal Register, Vol. 80, No. 124, June 29, 2015. USACE and EPA concurrence can be sought through the Approved Jurisdictional Determination process.

Permits
Based on W&M's finding that there are no WOTUS at the Site, no Section 404 or Section 10 permit would be required for the proposed activity.

CONCLUSIONS

W&M has performed a wetland delineation and jurisdictional determination for the presence of WOTUS at the Site of the proposed Sealy Compost Facility located in Austin County, Texas. In our opinion, there are no WOTUS at the Site and the proposed activity would not require a Section 404 CWA permit or Section 10 RHA permit.

GENERAL QUALIFICATIONS

This report was prepared for the sole use of Daniel B. Stephens & Associates, Inc. and shall not be disseminated to, used by, or relied upon by any other party without the express prior written consent of Daniel B. Stephens & Associates, Inc. and W&M. This document was developed by employing generally accepted methods and customary practices of the environmental profession. Opinions and conclusions presented in this report are based on data produced during this study and are limited to this specific project, and the locations and dates described herein. Any changes to the Site conditions since the fieldwork dates are not covered in this report. No warranty, express or implied, is made regarding the environmental condition of the Site. Qualifications of wetland professionals that contributed to this assessment are included in **Attachment D**.

If you have questions regarding this report or require additional assistance, please contact us at 512-501-4085.

Very truly yours,
W&M ENVIRONMENTAL GROUP, LLC

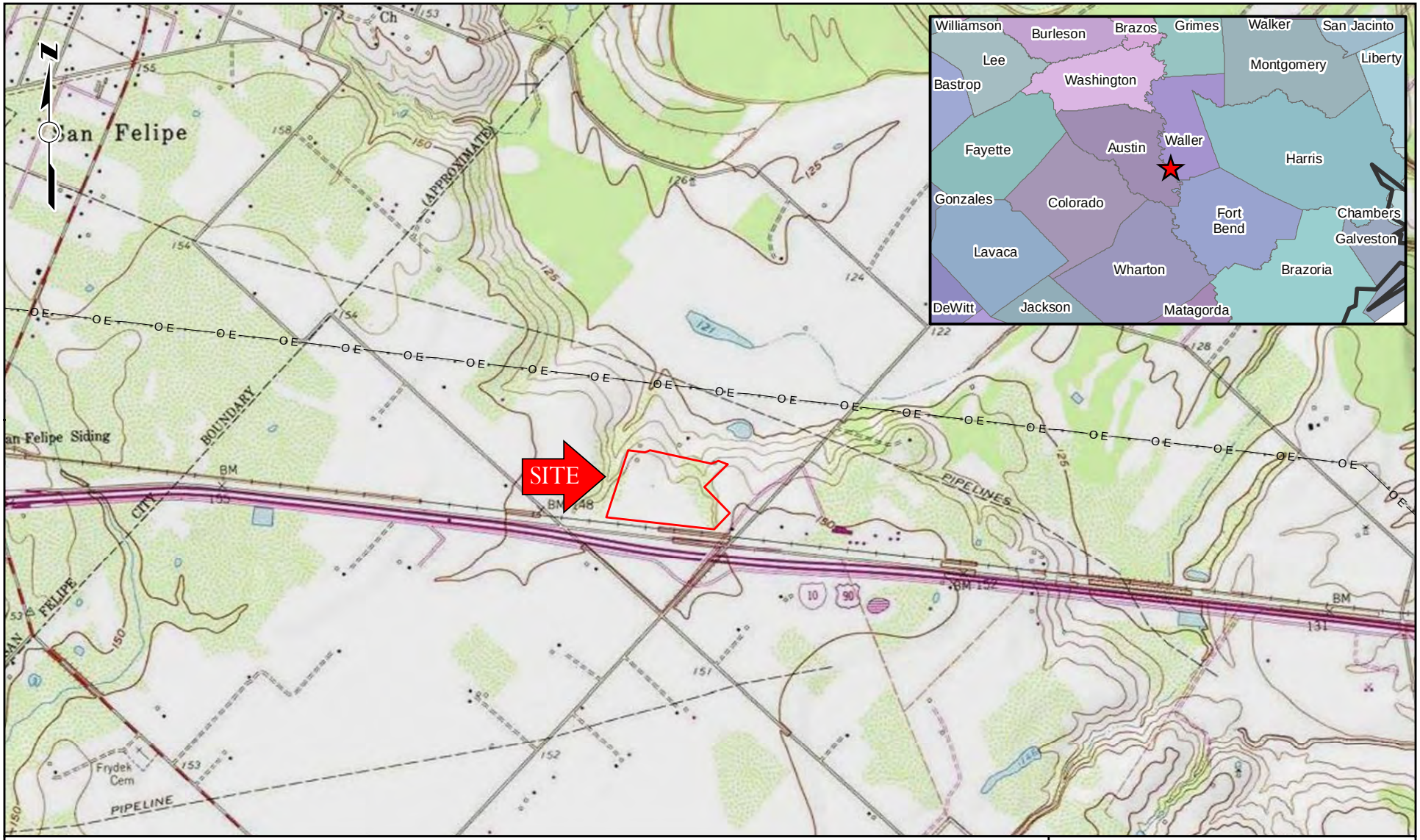
Aaron D. Brewer, P.G.
Project Consultant

Jim Florey, P.G., CPSS
Technical Specialist

Attachments

[1] EPA and USACE. Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States. Joint Memorandum. June 6, 2007. Revised December 2, 2008.

FIGURES



Legend

Approximate Site Boundary

OE Overhead Electric Line

Source: USGS Topographic Map, San Felipe Quadrangle (1981)

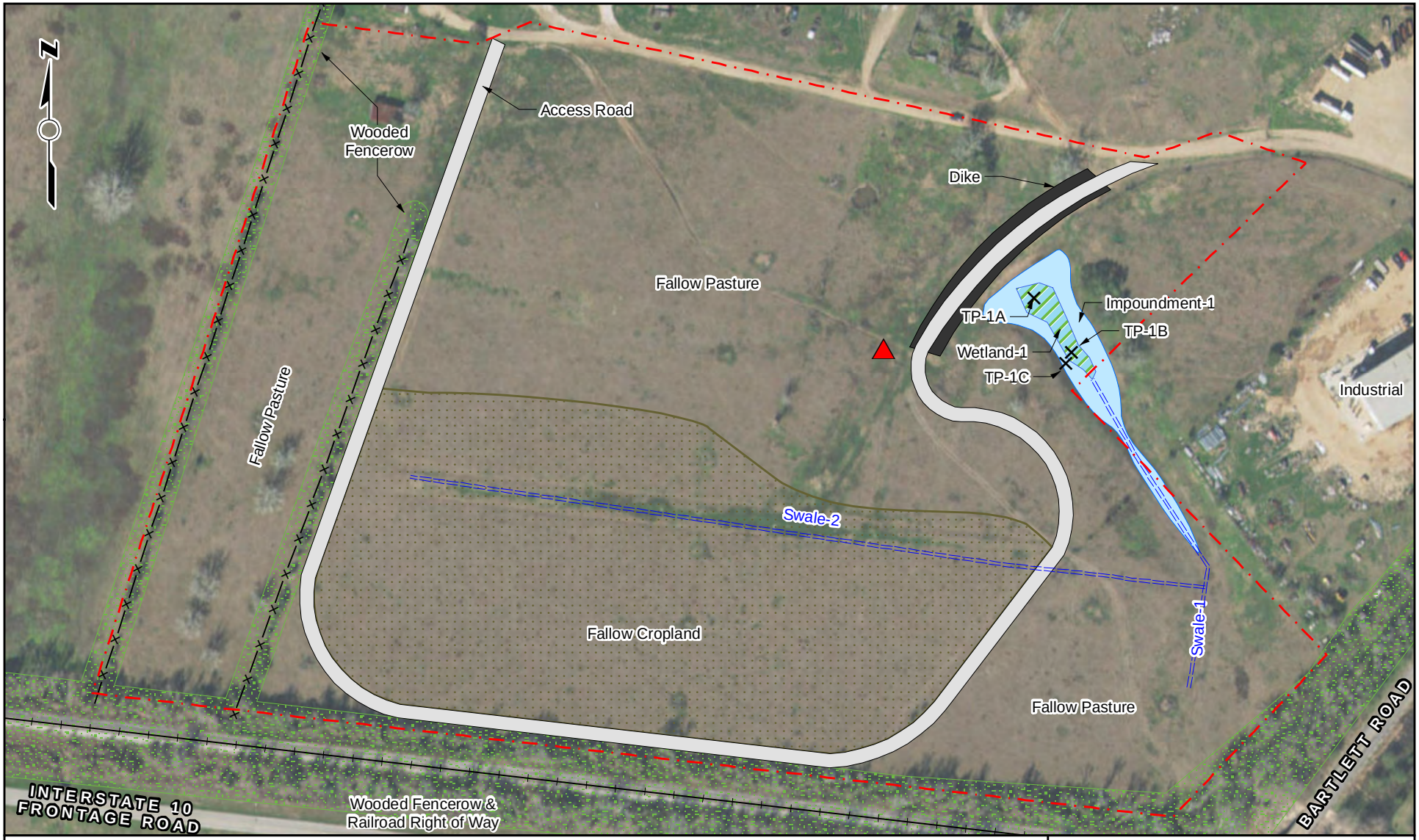
0 1,000 2,000 4,000 Feet

SCALE: 1:24,000 (1"=2,000')

Figure 1
Site Location Map
Proposed Sealy Compost Facility
Austin County, Texas

W&M Environmental Group, LLC

10/13/2016	W&M Project No.: 1057.028.002	Drawn by: JPM	Checked by: AB	Revised:



Legend

- Approximate Site Boundary
- Test Plot (TP-#)
- Benchmark Well
- Swale
- Railroad Tracks
- Fence
- Non-Jurisdictional Wetland
- Impoundment
- Wooded Area
- Fallow Cropland
- Dike
- Unpaved Access Road

Sources: ESRI, Texas Orthoimagery Program (1/2015), Daniel B. Stevens & Associates' Site Plan (5/27/2016)

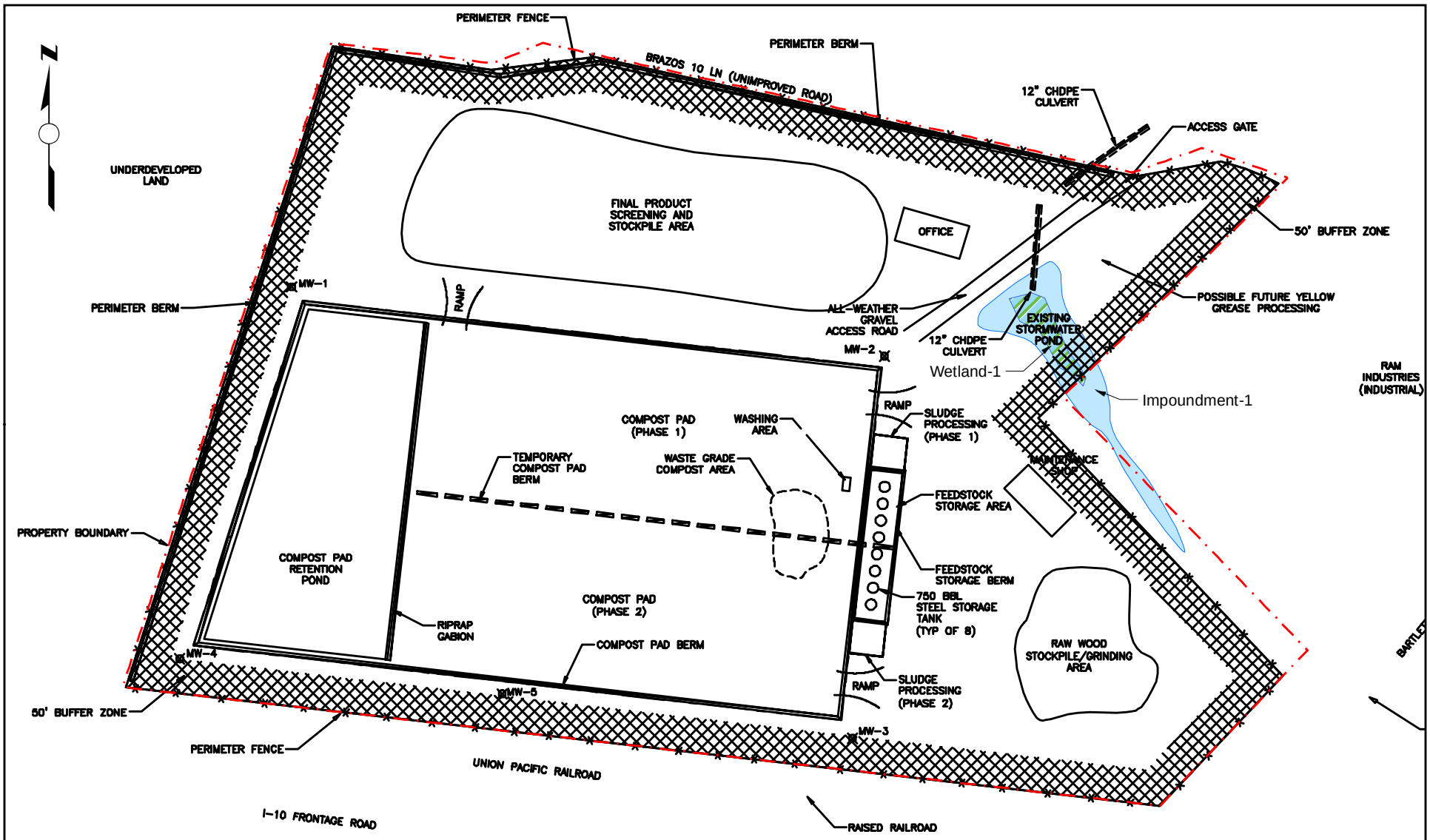
0 100 200 400 Feet

SCALE: 1"=200'

Figure 2
Site Layout Map
Proposed Sealy Compost Facility
Austin County, Texas

W&M Environmental Group, LLC

10/13/2016	W&M Project No.: 1057.028.002	Drawn by: JPM	Checked by: AB	Revised:



Legend

- Approximate Site Boundary
- Non-Jurisdictional Wetland
- Impoundment

Source: Daniel B. Stevens & Associates' Site Plan (5/27/2016)

0 105 210 420 Feet

SCALE: 1"=200'

Figure 3
Site Plan
Proposed Sealy Compost Facility
Austin County, Texas

10/14/2016	W&M Project No.: 1057.028.002	Drawn by: JPM	Checked by: AB	Revised:

REFERENCES

ATTACHMENT A

REFERENCES

United States Geological Survey (USGS) 7.5 Minute Topographic Quadrangle Map for San Felipe (1981)

Site Plan prepared by Daniel B. Stephens & Associates, Inc. dated May 27, 2016

U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) (https://www.fws.gov/wetlands/Data/Mapper.html)

Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs), Map Numbers 48015C0350E (September 3, 2010)

U.S. Department of Agriculture (USDA) National Resource Conservation Service (NRCS) Web Soil Survey (http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm) for soil map and hydric rating (percentage of wetland-associated soil within soil map unit)

Official Soil Series Descriptions (https://soilseries.sc.egov.usda.gov/osdname.aspx) by the USDA NRCS

NRCS, USDA Handbook 296. *Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin.* June 2006

Google Earth historical imagery that is a mix of private collections and photographs provided by the USGS and USDA Farm Service Agency with coverage of the Site between February 3, 1995 and November 21, 2015 (within the past 5 years or more).

Figure 19–7 Rainfall documentation worksheet

Rainfall Documentation
(use with photographs)

Date: 10-4-16

Weather station: F6 Brenham, WETS Bellville Landowner: _____ Tract no.: _____

County: Austin State: TX

Soil name: _____ Growing season: _____

Photo date: Data for Site Visit Date: October 4, 2016

		Long-term rainfall records							
	Month	3 yrs. in 10 less than	Normal	3 yrs. in 10 more than	Rain fall	Condition dry, wet, normal	Condition value	Month weight value	Product of previous two columns
1st prior month*		1.98	3.53	4.30	0.84	Dry	1	3	3
2nd prior month*		1.76	3.10	3.77	5.61	Wet	3	2	6
3rd prior month*		0.95	2.23	2.74	0.55	Dry	1	1	1
								Sum	10

* Compared to photo date

Note: If sum is
- 6 - 9 then prior period has been drier than normal
- 10 - 14 then prior period has been normal
- 15 - 18 then prior period has been wetter than normal

Condition value:
- Dry =1
- Normal =2
- Wet =3

Conclusions:

Figure 19–7 Rainfall documentation worksheet

Rainfall Documentation
(use with photographs)

Date: 10-4-16

Weather station: F6 Brenham, WETS Bellville Landowner: _____ Tract no.: _____

County: Austin State: TX

Soil name: _____ Growing season: _____

Photo date: November 21, 2015

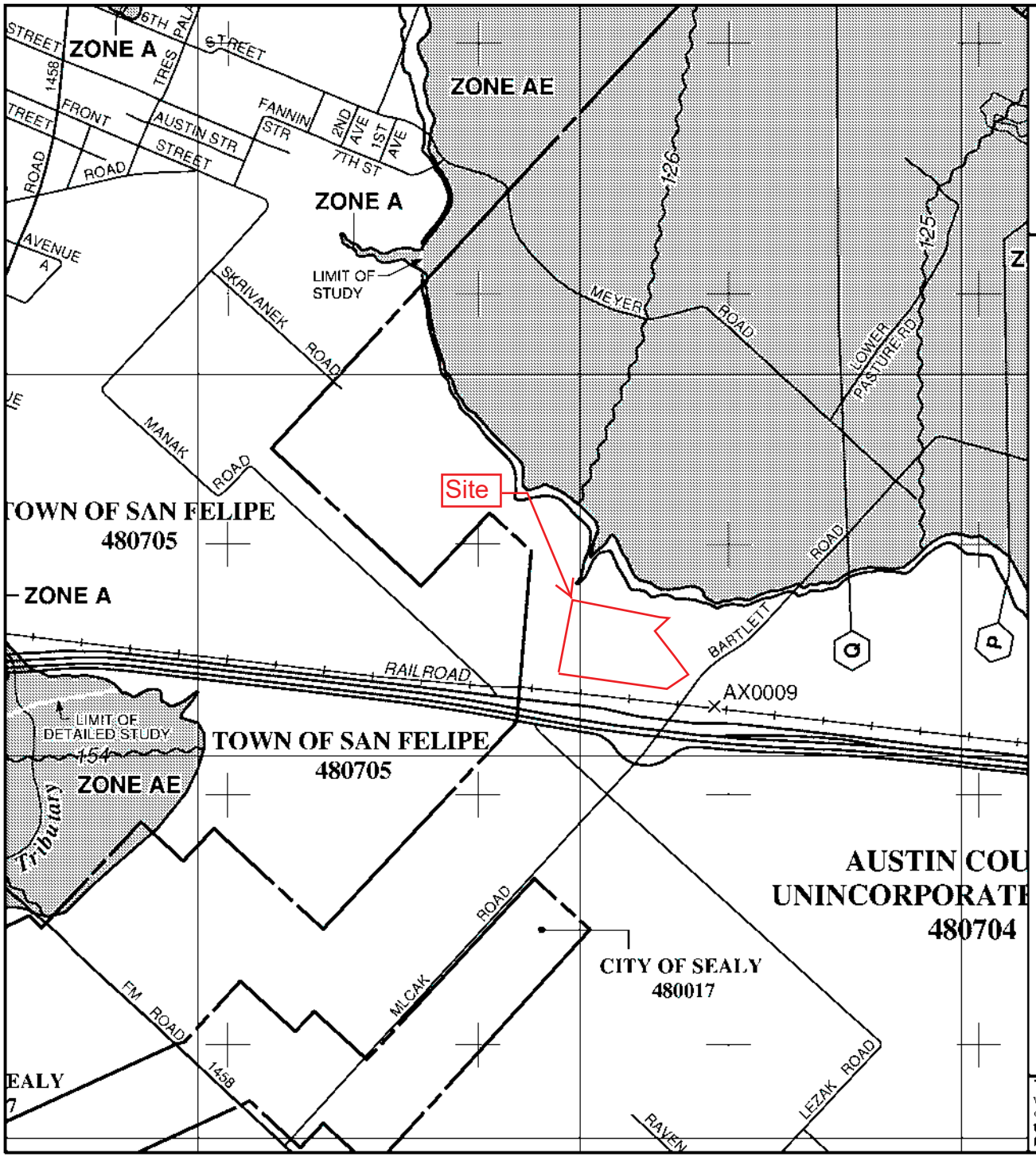
	Long-term rainfall records							
	Month	3 yrs. in 10 less than	Normal	3 yrs. in 10 more than	Rain fall	Condition dry, wet, normal	Condition value	Month weight value	Product of previous two columns
1st prior month*	Oct	1.72	3.70	4.51	7.44	Wet	3	3	9
2nd prior month*	Sept	1.98	3.53	4.30	1.59	Dry	1	2	2
3rd prior month*	Aug	1.76	3.10	3.77	0.79	Dry	1	1	1
								Sum	12

* Compared to photo date

Note: If sum is
- 6 - 9 then prior period has been drier than normal
- 10 - 14 then prior period has been normal
- 15 - 18 then prior period has been wetter than normal

Condition value:
- Dry =1
- Normal =2
- Wet =3

Conclusions: The antecedent moisture in November 2015 was normal; however, the more than double average rainfall in October 2015 can explain why the water level in the impoundment was higher than the current wetland boundary.



MAP SCALE 1" = 2000'

1000 0 2000 4000 FEET

600 0 600 1200

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0350E

FIRM

FLOOD INSURANCE RATE MAP

AUSTIN COUNTY, TEXAS AND INCORPORATED AREAS

PANEL 350 OF 475

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
AUSTIN COUNTY	480704	0350	E
BRAZOS COUNTRY, CITY O	481693	0350	E
SAN FELIPE, TOWN OF	480705	0350	E
SEALY, CITY OF	480017	0350	E

Notice to User. The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
48015C0350E

MAP REVISED
SEPTEMBER 3, 2010

Federal Emergency Management Agency


96° 5' 10" W
96° 3' 57" W
781800
782000
782200
782400
782600
782800
783000
783200
783400
783600
29° 46' 54" N
29° 46' 13" N
3298200
3298000
3297800
3297600
3297400
3297200
3297000
Bs
MdB
LaD
StC
TaC
Site
Manak Rd
Bartlett Rd
10
Frontage Rd
MdA
Service Road
Lezak Rd
LaA
Map Scale: 1:8,900 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 100 200 400 600
Feet
0 400 800 1600 2400
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Lines
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Points
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Austin and Waller Counties, Texas
Survey Area Data: Version 10, Sep 29, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 27, 2011—May 14, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydric Rating by Map Unit

Hydric Rating by Map Unit— Summary by Map Unit — Austin and Waller Counties, Texas (TX600)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
Bs	Churnabog clay, 0 to 1 percent slopes, frequently flooded	90	61.4	20.7%
LaA	Lake Charles clay, 0 to 1 percent slopes	0	32.8	11.1%
LaD	Lake Charles clay, 3 to 8 percent slopes	0	55.0	18.6%
MdA	Verland clay loam, 0 to 1 percent slopes	5	81.2	27.4%
MdB	Verland clay loam, 1 to 3 percent slopes	0	38.1	12.9%
StC	Styx loamy fine sand, 1 to 5 percent slopes	0	26.1	8.8%
TaC	Tabor fine sandy loam, 1 to 5 percent slopes	0	1.8	0.6%
Totals for Area of Interest			**296.3**	**100.0%**

Rating Options

Aggregation Method: Percent Present

Component Percent Cutoff: *None Specified*

Tie-break Rule: Lower

FIELD DATA FORMS

ATTACHMENT B

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Searly Compost Facility City/County: Austin County Sampling Date: 10-15-15

Applicant/Owner: Southern Waste Disposal State: TX Sampling Point: TP-1A

Investigator(s): A Brewer Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Depression at impoundment Local relief (concave, convex, none): Concave Slope (%): 1-3

Subregion (LRR or MLRA): LRR-T Lat: 29.776369 Long: -96.676195 Datum: WGS 84

Soil Map Unit Name: Lake Charles clay 3-8% Slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)

Are Vegetation _____, Soil X, or Hydrology X significantly disturbed? Y Are "Normal Circumstances" present? Yes _____ No X

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks: Graded swale & depression. upslope from impoundment. Precipitation dryer than normal.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- X Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- X Surface Soil Cracks (B6)
- X Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: TP-1A

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Shrub Stratum (Plot size:)			
1. Echinochloa colona	20	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	20 = Total Cover		
Herb Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	= Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (If observed, list morphological adaptations below).

10-15-15

SOIL Sampling Point: TP-1A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/1						Clay	
6-12	10YR 4/1	60	10YR 3/6	10	C	M	clay	
	10YR 4/3	30						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12) **(LRR T, U)**
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Sealy Compost Facility City/County: Austin Co. Sampling Date: 10-4-16

Applicant/Owner: Southwaste State: TX Sampling Point: TP-1B

Investigator(s): A. Brewer Section, Township, Range:

Landform (hillslope, terrace, etc.): Depression / tank Local relief (concave, convex, none): Concave Slope (%): 3 8

Subregion (LRR or MLRA): LRR-J Lat: 29.776148 Long: -96.076025 Datum: NAD83

Soil Map Unit Name: Lake Charles Clay 3-8% slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology X significantly disturbed? Y Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks: Graded stock pond with downslope impoundment

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required, check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____	
Water Table Present?	Yes ____	No X	Depth (inches): ____	
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____	**Wetland Hydrology Present?** Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: D2 - within depression, Swale within drainageway

VEGETATION (Four Strata) – Use scientific names of plants

Sampling Point TP-1B

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling/Shrub Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 5')			
1. Echinochloa colona	99%	Y	FACW
2. Aster subulatus	1	N	NI
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Woody Vine Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (If observed, list morphological adaptations below)

SOIL

Sampling Point: TP-1B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10yR 5/2	100					clay loam	
2-8	10yR 3/1	100					"	
8-10	10yR 3/1		10yR 3/3	5	C	PL	"	
10-14	10yR 3/1		10yR 3/4	10	C	PL	"	
14-18	10yR 3/1		10yR 3/4 to 4/6		C	PL	"	20%

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Sealy Compost Facility City/County: Sealy, Austin Co. Sampling Date: 10-4-16
Applicant/Owner: Southwaste State: TX Sampling Point: TP-1C
Investigator(s): A. Brewer Section, Township, Range:
Landform (hillslope, terrace, etc.): Toe slope at depression Local relief (concave, convex, none): concave Slope (%): 3-8
Subregion (LRR or MLRA): LRR-J Lat: 29.776105 Long: 96.076053 Datum: NAD83
Soil Map Unit Name: Lake Charles clay 3-8% slopes NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil X, or Hydrology X significantly disturbed? Y Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes ____ No X	

Remarks: side slopes of man-made stock pond.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required, check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____
Water Table Present? Yes ____ No X Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants

Sampling Point TP-1C

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Sapling/Shrub Stratum (Plot size: 30)			
1. Salix nigra	1	N	
2. Hibiscus	1	N	
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: _____)			
1. Aster Sibulatus	88	Y	NI
2. Echinochloa colona	10	N	FACW
3. Polygonum	1	N	
4. Cyperus	1	N	
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		

50% of total cover: _____ 20% of total cover: _____

Woody Vine Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: (If observed, list morphological adaptations below)

According to Atlantic + Gulf Coastal Plain Supplement Prevanence Index not used where hydrology indicators not present.

SOIL

Sampling Point: IP-1C

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10yR 3/2		10yR 3/3	5	C	PL	cl loam	
2-12	10yR 3/1	70	10yR 3/3	10	C	PL/M	"	
	10yR 5/3	15	7.5yR 4/6	2	C	M		
			10yR 4/6	3	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
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- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
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- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

PHOTOGRAPHIC LOG

ATTACHMENT C

Photo 1: Test Plot TP-1B at south end of Wetland-1, facing south.

Photo 2: Test Plot TP-1B.

W&M Environmental Group, LLC	**Attachment C** **Photographic Log** Proposed Sealy Compost Facility Austin County, Texas	
10/4/16	Wetlands	W&M Project No. 1057.028.002

Photo 3: View of natural swale on east side of Site from north access road on north Site boundary looking south-southeast.

Photo 4: View of swale continuing north of the Site as viewed from the north access road on north Site boundary facing north.

W&M Environmental Group, LLC

Attachment C
Photographic Log
Proposed Sealy Compost Facility
Austin County, Texas

10/4/16	Wetlands	W&M Project No. 1057.028.002

Photo 5: View from within Wetland-1, near center, looking south.

Photo 6: View of north end of Wetland-1 from northeast corner looking southeast.

Photo 7: View from within Swale-1 near bend looking northwest.

Photo 8: View of Swale-2 from on-Site, unpaved access road looking west through fallow cropland.

W&M Environmental Group, LLC	**Attachment C** **Photographic Log** Proposed Sealy Compost Facility Austin County, Texas	
10/4/16	Wetlands	W&M Project No. 1057.028.002

Photo 9: View from dike looking north.

QUALIFICATIONS

ATTACHMENT D

QUALIFICATIONS OF CONSULTANTS

Aaron D. Brewer, P.G.
Project Consultant
B.S., Plant Biology, University of Minnesota
Licensed Professional Geoscientist (Soil Science) in Texas (TX 10824)
Certified Wetland Delineator (#1006, Minnesota)
Aaron has over 18 years of experience in environmental consulting specializing in the following areas: Phase I Environmental Site Assessment (ESA), Phase II ESA, Response Action Plans, tank removal, State Voluntary Cleanup Programs, wetland delineation, wetland permit, wetland mitigation, NEPA documentation, ecological risk assessment, litigation support, and quality assurance/quality control.

Jim Florey, P.G., CPSS
Technical Specialist
B.S., Soil Science, Texas A&M University
M.S., Soil and Aquatic Microbiology, Texas A&M University
Licensed Professional Geoscientist in Texas
Licensed Professional Geologist in Alabama
Certified Professional Soil Scientist
Jim is a soil scientist and microbiologist with consulting, academic, and research experience including various aspects of soil science, microbiology, and hydrogeology. He has extensive knowledge of assessment and remediation through the Texas Risk Reduction Program (TRRP); his work has included Environmental Site Assessments, Ecological Risk Assessments, petroleum storage tank (PST) removals, litigation support, and soil and groundwater modeling, investigation, and remediation. Jim has worked on various industrial project sites including ship-channel terminals, pipeline release sites, mineral refineries, and large-scale remediation of commercial/industrial use property to residential standards.

SouthWaste Disposal, LLC.

Sealy Composting Facility

Municipal Solid Waste Permit

Application (Permit No. 2388)

Austin County, Texas

Submitted to **Texas Commission on Environmental Quality**
Austin, Texas

November 16, 2015

Revised
May 27, 2016, ~~and~~
August 10, 2016,
November 15, 2016

Daniel B. Stephens & Associates, Inc.

Texas Registered Engineering Firm F-286
Registered Texas P.G. Firm #50045

4030 W. Braker Lane, Suite 325 • Austin, Texas 78759

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Part III

List of Drawings

Part III

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Part I

List of Appendices (continued)

List of Acronyms

ADT	average daily traffic
ALU	aquatic life use
Avg	average
BACT	best achievable control technology
BOD	biological oxygen demand
CCN	Certificate of Convenience and Necessity
cfh	cubic feet per hour
cfm	cubic feet per minute
CR	County Road
CSAP	Closure Sampling Plan
EPA	United States Environmental Protection Agency
EQ	exceptional quality
°F	Fahrenheit degrees
FM	Farm to Market Road
ft bgs	feet below ground surface
gpm	gallons per minute
GSS	grease trap waste/septic/sewage sludge
hp	horse power
in	inch(es)
kips	kilo pounds per inch
MSDS	Material Safety Data Sheet
MSS	maintenance, start up, and shut down
MSW	municipal solid waste
SIC	Standard Industrial Classification
NAICS	North American Industry Classification System
NIST	National Institute of Standards and Technology
OSSF	on-site sewage facility

List of Acronyms (continued)

pci	pounds per cubic inch
plf	pounds per linear feet
psi	pounds per square inch
PWS	public water system
RCRA	Resource Conservation and Recovery Act
SC-SM	silty, clayey sand
SIC	Standard Classification
SO_2	sulfur dioxide
SOP	Standard Operating Procedures
SSO	sanitary sewer overflows
SUD	Sewer Use District
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
THSC	Texas Health and Safety Code
TLAP	Texas Land Application Permit
TPDES	Texas Pollution Discharge Elimination System
TWC	Texas Water Code
TXDOT	Texas Department of Transportation
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VCP	Vector Control Program
yd	yard(s)

SouthWaste Disposal, LLC.
Sealy Composting Facility
Municipal Solid Waste Permit Application

PART I

Application Submittal Date: November 16, 2015

Revised: May 27, 2016~~ and,~~ August 10, 2016**, and November 15, 2016**

Project Information

MSW Permit # 2388 ***RN: 108878331***

Project Name: Sealy Composting Facility

Project Location: Intersection of Bartlett Road and Brazos 10 Lane, Austin County, Texas.
Near San Felipe, Texas.

Project Description: Project is a composting facility that processes compostable municipal solid waste such as grease trap waste/septic/sewage sludge and distributes final product for sale.

Project Location Description: The facility is located in a rural area east of the corporate city limits of San Felipe, Texas, near the intersection of Bartlett Road and Brazos 10 Lane.

Applicant Information

CN: 603436114

Owner/Operator: SouthWaste Disposal, LLC.

Address: 9575 Katy Freeway, Suite 130 Houston, Harris County, Texas 77024

Telephone: 866-413-9494

Email: tcox@southwaste.com

Fed Tax ID: 203596390

Preparer Information

Firm: Daniel B. Stephens & Associates, Inc.
(Texas Registered Engineering Firm F-286; Registered Texas P.G. Firm #50045)

Preparer: Benjamin Camacho

Engineer: Thomas Golden, P.E.

Address: 4030 West Braker Lane, Suite 325, Austin, Texas 78759

Telephone: 800-933-3105

Email(s): bcamacho@dbstephens.com & tgolden@dbstephens.com

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Part I *This document constitutes the requirements of 30 TAC §330.59 for a composting facility.*

Requested Variances and Waivers

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None

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Part I

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EPA	United States Environmental Protection Agency
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TWC	Texas Water Code
TXDOT	Texas Department of Transportation
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VCP	Vector Control Program

Section 1. Facility Permit Requirements

The SouthWaste Disposal, LLC Sealy Composting Facility (the Facility) will generate approximately 5,200 cubic yards of finished compost per month and is required to obtain a permit for the composting operations. The Facility requires a permit and is subject to 30 TAC §330, 30 TAC §332, and other sundry rules.

The Facility will consist of bulk material chipping and storage areas, a lined grease trap waste/septic/sewage sludge (GSS) processing area (composting pad), a composting area for other approved non-GSS waste, a compost pad retention pond, a post-processing area, aboveground feedstock storage tanks, and office areas (which include toilet and potable water facilities). GSS composting and curing processes will be restricted to the lined GSS processing area. Yellow grease processing may be added to future operations, which would be discussed in a future permit modification.

1.1 Municipal Solid Waste

1.1.1 Permit Applicability

The Facility will store, handle, process, and dispose of municipal solid waste (MSW). This application is for a new composting permit to process GSS and non-GSS waste and to compost the solids from these waste sources. Other activities performed within the Facility boundaries that do not require a permit under 30 TAC §332 include the use of tankage/equipment related to a liquid waste transfer station, storage and composting of food wastes, and chipping and grinding operations. These activities will be incorporated as part of this Facility permit. The Facility is not a medical waste mobile treatment or a mobile treatment unit.

Compliance information is discussed in the Site Development Plan presented in Part III of this application. This Facility does not store combustible material and is not required to comply with TAC §37, Subchapter J. Groundwater monitoring may be required by the Executive Director and will be maintained in accordance with the requirements of §330 Subchapter J, if required.

1.1.2 MSW Permits

1. Municipal Solid Waste Facilities TAC §30§330
    a. 30TAC §330.1 (d): The Facility will compost MSW in accordance with the requirements of 30TAC §332, but is required to apply for a permit in accordance with 30TAC §332.3(a). The application will follow the applicable requirements of 30TAC §330 Subchapter B.
2. 30TAC §332: Composting

1.1.3 Water and Storm Water

1. Spill Prevention and Control 30TAC §327
2. TPDES Multisector General Permit TXR050000 – Storm Water
    a. Sector C: Chemical and Allied Products

1.1.4 Air Quality

1. RULE §106.4 Requirements for Permitting by Rule
2. RULE §106.472 Organic and Inorganic Liquid Loading and Unloading
3. Composting Standard Permit Rule §332.8 Air Quality Requirements

1.1.5 Miscellaneous

4. Financial Assurance 30TAC §37
5. Public Notice 30TAC §39

1.2 Texas State Laws

6. Texas Solid Waste Disposal Act, Texas Health and Safety Code (THSC) Chapter 361
7. Texas Litter Abatement Act, THSC Chapter 365
8. Texas Toxic Chemical Release Reporting Act, THSC Chapter 370
9. Texas Clean Air Act, THSC Chapter 382
10. Texas Water Code (TWC) Chapter 26 (relating to Water Quality Control)

Section 2. Operation and Process Summary

The Facility will divert organic materials from typical MSW streams for beneficial reuse while maintaining standards for human health and safety and environmental protection. The Facility will produce compost from non-hazardous MSW. The Facility is required to obtain a compost permit.

The quantity of incoming liquid feedstock to be received will not exceed 72 million gallons per year. This quantity is 930 tons per day (22,300 tons per month, assuming 24 operating days per month) or 250,000 gallons per operating day (assuming 7.44 pounds per gallon typical for grease trap waste). Grease trap waste is expected to account for approximately 90 percent of the incoming feedstock at this Facility. The other feedstock accepted at the Facility will include municipal sewage sludge, food processing waste, and septage wastewater. The bulking material used in the process will be chipped and shredded wood and vegetation. Bulking material will be received either chipped or screened or in raw form, in which case it will be chipped on the property. Up to 32,000 cubic yards of bulking materials may be in-process on the compost pad at any point in time. Due to reduction in volume from maturation and screening, this volume results in approximately 15,680 cubic yards of finished compost. All materials entering the Facility, both feedstock and bulking material, will be screened on entry for unauthorized materials.

Both pre-chipped and shredded bulking material and raw bulking material will be delivered by truck to the Facility. Raw bulking materials will be stored and then chipped and screened at a

designated area. The Facility will be equipped with a chipper/grinder to chip and grind raw bulk material. The chipper/grinder will be equipped with low-velocity spray nozzles to minimize the generation of dust during operation. The chipped and shredded bulking material will be placed on the processing areas in windrows using a front-end loader.

The liquid feedstock will be pumped either into aboveground storage tanks for temporary storage or to the Facility vacuum truck or equivalent to be sprayed directly onto prepared windrows of bulking material located within the processing areas. The storage capacity of the aboveground tanks will allow the liquid feedstocks to be applied in a consistent manner and will provide additional feedstock storage capacity that can be used during periods of rainfall that limit feedstock application. No feedstock will be accepted in excess of the available capacity of the storage tanks.

Feedstock material will be applied to the windrows using a vacuum truck or equivalent. Once the feedstock is applied to a windrow, the windrow will be immediately turned, mixed, and homogenized using a self-propelled tiller to thoroughly mix feedstock and bulking material. This process allows the feedstock material to be evenly distributed throughout the windrows and prevents moisture or liquids from collecting at the base of the compost material. Once a windrow is considered to have the appropriate moisture content and mixture of bulking material and feedstock, then the temperature within the mixture throughout the windrow will be monitored.

After the monitoring period, the final composted product will be placed in a stockpile on the lined processing area for curing. Each batch of final product will be placed in a separate stockpile and assigned a batch number. Each batch will be physically separated to prevent co-mingling of different batches and will be tested for maturity and final product parameters. Batches that do not meet the maturity parameters will remain on the processing area and continue to be monitored until the maturity parameters are reached. Batches that meet the maturity parameters but do not meet the final product parameters for either Grade 1 or Grade 2 compost (waste grade compost) will be disposed off-site at an authorized MSW facility. Compost will initially be sold in bulk form. However, the facility may sell containerized compost at some time in the future.

Section 3. Facility Location

3.1 Location

Project Name: SouthWaste Disposal, LLC Sealy Composting Facility

Project Location: Northwest corner of Bartlett Road and U.S. Interstate 10 in Austin County, Texas

Project Location Description: The Facility is located in a rural area east of the corporate city limits of San Felipe, Texas, near the intersection of Bartlett Road and Brazos 10 Lane.

3.2 Access Routes

Route 1: Traversing on U.S. Interstate 10, exit onto Bartlett Road and turn north on Bartlett Road. Then turn west on Brazos 10 Lane for approximately 0.25 mile. The Facility is located adjacent to Brazos 10 Lane on the south.

3.3 Geographic Coordinates

The latitude and longitude of the approximate centroid of the property are 29° 46' 33.55" North and –96° 04' 41.00" West, respectively (North American Datum of 1983).

Section 4. Maps

4.1 General Location

The Site is located near the city of San Felipe, just east of the city of Sealy, in Austin County, Texas. See Figure 1 for a Facility Location Map. The Facility Location Map is scaled at ½ inch equals 1 mile. The property boundaries and longitudinal and latitudinal coordinates have been overlaid on the enlarged map. The Facility location map accurately shows proximity to surrounding features.

The property is 32.209 acres in size and irregular in shape.

4.2 General Topographic Map

The Topographic Map (Figure 2) is an excerpt of United States Geological Survey 7½-minute quadrangle sheets as an equivalency for the facility. The topographic map is at a scale of 1 inch equals 2,000 feet (1:24,000).

4.3 Land Use

The Land Use Map (Figure 3), on a scale of 1 inch equals ½ mile, depicts boundaries of the tract of land to be used by the applicant and extends at least 1 mile beyond the tract boundaries sufficient to show the following:

- Each well, spring, and surface water body or other water of the state within the map area;
- The general character of the areas adjacent to the Facility, including public roads, towns, and the nature of development of adjacent lands such as residential, commercial, agricultural, recreational, undeveloped, and so forth;
- The location of any waste disposal activities conducted on the tract not included in the application; and,
- The ownership of tracts of land adjacent to the Facility and within a reasonable distance from the proposed point or points of discharge, deposit, injection, or other place of disposal or activity.

4.4 Land Ownership

The landowners within ½ mile of the Facility boundaries listed in the following table are shown on Figure 4. The source of the names and addresses of property owners is the Austin County Appraisal District Database.

The Land Ownership Map (Figure 4), along with the list of landowners (Table 1), identifies properties owned by adjacent and potentially affected landowners within ½ mile of the Facility boundaries. The mineral interest ownership, designated as executive rights, under the facility is owned by the property owner, Michael and Carolyn Hicks (INST #997087 DRACTX).

Section 5. Property Owner Information

5.1 Legal Description of the Facility

The Facility is located near the cities of Sealy and San Felipe in Austin County, Texas. The following is a legal description with deed record information.

> Legal Description: 32.209 ACRES: ALL THAT TRACT OR PARCEL OF LAND consisting of 32.209 Acres located in the Stephen F. Austin Survey, A7, Austin County, Texas. Subject tract being a portion of the 62.53606 Acre tract described in Deed to Michael P. & Carolyn S. Hicks recorded in File# 997087 of the Official Records of Austin County, Texas.

As of submission of this application, the County had not completed its final plat in its records for this property. The survey (Appendix A) drawing is considered the final plat submitted to Austin County.

The Boundary Metes and Bounds with Drawing, included as Appendix A, is an official metes and bounds description and drawing of the proposed facility prepared and sealed by a registered surveyor.

5.2 Property Owner Affidavit and Lease Agreement

A property owner affidavit signed by the property owner includes the statements and affirmations of §330.59 (d) (2) (A), (B), (C). An executed Commercial Contract for Unimproved Property between SouthWaste, the "Buyer," and Mr. Mike Hicks dated May 4, 2015, the property owner and "Seller," is included in Appendix B.

According to the Commercial Contract for Unimproved Property, SouthWaste has agreed to lease the property for a term of 24 months, beginning 60 days following the effective date of the contract. At the end of the 24-month lease term, the 32.209-acre property will be sold to SouthWaste.

Table 1. Landowner List (½-mile radius)

Map #	Owner	Address
34, 35	Alvin Konvicka	516 Acres Lane, Sealy, Texas 77474
32	Barry Wayne Jackson	1723 Prince George Court, Katy, Texas 77492
40, 41	Beatrice Mae Haczynski	12040 Mlcak Road, Sealy, Texas 77474
46	Bhaidani Ali	5003 Skipping Stone Loane, Sugarland, Texas 77479
11	Brian and Ramona Valenti	3911 Wood Park, Sugarland, Texas 77479
47	Cardenas Rebecca	5408 Holly St, Bellaire, TX 774014704
37	Charles Mlcak	4106 Sea Meadow Court, Katy, Texas 77494
39	Christopher Haczynski	12040 Mlcak Road, Sealy, Texas 77474
22	Clem Buchala	263 Manak Road, Sealy, Texas 77474
17	David Wickens Family Partnership, LTD.	3027 Willow Oak Lane, Sealy, Texas 77418
13	DNAR, LLC	PO Box 396, Barker, Texas 77413
45	Donna Cash	7625 SE IH 10 Frontage Road, Sealy, Texas 77474
12	Douglas and Linda Simmons	11326 Inwood Drive, Houston, Texas 77077
8	Farshad Nazemi	11305 Green Vale, Houston, Texas 77024
15	Frank and Victoria Chou	2585 Meyer Road, Sealy, Texas 77474
36	Fred and JoAnn Buri	7918 Hilshire Green Drive, Houston, Texas 77005
9, 10	GeoSouthern Energy Corporation	1425 Lake Front Circle, Suite 200, The Woodlands, Texas 77380
44	Geraldine Hamil	7595 SE IH 10 Frontage Road, Sealy, Texas 77474
42	James Lezak	9455 Lake Drive, Chappell Hill, Texas 77426
30	Jeanette Kucera	131 Lezak Road, Sealy, Texas 77474
38	Jeanne Netardus	8518 Ivy Falls Court, Houston, Texas 77040
27	John Gannon, Inc.	525 Park Grove, Katy, Texas 77450
20	Joseph Walker Dudgeon, Jr. Trustee	23042 260th Avenue, Centerville, Iowa 52544
25, 29	JWJ Stone Properties	PO Box 277, San Felipe, Texas 77473
26	Kenneth and Cheri Bumbera	413 Brazos Hill Lane, Sealy, Texas 77474
48	Levine Sidney	PO Box 592, Sealy, TX 77474
43	Maxine Rudloff	7439 SE IH 10 Frontage Road, Sealy, Texas 77474
1	Michael and Carolyn Hicks	1228 Brazos Ten Lane, Sealy, Texas 77474
28	Patricia Bagwell	PO Box 473, San Felipe, Texas 77473
2, 4	Pencco	PO Box 600, San Felipe, Texas 77473
3	Reactive Metals & Alloy Metals	PO Box 786, Sealy, Texas 77474
16, 21	Richard and Carol Papso	10 Preston Court, Sugarland, Texas 77479
24	Rubie Mae Buchala	477 Manak Road, Sealy, Texas 77474
19	Rudolfo and Celia Pena	3226 Mulberry Lane, Houston, Texas 77084
14	Terrell Burtschell	106 6th Street, Sealy, Texas 77474
23	Victoria Buchala	6060 NE IH 10 Frontage Road, Sealy, Texas 77474
5, 6, 7	Vital Link, Inc.	PO BOX 303, San Felipe, Texas 77473
33	Whitehorse Development, LLC	2352 FM 1094, Sealy, Texas 77474
18	William Skrivanek	2226 Skrivanek Road, Sealy, Texas 77474
31	Woodridge Development LP	PO Box 22606, Houston, Texas 77227

Section 6. Legal Authority and Appointments

6.1 Legal Authority

SouthWaste has provided verification of legal status in the form of a one-page certificate of incorporation issued by the Secretary of State (Appendix C). The Secretary of State filing number for SouthWaste (owner and operator) is SOS#800553020.

6.2 Appointments

SouthWaste Disposal, LLC is a corporation, and the application will be signed by Mr. Tim Cox, Vice President of Operations for SouthWaste. Mr. Cox meets the requirements of TAC §305.44 related to the delegation of signatory authority. Mr. Cox has been granted legal authority to sign and encumber SouthWaste Disposal, LLC.

Section 7. Evidence of Competency

7.1 Other Operation Ownership

SouthWaste owns and operates several active MSW facilities throughout Texas, as indicated below:

RN Number:	RN101478071		
Name:	SouthWaste Disposal, LLC San Antonio Facility		
Primary Business:	Organic composting		
Street Address:	20805 Old Limn Road		
County: Bexar	*Nearest City:* Elmendorf	*State:* TX	*Zip Code:* 78112
Physical Location:			
7 miles west of Elmendorf near roadway 1 mile southwest of Interstate Highway 37			
Customer's Role:	Owner / Operator	*Begin Date*:	06/04/2010
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
MSW processing	Permit	2317	Active
Petroleum storage tank	Registration	87042	Active
Storm water	Permit	TXR05BC61	Active

RN Number:	RN105876601		
Name:	Austin Liquid Waste Processing Facility		
Primary Business:	No primary business description on file		
Street Address:	828 Linger Lane		
County: Travis	*Nearest City:* Austin	*State:* TX	*Zip Code:* 78725
Physical Location:			
Located on Linger Lane approximately 800 feet southwest of the intersection of Highway 183 and Linger Lane			
Customer's Role:	Owner	*Begin Date*:	NA
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
MSW processing	Permit	2367	Active

RN Number:	RN101289171		
Name:	SouthWaste Disposal, LLC South Plains Facility		
Primary Business:	Grease and grit trap processing		
Street Address:	801 North Avenue P		
County: Lubbock	*Nearest City:* Lubbock	*State:* TX	*Zip Code:* 79403
Physical Location:			
No physical location description on file			
Customer's Role:	Owner / Operator	*Begin Date*:	05/05/2010
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
MSW processing	Permit	2231	Active

RN Number:	RN103155800 RN101288603		
Name:	SouthWaste Disposal Hurst Facility		
Primary Business:	Industrial chemical manufacturing plant		
Street Address:	6407 Hurst Street		
County: Harris	*Nearest City:* Houston	*State:* TX	*Zip Code:* 77024
Physical Location:			
1.933 acres located on 6407 Hurst Street in Houston, Harris County			
Customer's Role:	Owner / Operator	*Begin Date*:	01/01/2009
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
Sludge	Registration	23737	Cancelled
Sludge	Registration	24075	Active
Air new source permits	Registration	120677	Active
Air new source permits	Registration	120683	Active
MSW processing	Permit	2241A	Active
MSW processing	Permit	2241B	Pending
Storm water	Permit	TXR05BV26	Active

RN Number:	RN102327715		
Name:	SouthWaste Disposal Dallas Facility		
Primary Business:	No primary business description on file.		
Street Address:	525 South 6th Avenue		
County: Tarrant	*Nearest City:* Mansfield	*State:* TX	*Zip Code:* 76063
Physical Location:			
Located at 525 South 6th Avenue in the city of Mansfield approximately ½ mile south of the intersection of 6th Avenue and Broad Street			
Customer's Role:	Owner / Operator	*Begin Date*:	10/23/2009
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
Air New Source Permits	Registration	115976	Active
MSW Processing	Permit	2256	Active
Storm water	Permit	TXRNEW710	Active

RN Number:	RN102803590		
Name:	SouthWaste Disposal Lockwood Facility		
Primary Business:	No primary business description on file		
Street Address:	753 Lockwood Drive		
County: Harris	*Nearest City:* Houston	*State:* TX	*Zip Code:* 78112
Physical Location:			
753 Lockwood Drive 0.4 mile south of Clinton Drive, Houston, Texas			
Customer's Role:	Owner / Operator	*Begin Date*:	02/16/2010
		End Date:	NA
Program ID:	*Type:*	*ID Number:*	*ID Status:*
Air new source permits	Registration	11741	Active
MSW processing	Permit	1117	Canceled

SouthWaste is experienced with MSW facility type operations and understands the MSW rules and regulations set forth by the State of Texas. SouthWaste is currently staffed with several licensed solid waste facility supervisors that manage SouthWaste operations throughout Texas. Prior to operating the Sealy Composting Facility, SouthWaste will designate a licensed solid waste facility supervisor. In addition, the Facility will employ at least one TCEQ-certified compost operator within six months from the initiation of operations at the Facility. The TCEQ-certified compost operator will routinely be on-site during the hours of operation. Mr. Tim Cox is the principal and supervisor of the Facility's organization.

7.2 Financial Interest or Enforcement Actions

Currently, SouthWaste has one financial interest in a solid waste site in another state, territory, or country outside the State of Texas, which includes their Central Florida Disposal Interests facility located in Groveland, Florida. SouthWaste does not have any final enforcement orders, court judgments, consent decrees, or criminal convictions by the State of Texas, the State of Florida, or the federal government within the last five years relating to compliance with applicable legal requirements relating to the handling of solid or liquid waste under the jurisdiction of the TCEQ, the Florida Department of Environmental Protection, or the United States Environmental Protection Agency (U.S. EPA).

SouthWaste Disposal, LLC.
Sealy Composting Facility
Municipal Solid Waste Permit Application

PART II

Application Submittal Date: November 16, 2015

Revised: May 27, 2016**,** ~~and~~ August 10, 2016**, and November 15, 2016**

Project Information

MSW Permit # 2388 ***RN: 108878331***

Project Name: Sealy Composting Facility

Project Location: Intersection of Bartlett Road and Brazos 10 Lane, Austin County, Texas.
Near San Felipe, Texas.

Project Description: Project is a composting facility that processes compostable municipal solid waste such as grease trap waste/septic/sewage sludge and distributes final product for sale.

Project Location Description: The facility is located in a rural area east of the corporate city limits of San Felipe, Texas, near the intersection of Bartlett Road and Brazos 10 Lane.

Applicant Information

CN: 603436114

Owner/Operator: SouthWaste Disposal, LLC.

Address: 9575 Katy Freeway, Suite 130 Houston, Harris County, Texas 77024

Telephone: 866-413-9494

Email: tcox@southwaste.com

Fed Tax ID: 203596390

Preparer Information

Firm: Daniel B. Stephens & Associates, Inc.
(Texas Registered Engineering Firm F-286; Registered Texas P.G. Firm #50045)

Preparer: Benjamin Camacho

Engineer: Thomas Golden, P.E.

Address: 4030 West Braker Lane, Suite 325, Austin, Texas 78759

Telephone: 800-933-3105

Email(s): bcamacho@dbstephens.com & tgolden@dbstephens.com

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Part II This document constitutes the requirements of 30 TAC §330.60, Part II of the Application.

Requested Variances and Waivers

Part II

None

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Part II

Acronyms

ADT	average daily traffic
BMPs	best management practices
CGP	Construction General Permit
EDR	Environmental Data Resources
ESA	Environmental Site Assessment
FEMA	Federal Emergency Management Agency
GSS	grease trap waste/septic/sewage sludge
MSW	municipal solid waste
NOI	Notice of Intent
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OIC	Operator in Charge
OSSF	on-site sewage facility
PBR	Permit by Rule
PCB	polychlorinated biphenyls
PBR	Permit by Rule
SSO	sanitary sewer overflows
SWPPP	Storm Water Pollution Prevention Plan
TDWR	Texas Department of Water Resources
THC	Texas Historical Commission
TWBD	Texas Water Development Board
TXDOT	Texas Department of Transportation
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tanks
WOTUS	Waters of the U.S.
yd	yard(s)

Section 8. Existing Conditions Summary

8.1 Historical Land Use

Daniel B. Stephens & Associates, Inc. (DBS&A) performed a Phase I Environmental Site Assessment (ESA) for the property in June 2015. According to the previous property owner, the property was never developed or used to store materials. The property was owned by Sea Corps prior to 1995 and was undeveloped during Sea Corps ownership. Based on a review of aerial photography ranging in dates from 1953 through 2012, the property appears to still be undeveloped.

8.2 Site Specific Conditions

The following property information was observed by DBS&A personnel during the June 2015 Phase I ESA site visit. The property, an approximately 32.209 acre tract of undeveloped land, is covered primarily with vegetation and native soil and does not contain any paved areas. A gravel road is located at the northern portion of the property. A man-made pond was observed in the eastern portion of the property on the day of the site visit. According to the property owner, the pond area was excavated and utilized as a stock pond. No structures, other than an unused wooden shed at the northwestern portion of the property, were observed during the Phase I ESA site visit. No evidence of underground storage tanks (USTs) or hydraulic/stationary lifts was observed. There were no signs of distressed vegetation or standing water observed during the site visit. DBS&A personnel did not observe any areas of staining on soil throughout the undeveloped property, and no unusual odors or stressed vegetation were noted. No storage tanks, drums, or other containers were observed at the property. No fill dirt or evidence of fill activities was observed at the property on the day of inspection. No hazardous materials, petroleum products, or waste storage areas were observed at the property.

Section 9. Climate

The average climate of Austin County is humid subtropical with hot summers. Evaporation and precipitation rates are provided on the Texas Water Development Board (TWDB) web site (http://www.twdb.texas.gov/surfacewater/conditions) for 1-degree quadrangular areas across the state. Austin County falls within quadrangle numbers 711 and 811. The data provided are based on sites operated by the National Weather Service and the Texas Department of Water Resources (TDWR). The average annual evaporation, based on data collected from 1954 through 2014, is 51.6 inches, and average annual precipitation, from 1940 through 2014, is 40.46 inches.

Prevailing winds are southerly March through November and northerly December through February. The Wind Rose, included as Figure 5, illustrates the predominant winds of Houston, Texas, which most accurately emulate the winds at the property.

Section 10. Waste Acceptance Plan

10.1 Sources and Characteristics

Sheet 3 of the Drawings section shows the facility plan and layout, including the permitted Facility, as well as the property boundary, fencing, internal roadways, the grease trap waste/septic/sewage sludge (GSS) processing area (as noted on that drawing, tipping also occurs in this area, and there is not a discrete tipping area at the Facility), post-processing areas, all structures, and other improvements to the property.

An estimated 270,000 tons of liquid feedstock will be composted annually. The quantity of incoming feedstock to be received will not exceed 72 million gallons per year. This quantity is 930 tons per day (22,300 tons per month, assuming 24 operating days per month) or 250,000 gallons per operating day (assuming 7.44 pounds per gallon typical for grease trap waste). Grease trap waste is expected to account for approximately 90 percent of the incoming feedstock at this facility. Expected to account for 10 percent or less of the incoming feedstock, the other feedstocks accepted at the Facility are:

- Municipal sewage sludge;
- Septage; and
- Dairy/food including meat and fish.

The bulking material used in the process will be chipped and shredded wood and vegetation. Bulking material will be either received already chipped and screened or will be received in raw form and chipped at the Facility. Up to 32,000 cubic yards of bulking materials may be in-process on the compost pad at any point in time. Due to reduction in volume from maturation and screening, this volume results in approximately 15,680 cubic yards of finished compost.

All materials entering the Facility, both feedstock and bulking material, will be screened on entry for unauthorized materials as described in Part III.

10.2 Limiting Parameters

The anticipated final product grade of compost will be Grade 1. The intended final use of the Grade 1 composted material will be used as a soil amendment in residential and commercial applications. In the event that final testing indicates that the composted material is Grade 2, it will either be disposed of at a permitted municipal solid waste (MSW) facility or sold only to commercial users and will be labeled as not for use at residences or child-care facilities. In the event that final testing indicates that the composted material is Waste Grade, it will be disposed at a permitted MSW facility.

In order to confirm compost grade classification, two types of sampling and analysis will be performed at the Facility: sampling and analysis for maturity and sampling and analysis for final product grading.

A Maturity Protocol (maturity testing presented in Part III) has been developed to measure the potential for biological activity in the composted materials at the completion of the composting process.

In addition to maturity testing, all batches of final product will be analyzed for the parameters using the methods listed in Table 2, and the analytical results will be used to assign a final product grade. Product grades include Grade 1 Compost, Grade 2 Compost, and Waste Grade Compost. Grade 1 Compost and Grade 2 Compost will not contain foreign matter of a size or shape that can cause human or animal injury and will meet the other applicable standards presented in Table 2. Waste Grade Compost is any material that does not meet the final product standards for either Grade 1 or Grade 2.

Table 2. Final Product Analytical Requirements and Standards

Parameter	Analytical Method	Final Product Standards for Grade 1 Compost	Final Product Standards for Grade 2 Compost
Total metals			
As	SW-846, Method 6020	≤10 mg/kg	≤41 mg/kg [a]
Cd	SW-846, Method 6020	≤16 mg/kg	≤39 mg/kg [a]
Cr (total)	SW-846, Method 6020	≤180 mg/kg	≤1200 mg/kg [a]
Cu	SW-846, Method 6020	≤1020 mg/kg	≤1500 mg/kg [a]
Pb	SW-846, Method 6020	≤300 mg/kg	≤300 mg/kg [a]
Hg	SW-846, Method 7470	≤11 mg/kg	≤17 mg/kg [a]
Mo	SW-846, Method 6020	≤75 mg/kg	≤75 mg/kg [a]
Ni	SW-846, Method 6020	≤160 mg/kg	≤420 mg/kg [a]
Se	SW-846, Method 6020	≤36 mg/kg	≤36 mg/kg [a]
Zn	SW-846, Method 6020	≤2190 mg/kg	≤2800 mg/kg [a]
Maturity / Stability	Maturity Protocol	> 60% Reduction of Organic Matter	> 20 % Reduction of Organic Matter
Weight% Foreign Matter	Dry weight basis	≤1.5% on a 4mm screen	1.5% on a 4mm screen
pH	North Central Regional Method 14 for Saturated Media (SW 9045D)	5.0 to 8.5 [b]	5.0 to 8.5 [b]
Salinity	North Central Regional Method 14 for Saturated Media	10 mmhos/com	10 mmhos/com
Pathogens			
Salmonella	Standard Methods for the Examination of Water and Wastewater, Water Pollution Control Federation	< 3 MPN per 4 grams total solids or meets PFRP	No Value
Fecal Coliform		< 1,000 MPN per gram of solids or meets PFRP	Geometric mean density <2,000,000 MPN per gram of solids or meets PFRP
PCBs	SW-846, Method 8082	1 mg/kg	10 mg/kg

[a] Metals concentrations are for a cured compost. Compost that is semi-mature or mature will have the metal concentrations adjusted to reflect the metal concentration that would be present if the compost met the criteria of a cured compost.

[b] A conductivity or pH outside the indicated range may be appropriate if the compost is specified for a special use.

PFRP = Processes to further reduce pathogens
MPN = Most probable number
PCBs = Polychlorinated biphenyls

Both maturity testing and final product testing are further discussed in Part III and IV.

10.3 Prohibited Wastes and Materials

This facility does not accept:

- Regulated hazardous waste,
- Used or scrap tires,
- Lead acid storage batteries,
- Polychlorinated biphenyls (PCB) wastes,
- Used motor vehicle oil,
- Items containing chlorinated fluorocarbon,
- Used oil filters; and
- Radioactive materials.

No special authorization is requested to accept Conditionally Exempt Small Quantity Generator Waste not listed as feedstock or for the disposal of Special Wastes or Industrial Wastes.

10.4 Un-compostable Materials

Only the designated feedstocks will be accepted at the Facility. Delivery trucks entering the property are inspected by the Operator in Charge (OIC) for the presence of unauthorized materials during unloading. Loads determined to contain unprocessable, prohibited, or unauthorized materials are either refused, or the drivers are directed to remove the unacceptable material from the load and then remove it from the property. In the event that unprocessable, prohibited, or unauthorized materials are discovered after delivery, these materials will be removed from the Facility and disposed of at an authorized MSW facility.

Section 11. Feedstocks and Sources

The liquid feedstock will be pumped into either one of eight 31,500-gallon aboveground storage tanks for temporary storage or to the Facility vacuum truck, or equivalent, to be sprayed directly onto prepared windrows of bulking material located within the processing areas. The storage capacity of the aboveground tanks will allow the liquid feedstocks to be applied in a consistent manner and will provide additional feedstock storage capacity that can be used during periods of rainfall when feedstock application is limited. No feedstock will be accepted in excess of the available capacity of the storage tanks.

The Facility may generate approximately 5,200 cubic yards of finished compost per month. Some chipping and shredding of bulking material is performed in an area outside the lined portion of the Facility. Chipped and shredded bulking material may also be brought to the Facility from off-site locations. Energy and mass balance calculations for the GSS and non-GSS waste composting process are presented in Part III, Section 18.3.

11.1 Grease Trap Waste

Approximately 90 percent of the incoming feedstock accepted at the Facility will be grease trap waste. Grease traps are used by food service and processing establishments to separate out fats, oils, and greases in wastewater from dishwashers, sinks, floor drains, and dumpster pads. If grease and solids accumulations are not routinely pumped out of the trap, the grease overflows the trap, settles in the sewer collection system, and plugs up the sewer, thereby contributing to sanitary sewer overflows (SSO). Increasing public and regulatory concern over the potential public health and environmental impacts of SSO has increased maintenance of grease traps.

Grease trap wastes are siphoned out of traps as a liquid with about 5 to 6 percent total solids content. The waste contains grease, water, and sediment (food particles) that are washed down the drain. The grease is essentially comprised of fats and oils (triglycerides), which are comprised of one unit of a sugar alcohol (glycerol $C_3H_8O_3$) and three units of fatty acids. Fats and oils contain twice the energy of other organic materials.

The high energy content of the grease trap waste is advantageous to composting when high temperatures are needed to ensure pathogen reduction. The grease coats the bulking agent, which offers large surface areas for microbial decomposition in a compost pile. The high energy content encourages a more rapid rise in composting temperatures, which kills the pathogens that make humans ill (BioCycle, 2006). The large surface area accelerates the decomposition of the raw materials.

11.2 OSSF Wastes

On-site sewage facility (OSSF) septage is a slurry (solids content of only 3 to 10 percent) of organic and inorganic material. Septage includes pumpings from septic systems, aerobic treatment unit tanks, holding tanks, composting toilets, chemical or vault toilets, and other systems that receive domestic wastewaters. The exact composition of septage from a particular treatment system is highly dependent upon the activities and habits of its users**.** Table 3 lists the average metal concentration of septage (U.S. EPA, 1993).

Table 3. Comparison of Septage, Biosolids, and Regulatory Concentrations

Parameter	Concentration (mg/L)			
	Septage	Biosolids	Part 503 Limits	Grade 1 Compost
Arsenic	4	10	41	10
Cadmium	3	7	39	16
Chromium	14	120	1,200	180
Copper	140	740	1,500	1,020
Mercury	0.15	5	17	11
Nickel	1.5	43	420	160
Lead	35	130	300	300
Selenium	2	5	100	36
Zinc	290	1,200	2,800	2,190

mg/L = Milligrams per liter

Section 12. Generation Areas

12.1 Service Population

The Facility will serve at least the counties listed in Table 4. The total potential population serviced is 6,412,450 persons (U.S. Census, 2014).

Table 4. Service Area and Population

County	Population 2014	County	Population 2014
Austin	29,114	Grimes	27,172
Bastrop	78,069	Harris	4,441,370
Burleson	17,253	Lee	16,742
Chambers	38,145	Liberty	78,117
Colorado	20,719	Montgomery	518,947
Fayette	24,833	Waller	46,820
Fort Bend	685,345	Washington	34,438
Galveston	314,198	Wharton	41,168
		Total Serviced	6,412,450

12.2 Growth Trends

The U.S. Census Bureau estimates a rural population of 44 persons per square mile. The Austin County population in 2014 was 29,114 (34 percent urban and 66 percent rural); it was 23,590 in 2000 (City-Data 2015), indicating that the county's population has increased at an average rate of 23.4 percent per year from 2000 to 2014. Bellville is the county seat, and other municipalities in the county are Sealy, Wallis, Brazos Country, Industry, and San Felipe. The total area of Austin County is 663 square miles. Austin County is rural in nature, but is networked by two main thoroughfares: U.S. Interstate 10 (I-10) and State Highway 36. The manufacturing, trade, service, agriculture, and local government sectors fuel the county's employment. According to the Texas Labor Market Review for August 2015, Austin County has experienced a 2.0 percent to 3.2 percent job growth rate since 2014 compared to the 2.5 percent Texas average.

A series of aerial photographs (scale of 1 inch equals 2,000 feet) showing the property and areas within a 1-mile radius of the site boundaries are included in Appendix D. The quality of evaluation of aerial photographs is controlled by the photograph's scale and quality. The aerial photographs show the development of the area within 1 mile of the property during the years 1977 to 2014. These photographs indicate a slow growth of the agriculture, commercial, and manufacturing industries with minimal increase to residential development. The Facility is bordered to the north by Brazos 10 Lane and residential properties. A sewage chemical treatment production company (Pencco Sealy) is located northeast of the Facility. The Facility is bordered to the west by undeveloped land and wooded areas. The Facility is bordered to the south by Union Pacific Railroad, wooded areas, and I-10. The Facility is bordered to the east by a custom metal fabrication and manufacturing company (Ram Industries) and wooded areas.

Section 13. Land Use

13.1 Zoning

The Facility is located in an unincorporated area of Austin County, Texas; east of San Felipe, Texas. Neither the City of San Felipe nor Austin County has any zoning restrictions; therefore, there are no zoning restrictions within 1 mile of the Facility. However, the Austin County Planning and Development Department requires a permit application to be submitted for any development that occurs within the county. The permit application and guidelines for obtaining the development permit can be accessed at http://austincounty.com/default.aspx?Austin_County/Permits.

13.2 Land Use Characterization

Land use in the vicinity of the Facility was determined based on a review of U.S. Geological Survey (USGS) topographic maps, aerial photographs, Austin County tax records, and visual observations made from public roads. Land use within a 1-mile radius of the Facility is predominantly agricultural, with some commercial and light industrial sites located adjacent to the property and scattered residential sites (Figure 3).

The following summarizes the quantities of various land use types within 1 mile of the Facility:

- 86 agricultural properties;
- 38 residential properties;
- 11 commercial businesses;
- 3 commercial / industrial businesses; and
- 2 commercial / agricultural businesses.

There are no licensed day cares, cemeteries, schools, recreational sites, recreational facilities, or sites having exceptional aesthetic quality within 1 mile of the Facility. In summary, the area surrounding the Facility and property has a relatively low population density and is used primarily for agricultural purposes. According to the Texas Department of Transportation (TXDOT) Texas Airport Directory Map, the Facility is located approximately 14.87 miles southeast of Grawunder field (code: 06R). The presence and operation of a composting facility is fully compatible with this setting and land use.

A 30-foot easement for Brazos 10 Lane, located at the northern property line, is shown on the survey included in Appendix A. No other easements have been found on the property.

13.3 Site Soils and Geology

The U.S. Natural Resources Conservation Service (NRCS) Web Soil Survey (http://websoilssurvey.nrcs.usda.gov) for Austin County, Texas, was used to identify surface soils in the area of the proposed Facility. The predominant soil map units at the site are Lake Charles Clay, with 3 to 8 percent slopes, and Verland clay loam, with 0 to 3 percent slopes. Styx

loamy fine sand is mapped outside the northeast boundary of the Site with a slight incursion across the north boundary following a topographic contour. An NRCS Custom Soil Resource Report for Austin County, Texas, which presents site soil information, is included in Appendix E.

The Lake Charles series consists of very deep, moderately well drained, very slowly permeable soils that formed in clayey sediments. These soils are on broad, coastal prairies and are mainly in cultivated and native pasture. Common crops on these soils are corn, cotton, rice, and grain sorghum. Native grasses include little bluestem, Indiangrass, eastern gamagrass, switchgrass, big bluestem, and brownseed Paspalum. Most areas have scattered live oak, water oak, elm, hackberry, and huisache trees.

The Verland series consists of very deep, somewhat poorly drained, very slowly permeable soils. These nearly level to very gently sloping soils formed in clayey and loamy sediments of the Beaumont Formation of Pleistocene age. Most of the soil is used for pasture or for growing rice and soybeans. Native vegetation is tall prairie grasses consisting primarily of Andropogons, Paspalums, switchgrass, and Indiangrass. Various species of trees have encroached on some areas.

The Styx series consists of very deep, well drained, moderately permeable soils that formed in sandy and loamy sediments. These nearly level to gently sloping soils are on high stream terraces. Most areas are used for pasture. A few areas are used for growing small grains for cool season grazing and truck crop production. Native vegetation is mainly post and blackjack oak and greenbrier, with an understory of mid and tall grasses.

The Site is located within a stratified sequence of the Cenozoic Era, Quaternary System, and Holocene Group. Based on review of the Bureau of Economic Geology Geologic Atlas of Texas (Fisher, 1974), Seguin 1974 Sheet, the property is located on the Beaumont Formation outcrop. The lithology is dominantly clay and mud of low permeability. The clay has a high water-holding capacity, high compressibility, high to very high shrink-swell potential, poor drainage, and high plasticity. The formation thickness ranges up to 100 feet. Geologic and hydrogeologic information is further discussed in Part III of this application.

13.4 Waterways, Wetland, and Floodplain Use and Characterization

DBS&A personnel reviewed available USGS 7.5-minute topographic quadrangle maps for the site and vicinity, which indicates that the site is located on terrain sloping down to the north-northeast. Based on site observations, the general flow direction of stormwater run-off across the site appears to be in an east and northeast direction. Surface water drains as sheet flow to a man-made stock pond located at the eastern portion of the property. The property is located at the edge of a plateau with elevation of approximately 140 feet National Geodetic Vertical Datum. The Site is relatively level with some relief developing near the west, north, and east boundaries. The area north of the property descends to the Brazos River valley, with the Brazos River located approximately 2 miles east of the Site at its closest point. The nearest watercourse represented on the topographic map is an intermittent stream within the Brazos River valley approximately 0.3 mile north of the property that drains to an unnamed freshwater pond and a tributary to the Brazos River.

A Waters of the U.S. (WOTUS) and wetland determination was conducted at the Facility by W&M Environmental Group, LLC (W&M) in support of a biological assessment. The biological assessment report prepared by W&M and dated October 30, 2015 is included in Appendix F**.** As part of the WOTUS and wetlands determination, W&M reviewed several of the standard record sources for indications of streams and wetlands in the study area. Wetlands features are shown in a U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) map in Figure 6. W&M reviewed the NWI for indications of wetlands on or adjacent to the study areas. The NWI map does not indicate the presence of wetlands on or adjacent to the property. The nearest mapped wetlands are represented within the Brazos River valley north of the property. Based on field observations conducted by W&M, one wetland was identified on the property within a swale in the eastern portion of the property and appears to be created by an excavation and impoundment (man-made pond) at the property. According to W&M, hydrology to the wetland appears to be provided by surface drainage from the property aided by a drainage swale through the cropland. The extent of the wetland as estimated by field observation and records review is 0.4 acre. The swales draining to the impoundment and on the downslope side of the impoundment do not have indications of ordinary high water marks or wetlands beyond the impoundment. The swales and wetland do not have a surface hydrologic connection or significant nexus to a downstream navigable water; therefore, they do not constitute jurisdictional WOTUS.

According to the Federal Emergency Management Agency (FEMA) map Panel 48015C0350E, panel 350 of 475, dated September 3, 2010 (Figure 7), the site is not located in a FEMA flood zone. No mitigation for construction or operation in a flood plain is required.

13.5 Groundwater and Water Wells

A Water Well Report prepared by Environmental Data Resources (EDR) (EDR, 2015a), included as Appendix G**,** reported two public drinking water supply wells, associated with one non-transient, non-community public water system, that exist in the investigative area (Figure 3) but are greater than 500 feet from the site. Additionally, both public supply wells are screened below 350 feet and pressure cemented to surface in accordance with TCEQ requirements.

The Water Well Report further identified 34 domestic, irrigation, and industrial use wells within the investigative area, ranging in depth from 50 feet to 300 feet (EDR, 2015a). None of these wells are within 500 feet of the site. The composting pad will not be located within a 250-foot buffer of private wells or 500 feet of public wells. Wells are documented on Figure 3.

A review of plugged well reports on the TWDB Groundwater Data Viewer revealed no plugged wells within 0.5 mile of the site and only one within the investigative area (TWDB, 2015).

13.6 Other Wells

An Oil & Gas report by prepared by EDR (EDR, 2015b), included as Appendix G, identified four locations in the investigative area and greater than 0.5 mile from the site associated with oil and gas activity (EDR, 2015b). Three of these wells were dry holes and one is listed as a canceled location. There are no American Petroleum Institute numbers registered to the records searched. These wells are plotted on Figure 3.

13.7 Structures and Site Proximity

The nearest occupied structures are residential buildings, owned by the property owner, located approximately 480 feet north of the Facility. The nearest business is Ram Industries, located adjacent to the eastern end of the eastern property line of the Facility. Recreational, community, daycare centers, hospitals, or school sites do not exist within 1 mile of the Facility. Chain link fencing with mesh weave roll or slats will screen the Facility from public view on the east property boundary, and perimeter berms and the southern raised railroad will screen the Facility from public view on the north, west, and south sides of the property.

13.8 Texas Historical Commission Review

A Texas Historical Commission (THC) review has been completed. According to the Texas Historic Sites Atlas published by the Texas Historical Commission, there are no documented historic properties such as cemeteries, museums, historical markers within 1 mile of the Facility. Mitigation for discovered significant sites includes facility set back and road design to eliminate surface disturbance in the significant site. This mitigation has been approved by the THC State Historic Preservation Officer, and a stamped approval form is including in Appendix H.

13.9 Compatibility

The surrounding land uses are agricultural, which will benefit from the Facility's composting operations. Storage and land application of animal waste is common in the surrounding agriculture operations. The residential population is sparse, on farming and ranching operations. The Facility is compatible with the surrounding land uses. The Facility will not impact wetlands, flood plains, or waterways.

Section 14. Water Quality

14.1 Construction Storm Water Discharge Permit

The Facility is required to submit a Notice of Intent (NOI) for the Construction Activity Storm Water Discharge Permit and obtain coverage under the TCEQ Construction General Permit (CGP) TXR150000 since the construction of the Facility will disturb more than 5 acres of ground surface. A Storm Water Pollution Prevention Plan (SWPPP) will be developed to comply with the conditions of the CGP prior to submitting the NOI. Notice of Construction will also be posted.

14.2 Multi Sector Storm Water Discharge Permit

The Facility is required to submit an NOI for the Multi Sector Storm Water Discharge Permit. The NOI will be submitted electronically 24 hours prior to beginning operations. A SWPPP will be developed to comply with the conditions of the General Permit prior to submitting the NOI.

Section 15. Air Quality

15.1 Control of Airborne Emissions

Air emissions from MSW facilities will not cause or contribute to a condition of air pollution as defined in the Texas Clean Air Act. No specifically regulated airborne emissions are anticipated to be generated.

15.2 Minimizing Odors

Odors will be minimized through the use of best management practices (BMPs), including:

- Liquid feedstocks will be stored in enclosed aboveground storage tanks;
- Application of feedstock will not occur during high winds;
- Adequate bulking material will be used; and
- Bulking material will be turned or tilled immediately after feedstocks are applied.

In addition, an olfactory inspection will be performed daily to ensure that odors are minimized, as described in the Sampling and Monitoring section of Part IV of this application. Nuisance odors will be prevented from leaving the boundary of the Facility. If nuisance odors are found to be passing the Facility boundary, the OIC will suspend odor-producing operations until the nuisance is abated.

15.3 Control of Windblown Material

The feedstocks accepted at the Facility are aqueous and therefore not susceptible to being windblown. The bulking material to be used at the Facility consists of chipped and shredded wood and vegetative matter that is not very susceptible to being windblown. The Facility will not accept paper, cardboard, cloth, or other materials that would be more susceptible to being windblown. The application of feedstock and tilling of windrows will not be performed during periods of high wind. In the event that high winds should result in bulking material being blown from windrows or piles, the material will be picked up daily and returned to the windrows or stockpiles from which the material originated. Equipment engines will be maintained in good condition and will be well-tuned and serviced at manufacturers' recommended service schedules.

15.4 Authorizations and Permits

Construction will not begin until Air Quality authorizations to operate, listed below, are complete. Air Quality authorizations do not require registration or notification to TCEQ. This Facility is not a major facility or subject to prevention of significant deterioration review.

Permit by Rule (PBR) will be claimed by the Facility, and documentation will be maintained in the Facility records. The composting operation of the Facility meets all of the applicable PBR requirements and is entitled to this air quality standard permit authorization in lieu of obtaining an air quality permit under Chapter 116. The Facility will operate under the Composting

Standard permit 332.8 and will not hold concurrent Air Quality Permits under Chapter 116 for the composting operation.

The composting operation will comply with the general requirements in §332.4 and 332.8(e). The following authorizations, which meet the requirements of the Air Quality Standard Permit for composting, will be implemented.

A. All permanent in-plant roads and vehicle work areas will be watered or treated with dust-suppressant chemicals for maximum control of dust emissions. Vehicular speeds on non-paved roads shall not exceed 10 miles per hour.

B. An adequate volume of bulking material to blend with or cover the material will be on hand prior to receiving material with a high odor potential and will be processed within 72 hours to prevent nuisances.

C. All activities, such as turning of compost, that could result in increased odor emissions will be conducted in a manner that does not create nuisance conditions. SouthWaste will employ the following:

- *On-site buffer zones for odor control:* The processing area will be set back from the road with at least a 50-foot buffer from the property lines.
- Additional waste handling procedures, storage procedures, and cleanup procedures for odor control when accepting putrescible waste: Liquid waste will be stored in storage tanks and transported through pipes. Any spilled feedstock will be cleaned up within 48 hours.

The Facility has been designed to minimize exposure of putrescible waste to the air. Liquid feedstock transfer operations will be controlled to prevent release of nuisance odors to the atmosphere. Putrescible waste holding time will be limited to three days. Putrescible waste will be covered with a layer of wood chips to contain odor.

Section 16. Access Roads

The Facility will use the roads listed in Table 5 for access. Access roadways within 1 mile of the Facility are shown on Figure 8.

16.1 Roadway Data

The access roads to the Facility are I-10, Bartlett Road, and Brazos 10 Lane. Vehicles accessing the Facility are anticipated to arrive via Interstate Highway 10, exit onto and turn north on Bartlett Road, then turn west on Brazos 10 Lane for approximately 0.25 mile. The Facility is located on the south side of Brazos 10 Lane.

The conditions of the access roads are described in Table 5. DBS&A personnel an evaluated Bartlett Road and Brazos 10 Lane and reviewed the Austin County Road and Bridge Report for Precinct #4 (dated June 22, 2015) and information provided by the property owner. According to TXDOT (Yoakum District), no load limits are designated for I-10 and Bartlett Road.

Additionally, there are no proposed public roadway improvements or location restrictions for I-10 and Bartlett Road; therefore, coordination with TXDOT is not required. Brazos 10 Lane is a private road used by the property owner and tenants, including commercial/industrial facilities (Pencco Sealy and Ram Industries).

Table 5. Roadway Data

Roadway	Dimensions	Type of Road	Condition Score	Load Limits	Capacity [a]	Repairs	Source [b]
I-10	2 lanes (each direction) 14-foot lanes Center median Access roads	Asphalt pavement	Good	None	3,580 pch each direction	None	1
Bartlett Road	1 lane (each direction) 12-foot lanes No shoulders (2.83 miles)	Asphalt (blade mix overlay)	Fair / In need of repair	None	2,600 pch	Filled potholes in 2015 with cold mix asphalt	2
Brazos 10 Lane	Private road 14 feet wide (0.35 miles)	Gravel	Good	None	None (private road)	None	3

[a] Capacity calculated by U.S. Department of Transportation methods pch = Passenger cars per hour
[b] 1 = TXDOT Yoakum District
2 = Austin County Precinct 4
3 = DBS&A

16.2 Vehicular Traffic Volume

The initial volume of additional traffic generated by the Facility on the access roads to the Facility is estimated to be 10 vehicles per day. The maximum additional traffic projected at peak operation is estimated to be 50 vehicles per day. The types of vehicles will be medium-size liquid and solid transport vehicles, including vacuum trucks (or equivalent) with a maximum 7,000-gallon storage capacity and dump trucks with a maximum 70.5-ton carrying capacity. **As indicated in Section 10.1 and further presented in Part III, the quantity of incoming feedstock is 250,000 gallons per operating day. Based on the storage capacity of transport trucks, the maximum calculated volume of trucks entering the Facility is 35 trucks daily (250,000 gallons ÷ 7,000 gallons = 35 tucks).** The initial volume of additional traffic generated by the **F**acility~~,~~ **is** estimated at 20 percent of peak operation**, or 7 trucks per day**~~, is modeled after the current vehicular traffic volume and operational capacity at the permitted composting facility located in San Antonio, Texas (operated by SouthWaste)~~. **However, not all trucks are filled to capacity upon arrival at the Facility; therefore, a conservative estimate of the traffic volume accounts for 10 to 50 vehicles per day.** The build-up to peak Facility operation, along with the accompanying increase in vehicular traffic from 10 to 50 vehicles per day, is expected to occur over 20 years.

The average daily traffic (ADT) on Bartlett road is based on the number of households and businesses that access the road. Bartlett Road traverses in a "horseshoe" like direction from two entry/exit routes on the I-10 frontage road; therefore, the ADT assumes that half the surrounding residences and businesses use the eastern entry/exit route, which is located near the Facility. Each household is expected to have an average trip of 3 trips per adult per day with an average adult population of 2 per household. Business traffic is approximately twice per day assuming

25 vehicles per business. Residential traffic access is approximated at 30 households, which is equivalent to 180 vehicles per day. Business traffic accounts for approximately 4 businesses, which is equivalent to 200 vehicles per day.

The population of Austin County is expected to grow at an average 7.24 percent annual rate to 2030 (Texas State Data Center, 2014). The projected traffic volumes presented in Table 6 were calculated assuming that traffic volumes would increase at this same rate over 20 years.

The projected traffic (10 vehicles per day) generated by the Facility represents approximately 2.76 percent of the current traffic on Bartlett Road and approximately 0.01 percent of the current traffic on I-10.

Given the limited traffic per day estimated to be generated by the Facility, no significant impact to the roadway system from traffic accessing the Facility is expected at either the existing or the future traffic loads. No measures, such as the construction of turn lanes or other road improvements, are predicted as part of this project.

Table 6. Vehicular Traffic Volume

Roadway	Existing Traffic	Projected Traffic in 20 years				Increased Traffic Due to Facility (%)	Source [a]
		Without Facility		With Facility			
	ADT	ADT	Annual Increase (%)	ADT	Annual increase (%)		
IH-10	52,805	56,628	7.24 [b]	56,638	7.25	0.01	1, 2
Bartlett Road	380	408	7.24 [b]	418	10	2.76	2
Brazos 10 Lane	Private road	—	—	—	—	—	—

[a] 1 = Texas Department of Transportation
2 = DBS&A
ADT= Average daily traffic
[b] Increase over 20 years

16.3 Facility Access Road Design Data

Brazos 10 Lane is a private gravel road that will provide access to the Facility access road. The Facility unloading areas will be constructed for wet-weather operational use.

The access road is provided with a sufficient turning radius of 300 feet to accommodate single deliveries. Vehicle parking is provided for equipment, employees, and visitors. Dust will be controlled by watering the Facility road when needed. Off-site mud tracking will be controlled by maintaining the entrance and loading areas. The access road has been designed to reduce ponding on the road. An inspection and maintenance program has been developed for the access road that will prevent rutting and potholes.

Clearly posted signage at the Facility entrance will specify a 10-mile per hour speed limit on the entrance road. The maximum speed allowed in the processing area will be 5 miles per hour.

16.4 Facility Impact on Roadway System

The current traffic consists of passenger vehicles, farm tractors, commercial transport trucks and trailers, agriculture transport tractor trailer rigs, and livestock/agriculture trailers. The Facility traffic will add passenger trucks and medium-size liquid and solid transport vehicles with 14.1-ton average and 21-ton maximum loads.

The impact on the roadway system is minimal. Due to the limited production, remoteness of the site, and low traffic volume, roads will not be significantly impacted by the additional traffic.

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SouthWaste Disposal, LLC.
Sealy Composting Facility
Municipal Solid Waste Permit Application

PART III

Application Submittal Date: November 16, 2015

Revised: May 27, 2016**,** ~~and~~ August 10, 2016**, and November 15, 2016**

Project Information

MSW Permit # 2388 ***RN: 108878331***

Project Name: Sealy Composting Facility

Project Location: Intersection of Bartlett Road and Brazos 10 Lane, Austin County, Texas.
Near San Felipe, Texas.

Project Description: Project is a composting facility that processes compostable municipal solid waste such as grease trap waste/septic/sewage sludge and distributes final product for sale.

Project Location Description: The facility is located in a rural area east of the corporate city limits of San Felipe, Texas, near the intersection of Bartlett Road and Brazos 10 Lane.

Applicant Information

CN: 603436114

Owner/Operator: SouthWaste Disposal, LLC.

Address: 9575 Katy Freeway, Suite 130 Houston, Harris County, Texas 77024

Telephone: 866-413-9494

Email: tcox@southwaste.com

Fed Tax ID: 203596390

Preparer Information

Firm: Daniel B. Stephens & Associates, Inc.
(Texas Registered Engineering Firm F-286; Registered Texas P.G. Firm #50045)

Preparer: Benjamin Camacho

Engineer: Thomas Golden, P.E.

Address: 4030 West Braker Lane, Suite 325, Austin, Texas 78759

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Part III Site Development Plan for a Composting Facility.

List of Requested Variances

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Acronyms

ADT	average daily traffic
ALU	aquatic life use
Avg	average
BACT	best achievable control technology
BOD	biological oxygen demand
CCN	Certificate of Convenience and Necessity
cfh	cubic feet per hour
cfm	cubic feet per minute
CR	County Road
CSAP	Closure Sampling Plan
EQ	exceptional quality
°F	Fahrenheit degrees
FM	Farm to Market Road
ft bgs	feet below ground surface
gpm	gallons per minute
hp	horse power
in	inch(es)
kips	kilo pounds per inch
MSS	maintenance, start up, and shut down
MSW	municipal solid waste
NAICS	North American Industry Classification System
NIST	National Institute of Standards and Technology
OSSF	on-site sewage facility
pci	pounds per cubic inch
plf	pounds per linear feet
psi	pounds per square inch
PWS	public water system

RCRA	Resource Conservation and Recovery Act
SC-SM	silty, clayey sand
SDS	safety data sheet
SIC	Standard Classification
SO_2	sulfur dioxide
SOP	Standard Operating Procedures
SSO	sanitary sewer overflows
SUD	Sewer Use District
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality (Executive Director)
THC	Texas Historical Commission
THSC	Texas Health and Safety Code
TMDL	total maximum daily load
TPDES	Texas Pollution Discharge Elimination System
TPH	total petroleum hydrocarbon
TSS	total suspended solids
TWC	Texas Water Code
TXDOT	Texas Department of Transportation
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VCP	Vector Control Program
VTCA	Vernon's Texas Codes Annotated
WoC	Wolfpen loamy fine sand
WSC	water supply company
WWTP	wastewater treatment plant
yd	yard(s)

Section 17. General Facility Design

17.1 Facility Plan and Facility Layout

Sheet 3 in the Drawings section shows the facility plan and layout including the permitted Facility, as well as the property boundary, fencing, internal roadways, the grease trap waste/septic/sewage sludge (GSS) processing area (as noted on that figure, tipping also occurs in this area, and there is not a discrete tipping area at the Facility), post-processing areas, structures, and other improvements to the property. In addition, DBS&A has prepared engineering design drawings showing the GSS composting pad layout and cross sections.

The following drawings are located in the Drawings section:

- Drawing 1 Title Sheet;
- Drawing 2 General Notes and Legend;
- Drawing 3 Site Plan;
- Drawing 4 Grading Plan and Profile - 1;
- Drawing 5 Grading Plan and Profile - 2;
- Drawing 6 Drainage Plan;
- Drawing 7 Civil Details; and
- Drawing 8 Drainage Details

17.2 Facility Access

17.2.1 Operator in Charge

The operator in charge (OIC) will be responsible for monitoring access to the Facility. The OIC will schedule deliveries to ensure staff supervises all unloading operations. Public Access will be prohibited and enforced by the OIC.

17.2.2 Operating Hours

The proposed operating hours are subject to approval by TCEQ for extended waste acceptance hours.

The waste acceptance hours will be between Monday through Sunday, 7:00 a.m. to 7:00 p.m. Operating hours for operating heavy equipment and transporting materials on-site or off-site will be Monday through Sunday from 6:00 a.m. to 8:00 p.m. Since the Facility is located in a sparsely populated area with 24-hour agribusiness operations, the operating hours will not impact area residents or businesses.

Consolidated feedstock from several sources is gathered in bulk and transported in liquid tankers. The operating hours will permit waste haulers to optimize their service routes and accommodate their customers by servicing their grease traps during non-peak hours between 3:00 and 5:00

p.m. Composting operations are sometimes performed outside standard operating hours, as required by weather, holidays, or emergency situations that could result in the disruption of waste management services in the area. When any alternative operating hours are needed to accommodate such conditions, Facility personnel will record the dates, times, and duration in the site operating record.

17.2.3 Facility Sign

A sign will be conspicuously display at the entrance to the Facility, measuring at least 4-feet by 4-feet with letters at least 3 inches in height, stating the Facility name, type of facility, standard hours of operation, the permit number, and Facility rules. The posting of erroneous or misleading information will be prohibited. The potential sign will contain at least the following:

- SouthWaste Sealy Composting Facility;
- Telephone number;
- Permit number;
- Check in at office; and
- No public access allowed.

17.2.4 Facility Access Control

Access to the Facility will be controlled to prevent disposal of unauthorized and prohibited materials and scavenging. The following measures will be implemented:

- At least one OIC will be present at the Facility during operations to monitor visitors or transporters.
- The Facility will be completely enclosed with a perimeter fence, consisting of a 4-foot barbed wire fence with lockable gates.
- The entrance and exit gates will be secured when the Facility is not operational.
- No Trespassing signs will be placed around the perimeter of the Facility.
- The fence, gates, and roads will be inspected on a weekly basis. Any access breach or unsafe condition will be repaired as soon as practical and noted in the Facility weekly log.
- A sign located at the entrance of the Facility will state that all visitors must check in at the office.
- Deliveries are scheduled by the OIC to facilitate orderly unloading.
- Unauthorized access will be prohibited. No public access is allowed.
- All truck traffic will be supervised by on-site personnel and must proceed directly to the loading and unloading areas.

- Only vehicles authorized by the OIC, personal vehicles of employees, and authorized haul vehicles will have access beyond the Facility entrance.
- All inbound and outbound traffic is closely monitored.
- Off-loading, loading, and processing preparation are limited to daylight hours.
- The Facility is located in a remote area. It is set back from Brazos 10 Lane with a landscape barrier that obscures the Facility from normal observation from the road, but maintains inspection capabilities by personnel from the road.
- At the Facility, transport units will be stored within the perimeter fencing and locked gate. The OIC will monitor the units. The cab will be locked. All valves will be locked to prevent discharge of liquids. Solid material will be covered.

17.3 Odor Control

Odors will be minimized through the use of best management practices (BMPs), including:

- Liquid feedstocks will be stored in enclosed aboveground storage tanks;
- Application of feedstock will not occur during high winds;
- Adequate bulking material will be used; and
- Bulking material will be turned and tilled immediately after feedstocks are applied.

In addition, an olfactory inspection will be performed daily to that ensure odors are minimized as described Sampling and Monitoring section in Part IV of this application. Nuisance odors will be prevented from leaving the boundary of the Facility. If nuisance odors are found to be passing the Facility boundary, the OIC will suspend odor-producing operations until the nuisance is abated.

The GSS processing area will be located in a remote area with at least a 50-foot set back distance from the Facility boundary to prevent creating odor nuisances.

17.4 Dust Control

No hoppers will be located or used for waste collection.

Dust will be controlled with water application, as needed. Graveled areas will be maintained to prevent rutting and potholes.

17.5 Storage Units and Equipment Details

17.5.1 Storage Units

Storage units will be purchased from a vendor and will be welded steel tanks that meet at least the standards contained in either (1) the American Petroleum Institute (API) Specification 12F -

Specification for Shop Welded Steel Tanks for Storage of Production Liquids, or (2) the API Standard 650 - Welded Tanks for Oil Storage.

Tanks will be leak resistant, corrosion resistant, and designed to handle thermal stresses for outdoor storage at the Facility. Tanks are planned to be 750 barrels (or approximately 31,500 gallons).

Storage tanks for untested, reclaimed water and liquid waste will be placed on a composite liner surrounded by clay berms designed to provide sufficient secondary containment for the largest tank volume, precipitation from the 25-year, 24-hour design storm, and an additional 1 foot of freeboard.

17.5.2 Compost Pad

The 11-acre GSS processing area includes an approximately 3.5-acre compost pad retention pond and a 7.5-acre compost pad. The entire area will include a composite liner as described in Section 22.1. The compost pad is designed to provide a footprint for approximately 20 windrows approximately 600 feet in length. Based on typical windrow dimensions, more than 100 tons of wood chips can be processed per operating day.

Pending the results of compost demand and feedstock availability, the liner for the compost pad is expected to be built in two phases. A temporary berm will be constructed between the two construction phases to the same specifications as the GSS processing area berms. The entire compost pad retention pond will be constructed during the first construction phase to handle stormwater run-off within the GSS processing area.

17.5.3 Feedstock Storage Area

The feedstock storage area is the receiving area for liquid waste transporters and the liquid feedstock storage area. The area is comprised of eight 31,500-gallon, welded steel storage tanks as specified in Section 17.5.1. Secondary containment for this area is described in Section 17.6. The feedstock storage area is designed to hold a one day supply of feedstock at the maximum incoming daily rate, but will likely provide up to one week of storage under typical daily operations. Feedstock is transferred using the liquid transfer equipment.

17.5.4 Liquid Transfer Equipment

1. *Receiving Transfer.* The transport truck vacuum pump system or equivalent will be used to transfer liquid feedstock into storage tanks.

2. *Liquid Feedstock Transfer.* The Facility vacuum truck or equivalent will extract liquid feedstock from the on-site storage tanks. The pump system on the vacuum truck will be used to spray liquid feedstock directly onto prepared windrows of bulking material located within the processing areas.

17.5.5 Final Product Screening and Stockpile

Finished compost will be stockpiled in an approximately 3.5-acre area north of the compost pad. Assuming a 30 percent volume reduction for compost maturation and an additional 30 percent reduction for screening, the footprint for final product from the 7.5-acre compost pad will be approximately 3.7 acres. The final product area will hold approximately a 90-day supply of finished compost, pending delivery of final product to end users.

17.6 Containment Dikes or Walls

The secondary containment for the feedstock storage area is designed to hold the volume of the largest tank (31,500 gallons) and a 25-year, 24-hour rain event (8.5 inches); in addition, it provides 12 inches of freeboard. The secondary containment area will include a composite liner (geomembrane on top of a clay liner) and will be surrounded by compacted clay berms designed to minimize leakage in the event of a release of feedstock.

Section 18. Process Description and Controls

18.1 Process Diagrams and Drawings

This section specifically describes the GSS composting process at the GSS processing area. Composting of other approved materials will occur at either the GSS processing area or at other areas to the north and west, so long as it does not interfere with site drainage or wash off-site.

SouthWaste will perform GSS feedstock mixing, composting, and post-processing on the lined processing area (the lined pad used for composting and curing). However, as a part of this permit application, SouthWaste is requesting a variance from the Executive Director with regard to the screening and storage of finished compost and bulking material.

A process diagram that displays graphically the narratives is presented in Figure 9.

18.1.1 Variance #1

Variance #1: Storage of bulk material and finished Grade 1 or Grade 2 compost.

SouthWaste is requesting an approval from the Executive Director to chip/shred bulking material and screen and store finished Grade 1 or Grade 2 compost (not Waste Grade) at unlined portions of the Facility. Given that only GSS compost meeting the maturity requirements discussed in Section 18.6 and bulking material would be placed outside the liner in this manner, this should not result in any compromise to public health and safety. The finished materials are intended for use in landscaping, vegetable gardens, and similar uses; therefore, storage of these materials on the unlined ground surface should not represent any potential for damage or impact to groundwater resources. Bulk materials and finished compost managed and stored in lined areas would limit the Facility's composting efficiency, resulting in an unnecessary hardship.

18.2 Equipment

Table 7 presents the minimum amount of equipment normally on-site and the provided equipment's operational capacity to adequately conduct the operation in conformance with the engineering design and industry standard operating procedures.

Table 7. Equipment

Equipment Name	Min No.	Capacity	Function	Inspection and Maintenance
Self-Propelled Tiller (a.k.a windrow turner)	1	Up to 800-1000 m^3/hour	Blends, mixes, and turns compost	▪ Inspect for hydraulic and oil leaks, water, and engine efficiency. ▪ Inspect for caked on residue. ▪ Repair per manufacturer's recommendations. ▪ Remove residue off blades.
Front-end Loader	2	Up to 15 m^3 bucket capacity	Compost and bulking material handling. Compost pad maintenance and spill and small fire control.	▪ Inspect for hydraulic and oil leaks, water, and engine efficiency. ▪ Repair per manufacturer's recommendations.
Excavator	1	Up to 190,204 lb operating weight	Compost and bulking material handling. Compost pad maintenance.	▪ Inspect for hydraulic and oil leaks, water, and engine efficiency. ▪ Repair per manufacturer's recommendations.
Dump Truck	1	Up to 70.5 tons carrying capacity	Compost and bulking material handling.	▪ Inspect for hydraulic and oil leaks, water, and engine efficiency. ▪ Repair per manufacturer's recommendations.
Chipper / Grinder	1	Up to 100 tons/hour	Chips and Shreds raw bulking material	▪ Inspect for hydraulic and oil leaks, water, and engine efficiency. ▪ Repair per manufacturer's recommendations.
Feedstock storage tank	8	31,500 gal	Hold liquid feedstock materials for processing	▪ Inspect piping, gaskets, orifices, and tanks for leaks. ▪ Repair per manufacturer's recommendation.

Table 7. Equipment (continued)

Equipment Name	Min No.	Capacity	Function	Inspection and Maintenance
Vacuum Truck or equivalent	1	Up to 7,000 gal	Unloads liquid feedstock into the storage tanks / distributes feedstock to windrows	▪ Inspect for hydraulic and oil leaks, water, and engine efficiency. ▪ Inspect for tank compartment for leaks. ▪ Repair per manufacturer's recommendations. ▪ Remove residue.
Water storage tanks	1	20,000 gal	Water storage	▪ Inspect piping, gaskets, orifices, and tanks for leaks. ▪ Repair per manufacturer's recommendation.
Pumps	1	Up to 300 gpm	Transfer liquid raw materials and products	▪ Inspect piping, gaskets, orifices, and motor. Repair per manufacturer's recommendation.
Water truck	1	3,000 gal	Dust control	▪ Inspect tanks for leaks. ▪ Inspect and Repair working parts per manufacturer's instructions.

18.3 Feedstock Identification

An estimated 270,000 tons of feedstock will be composted annually. The largest portion of the incoming feedstock will be grease trap waste. Initially, incoming grease trap waste will be brown grease, but yellow grease processing may be included in future operations. Since, the TCEQ does not regulate yellow grease processing, a permit modification will be requested only if the yellow grease operation area is relocated. The Department of State Health and Services will be contacted for authorization to process yellow grease prior to any acceptance of this type of waste. Incoming feedstock to be received will not exceed 72 million gallons per year. This quantity is 930 tons per day (22,300 tons per month, assuming 24 operating days per month) or 250,000 gallons per operating day (assuming 7.44 pounds per gallon typical for grease trap waste). Expected to account for less than 10 percent of the incoming feedstock at this Facility, the other feedstocks accepted at the Facility are:

- Municipal sewage sludge;
- Septage; and
- Dairy/food including meat and fish.

The bulking material used in the process will be chipped and shredded wood and vegetation. Bulking material will be either received already chipped and screened or will be received in raw form and chipped on the property. Up to 32,000 cubic yards of bulking materials may be in-process on the compost pad at any point in time. Due to reduction in volume from maturation and screening, this volume results in approximately 15,680 cubic yards of finished compost. Chipping and shredding of bulking material is performed in an area outside the lined portion of the Facility. In addition, chipped and shredded bulking material may also be brought to the Facility from off-site locations. Energy and Mass Balance calculations for the GSS and non-GSS waste composting process are presented in Table 8. These calculations present the amount of product that will be produced based on anticipated amounts of bulking and feedstock materials.

Table 8. Energy and Mass Balance Calculations

Input Information	Calculations
Bulking Material Calculations:	
▪ 1,600 cy wood chips in each windrow x 20 windrows ▪ Process requires approx. 90 calendar days to mature	▪ 32,000 cy of chips on pad (=1,600 cy chips per windrow * 20 number of windrows) ▪ 356 cy chips used / calendar day (=32,000 cy / 90 calendar days) ▪ 8,000 tons chips / 90 days (=32,000 cy * 0.25 ton / cy) ▪ 111 tons chips / operating day (=8,000 tons / 3 months / 24 operating days per month ▪ 2,667 tons chips / month (=8,000 tons / 3 months)

Input Information	Calculations
Feedstock Calculations:	
▪ 250,000 gal of feedstock per operating day applied to windrows	▪ 930 tons per operating day of feedstock coming in (=250,000 gal * 7.44 lb per gal / 2,000 lb per ton) ▪ 22,320 tons per month of feedstock coming in (=930 tons * 24 operating days per month) ▪ 66,960 tons of feedstock coming in / 90 days (=22,320 tons per month * 3 months) ▪ 267,840 tons per year of feedstock coming in (=22,320 tons per month * 12 months) ▪ 6,000,000 gal / month of feedstock (=250,000 gal * 24 operating days per month)
Product Calculations:	
▪ 30% volume reduction during composting for maturation ▪ ▪30% further volume reduction when screened	▪ 32,000 cy of chips on pad in 90 days ▪ 22,400 cy of compost / 90 days (after 30% reduction for maturation) ▪ 15,680 cy of finished compost / 90 days (after additional 30% reduction for screening of mature compost) ▪ 5,227 cy finished compost / month ▪ 62,720 cy finished compost / year ▪ 29,792 tons of finished compost / year (assuming a finished compost unit weight of 950 lb / cy) ▪ 2,483 tons of finished compost / month ▪ 83 tons of finished compost / calendar day

Assumptions: 7.44 lb / gallon feedstock
950 lb / cy compost
0.25 ton / cy chips
24 operating days / month
12 months / year

Conversion Factors: 2,000 lb / ton
7.48 gal / cf

The operator will visually examine the feedstock during transfer and processing to remove visual un-compostable material (unauthorized materials). Coarse straining may be used to remove non compostable materials in liquid raw material.

The Facility will not accept household wastes, source-separated recycling, or related materials.

18.4 Receiving/Tipping Process

18.4.1 Feedstock

Both pre-chipped and shredded bulking material and raw bulking material will be delivered by truck to the Facility. Raw bulking material will be stored and then chipped and screened in an on-property area east of the processing area (Sheet 3). The Facility will be equipped with a chipper/grinder to chip and grind raw bulk material. The chipper/grinder will be equipped with low-velocity spray nozzles to minimize the generation of dust during operation. The chipped and shredded bulking material will be placed on the processing areas in windrows using a front-end loader.

Feedstock is received at the Facility by tanker trunks. The liquid feedstock will be either pumped into one of eight 31,500-gallon aboveground storage tanks for temporary storage or pumped to the Facility vacuum truck or equivalent to be sprayed directly onto prepared windrows of bulking material located within the processing areas. The storage capacity of the

aboveground tanks will allow the liquid feedstocks to be applied in a consistent manner and provide additional feedstock storage capacity that can be used during periods of rainfall that limit feedstock application. No feedstock will be accepted in excess of the available capacity of the storage tanks. The OIC monitors traffic and off-loading to prevent spills, leaks, and unauthorized materials or dumping. A Manifest or Bill of Lading is required for each load that describes the load's source, contents, and volume. Haulers are required to have the appropriate licenses or registrations.

Due to the way the liquid feedstocks are handled, the potential for spillage outside the lined processing area will be minimal. In the event that liquid feedstock is spilled outside the composting pad, the feedstock and affected surface soils will be promptly recovered using a front end-loader and incorporated into the composting process. In the event that bulking material is spilled onto the ground, it will be promptly recovered with a front-end loader and returned to the windrows. The front-end loader and shovels will be used daily to maintain the tipping area and windrows.

18.5 Processing

18.5.1 Material Processing

Feedstocks will be applied to the windrows using a vacuum truck or equivalent equipped with a 3- or 4-inch hose. Once the feedstock is applied to a windrow, the windrow will be immediately turned, mixed, and re-homogenized using a self-propelled tiller to thoroughly mix feedstock and bulking material. This process allows the feedstocks to be evenly distributed through the windrows and prevents moisture or liquids from collecting at the base of the compost material.

Once tilled, the windrows will be monitored to ensure the moisture content and carbon to nitrogen ratio are consistent to maintaining adequate composting. Measurements of nitrogen and carbon ratios will be monitored daily.

The desired initial moisture content of the compost is 40 to 60 percent by weight. Moisture content will be evaluated and measured daily. Moisture content will be determined during the composting process using the "squeeze test." The squeeze test is performed by manually gathering and squeezing a handful of the compost material. If water drips out while the compost is under hand pressure, the material is too wet. If the material crumbles apart when the pressure is released, it is too dry. Squeeze test samples will be collected from varying depths and areas of the windrows to evaluate the moisture content throughout the windrow. High moisture contents will be corrected by adding additional bulking material and/or by additional tilling. Low moisture content will be corrected by adding potable water, liquids collected in the retention pond (for GSS composting only), or liquid feedstock, and then tilling.

Once a windrow is considered to have the appropriate moisture content and mixture of bulking material and feedstock, it will be monitored for 15 days. During the monitoring period, the windrow temperature will be measured and recorded regularly using a bi-metal thermometer with a 4-foot probe. Temperature measurements will be collected every 5 to 10 feet along the length of the windrow at a depth of approximately one-third of the windrow height. A temperature of at least 55 degrees centigrade (131 degrees Fahrenheit) will be maintained during

the monitoring period. During the 15-day monitoring period, the windrow will be turned a minimum of five times to maintain an even temperature throughout in order to aid in consistent, thorough composting and to reduce pathogens. The temperature will be measured and recorded each time the windrow is turned during the monitoring period. Once the 15-day monitoring period is completed, the composted material will enter the post- processing phase.

In order to avoid contaminating the final product, no feedstocks or retention pond liquids will be added to a windrow once it enters the monitoring period. In the event that additional feedstocks are inadvertently added to material during the monitoring period, the monitoring period for that material will start over.

18.6 Post-Processing

After the monitoring period, the final GSS product will be placed in a stockpile on the lined processing area for a curing period of at least 60 days. Each batch of final product will be placed in a separate stockpile and assigned a batch number. Each batch will be physically separated to prevent co-mingling of different batches. Each batch will be tested for maturity and final product parameters as described in Section ~~35.4~~ **35.3** in Part IV of this application and will then be assigned a final product grade as described in Section ~~35.4.2~~ **35.3.2** in Part IV of this application.

Batches that do not meet the maturity parameters will remain on the processing area and continue to be monitored until the maturity parameters are reached. Batches that meet the maturity parameters but do not meet the final product parameters for either Grade 1 or Grade 2 compost (Waste Grade compost) will be disposed off-site at an authorized municipal solid waste facility.

Cured compost meeting either Grade 1 or Grade 2 maturity parameters will be processed through a ½-inch screen to remove over-sized material in the post-processing area outside the lined composting pad. Over-sized material separated during screening will be returned to the windrows to be re-composted.

18.7 Product Distribution

18.7.1 Compost

Compost will be sold only in bulk form. At some point in the future, the Facility may sell containerized compost. Bulk product will be loaded into the purchaser's truck using a front-end loader. The Facility anticipates producing approximately 62,700 cubic yards annually of Grade 1 compost material at peak production (produced from 2,700 tons per month of wood chips and 22,300 tons per month of incoming liquid feedstock). The Facility does not currently plan to produce any Grade 2 compost, but may at some time in the future. The intended final use of the Grade 1 composted material will be as a soil amendment in residential and commercial applications. In the event that final testing indicates that the composted material is Grade 2, it will either be disposed of at a permitted municipal solid waste (MSW) facility or sold only to commercial users and labeled as not for use at residences or child-care facilities. Grade 1 and Grade 2 compost products will not be tracked. The batch number, the permit number of the

disposal facility, dates, and the disposed volumes will be tracked for all batches of Waste Grade compost (i.e., compost to be disposed off-site). The product parameters for each grade of compost are described in Part IV of this application.

The OIC will supervise the delivery of bulking material, directing them to the appropriate storage area. The bulking material will be inventoried daily to ensure that the amount needed to cover or process feedstock is on hand. Record inspections and volume of bulking material will be recorded on the weekly log.

All compost sold will be labeled in accordance with 30 Texas Administrative Code (TAC) §332.74. Compost sold in bulk form will be labeled in the form of vouchers. A voucher will be provided to the buyer with each load of compost. In the future, if the Facility elects to sell compost in containers, a label will be attached to each container. Each voucher and label will include the following information grouped together and printed in both English and Spanish:

1. *For Grade I Compost*: "This product is considered Grade 1 Compost and meets the requirements and standards described in 30 Texas Administrative Code, §332.72 and has unrestricted use. It is recommended that compost be mixed into the top 6 inches (15 centimeters) of soil."

   For Grade 2 Compost: "This product is considered Grade 2 Compost and meets the requirements and standards described in 30 Texas Administrative Code, §332.72 and cannot be used at a residence or licensed child-care facility. It is recommended that compost be mixed into the top 6 inches (15 centimeters) of soil."

2. *Feedstocks from which the compost was derived (grease trap waste, etc.).* Feedstocks will be listed in descending order of predominance by wet weight. (Added water is not considered a feedstock.)

18.8 Sanitation

18.8.1 Run-on and Run-off Control

The Facility is designed to control rainfall run-on and run-off. A raised railroad adjacent to the south property boundary and an elevated roadway for Bartlett Road adjacent to the east property boundary will minimize the amount of run-on to the site. The GSS processing area (i.e., the lined pad used for composting and curing) is self-contained (i.e., surrounded by berms that prevent run-on) and is sloped toward a stormwater retention pond on the west side of the bermed area to collect run-off from the composting area, designated the compost pad retention pond. Perimeter berms along the west and north property boundary will be used to route on-site run-off to a central point of concentration near the Facility access gate (north of the office). This centralized location will aid stormwater monitoring without increasing run-off north of the site. This will also improve stormwater management as pre-construction run-off from this property was routed through the residential property to the north.

Secondary containment surrounding the liquid feedstock tanks will allow stormwater to be monitored prior to being repurposed. Accumulated stormwater from the liquid feedstock area will either be applied to the windrows or discharged to the compost pad retention pond.

18.8.2 Cleaning Equipment and Connections

SouthWaste intends to install at least one potable, non-public supply water well to supply water to the office and maintenance building. The water well plumbing will be equipped with multiple connections to distribute water to support the composting process. These water connections will be equipped with a back flow check valve to prevent cross contamination. One connection will be used for weekly cleanup activities which may include sweeping, mopping, and/or washing down with water. A pressure washer will be used periodically to remove residuals not removed with the more conservative cleaning methods. The operator may hire a contracting company to perform the pressure washing, as needed. Washing activities will occur on the lined compost pad and will consist of washing hand tools and chemical-free equipment that come into contact with the composting operations. Equipment containing hydrocarbons or chemicals (e.g., vehicles, tractors, chipper/grinder) will not be washed at the Facility. In the event that equipment containing hydrocarbons or chemicals requires washing, then these types of equipment will be washed off-site at an approved washing facility.

18.9 Non Hazardous Waste Storage and Disposal

18.9.1 Non-Hazardous Waste

Solid waste will be stored in a dumpster. Non-hazardous wastes will be transported and disposed of at a permitted landfill on an as needed basis.

18.9.2 Hazardous Wastes

Every effort will be made to exclude hazardous material from the processing system, but in the unlikely event that hazardous wastes are generated, the OIC will apply for a "One-Time Waste Shipment" registration. Hazardous waste will be transported and disposed of at a permitted hazardous waste facility.

Section 19. Endangered Species Protection

DBS&A contracted W&M Environmental Group, LLC (W&M) to conduct a biological assessment (BA) for the Facility. The BA was prepared by a qualified biologist in accordance with standard procedures of the U.S. Fish and Wildlife Service and the Texas Parks and Wildlife Department (TPWD). W&M's qualifications are presented in Section 8.0 of the BA and a letter dated May 20, 2016 affirming W&M's qualification is included in Appendix F. The BA included review of multiple records, site reconnaissance, and interviews with agency representatives to identify whether the proposed activity associated with the composting permit/operations would have an effect on state or federally listed threatened, endangered, or candidate species or critical habitat. The BA evaluated the potential effects of the proposed action (i.e., construction and operation of the Sealy Composting Facility) on listed and candidate species and listed and proposed critical habitats to determine whether any such species or habitat are likely to be adversely affected by the action, in accordance with the requirements of the Endangered Species Act (ESA) and Title 30 of Texas Administrative Code TAC §330 (municipal solid waste [MSW] permits). The BA was used to determine whether formal consultation (with state and federal wildlife agencies) or conference is necessary. The BA is to

be reviewed by state agencies and does not require a full National Environmental Policy Act (NEPA)-compliant review. The BA reported that none of the listed or candidate species with current or historical ranges near the Facility would be negatively affected by the proposed project and no critical habitat for listed or candidate species would be impacted by the proposed development. The BA report is included as Appendix F.

The BA was submitted to the TPWD Wildlife Habitat Assessment Program for their review and approval. The results of the BA are summarized on the TPWD Review Request Form in Appendix A of the BA report (Appendix F). The TPWD received the BA on November 2, 2015. On December 11, 2015, the TPWD Wildlife Habitat Assessment Program indicated that based on the project description, they do not anticipate significant adverse impacts to rare, threatened or endangered species, or other fish and wildlife resources. The cover page of the BA (Appendix F) includes the TPWD-signed acknowledgement stamp.

The Facility is designed to limit the alteration or modification of a potential habitat. To prevent alteration or adverse modifications of a potential habitat and/or endangering an encountered endangered species, the following precautions will be applied during construction:

- Trees and natural vegetation will be maintained as practical.
- Construction workers will be trained to identify endangered species.
- If an endangered species is encountered during a construction activity, and the construction activity endangers it, that construction activity will cease, the owner will be notified, and mitigation will be developed.
- If trees and vegetation must be removed for fire protection and/or safety, the removal will avoid the migration or nesting times of known species.
- During Facility operations, trees and vegetation will only be removed if they pose a fire, vector, or safety concern. The Facility will manage trees and vegetation to prevent potential fires and control vectors in a manner that will not alter or adversely modify any potential habitat.

Section 20. Surface Water Protection Plan

20.1 Run-On and Run-Off Management System

The Facility is designed to control rainfall run-on and run-off. A raised railroad adjacent to the south property boundary and an elevated roadway for Bartlett Road adjacent to the east property boundary will minimize the amount of run-on to the Facility. The GSS processing area (i.e., the lined pad used for composting and curing) is self-contained (i.e., surrounded by berms that prevent run-on) and is sloped toward the compost pad retention pond on the west side of the bermed area to collect run-off from the composting area. Perimeter berms along the west and north property boundary will be used to route on-site run-off to a central point of concentration near the Facility access gate (north of the office).

The composting process is performed and managed so that leachate should not be produced by the application of feedstocks. However, in the event that leachate is produced by direct rainfall, it will be contained within the processing area by the engineered composite liner system and compost pad retention pond. Details of the berms, composite liner system, and retention pond that provide run-on and run-off control for the processing area are included in the Drawings section.

The compost pad retention pond was sized to contain a 25-year, 24-hour rainfall event on the composting pad. In addition to the minimum capacity needed to contain this design storm (approximately 2.5 million gallons), the 3-acre compost pad retention pond has more than 5 million gallons of additional surplus capacity. Given the nature of the Facility's setting (i.e., net evaporative based on mean precipitation and evaporation data), the pond is not anticipated to accumulate significant volumes of water. However, the pond has been designed to maintain sufficient capacity to handle a series of larger rainfall events. Pond liquids will also be used as needed to adjust the moisture content of composting materials. Evaporation and the use of pond liquids in the composting process are the primary means of maintaining adequate capacity in the pond. If this approach is inadequate to maintain capacity, then water will be pumped from the pond and trucked to a permitted off-site treatment facility.

Currently on-site drainage includes three primary drainage reaches (Figure 10). On the west side of the site, stormwater flow is directed off-site to the northwest to natural drainage features located on adjacent properties and then to an unnamed tributary to the Brazos River. Run-off from the central portion of the property travels to the north through existing residential property prior to discharging to the same unnamed tributary to the Brazos River. The eastern portion of the property drains to an on-site, man-made stormwater pond along the eastern property boundary.

Following construction of the Facility, stormwater outside of the GSS processing area will either be collected in a single ditch along the north property boundary or allowed to drain to the existing stormwater pond (Figure 11). The northern portion of the site will be regraded to direct all stormwater from west to east to a single discharge point located near the Facility access gate. This centralized location will aid stormwater monitoring without increasing run-off north of the site (due to a reduction in contributing acreage, the peak flow decreased by nearly 18 percent). This will also improve stormwater management by re-routing run-off around the existing residential property to the north. Run-off from the eastern portion of the property will continue to be directed to the on-site stormwater pond. An overflow culvert will be added under the Facility access road to direct stormwater into the ditch along the north property line.

Run-off from the ditch will be directed through a 12-inch-diameter corrugated high density polyethylene (CHDPE) culvert system and riprap outfall structure to existing drainage ways. The proposed locations of the stormwater collection ditch and outfall structures are shown on the drainage plan drawing (Sheet 6). Cross sections of the ditches and details of the riprap outfall structures are also provided in the Drawings section. Stormwater calculations are provided in Appendix I. The riprap outfall structures will separate and trap suspended material while allowing controlled discharge of stormwater.

Stormwater collection ditches will be periodically inspected, cleaned, and regraded as necessary to maintain unobstructed flow. Riprap outfall structures will be inspected following each rain event. Sediment and other materials trapped at the rock outfall will be removed before the material accumulates to a depth equal to one-fourth the outlet height.

Chipped and shredded wood materials are used for temporary erosion control as needed outside the lined and bermed GSS processing area. In addition, the elevated railway and roadway upgradient from the site will minimize run-on, reducing potential erosion of on-site surfaces. Within the GSS processing area, the composite liner system includes base coarse and filter fabric designed to reduce erosion of materials above the geomembrane.

20.2 Drainage Calculations

The compost pad retention pond sizing calculations are presented in Appendix I. The required minimum volume of the pond was determined using the Natural Resources Conservation Service Curve Number method and the 25-year, 24-hour design storm. This precipitation amount was determined based on the United States Geological Survey (USGS) Depth-Duration Frequency Atlas for Texas published in 2004 in cooperation with Texas Department of Transportation (TxDOT) (USGS, 2004). The retention pond volume was then increased to handle a series of larger rainfall events.

As specified in the TxDOT Bridge Division Hydraulic Manual (TxDOT, 2011), drainage calculations for determination of peak run-off using the Rational Method are also presented in Appendix I for both pre-construction and post-construction conditions. The 25-year design storm most similar to the time of concentration was used to determine peak flow. The self-contained GSS processing area reduced the area contributing run-off to the point of concentration; therefore, construction of the Facility is not expected to impact downgradient properties.

20.3 Erosion Control

Erosion and stormwater controls consist of earthen berms constructed around the perimeter of the processing area and along the western and northern Facility boundaries. In addition, one primary stormwater collection ditch will be used in conjunction with existing drainage features to collect and control run-off from the areas of the Facility lying outside the lined and bermed GSS processing area. These features have been designed to reduce stormwater flow velocities to minimize erosion and scour.

Given the physical and chemical nature of the materials stored in these areas (i.e., wood chips, brush, and mature compost), these materials are not anticipated to be capable of generating leachate that contains dissolved chemicals of concern. However, there is some potential that stormwater run-off may suspend particles of mature compost or wood chips. The stormwater collection features outside the processing area are designed to collect and control both stormwater and any entrained and suspended particulates, and to control the migration of suspended particulates beyond the Facility boundaries.

20.4 Drainage Maps and Plans

Pre- and post-construction on-site drainage maps are provided as Figures 10 and 11. Plan and profile drawings of the Facility GSS processing area and compost pad retention pond are included as Sheets 4 and 5 in the Drawings section. Cross sections of proposed stormwater collection ditches and rock outfall structures are also provided in the Drawings. There are no areas of the property that lie within the 100-year flood plain or contain wetlands. Wetlands features are shown in a U.S. Fish and Wildlife Service National Wetlands Inventory (NWI) map in Figure 6. According to the NWI map, the site is not located in a NWI area.

According to the Federal Emergency Management Agency (FEMA) map Panel 48015C0350E, panel 350 of 475, dated September 3, 2010 (Figure 7), the site is not located in a FEMA flood zone. No mitigation for construction or operation in a flood plain is required.

Section 21. Geological Report

The geologic/hydrogeologic report was prepared by Beronica Lee-Brand, a State of Texas Licensed Professional Geoscientist (TX PG #10465). The following sections discuss the general geologic and hydrogeologic conditions in the vicinity/region of the property and also site-specific conditions beneath the proposed Facility from data collected during the subsurface investigation.

21.1 Regional and Local Geology/Hydrogeology

According to the Bureau of Economic Geology, Geologic Atlas of Texas, Seguin Sheet (1974), the property is located within the Beaumont Clay Formation (Pleistocene) and is surrounded by Quaternary-age lithology. A portion of that sheet, showing the location of the property, is provided as the geologic map for this application (Figure 12). The Oligocene-aged sediments make up the base of the Gulf Coast Aquifer in Texas and include the Tertiary rocks into the Frio Formation, the Anahuac Formation, and the Catahoula Tuff or Sandstone (early Miocene); the Oakville Sandstone and the Fleming formation (mid- to late-Miocene); the Goliad Sand (Pliocene); the Willis Sand, Lissie Formation, and the Beaumont Clay (Pleistocene); and the alluvium (Holocene) (Baker, 1979). A regional stratigraphic column showing hydrostratigraphic divisions for corresponding stratigraphic units is provided on Figure 13 (Baker, 1979).

The Gulf Coast Aquifer is a major aquifer that underlies the Facility; no minor aquifer underlies the Facility. The Chicot Aquifer is the shallowest unit of the Gulf Coast Aquifer. The Gulf Coast Aquifer forms an irregularly shaped belt that parallels the Texas coastline and extends northeastward to the Louisiana border. Groundwater quality in the Gulf Coast Aquifer is generally good northeast of the San Antonio River but declines to the southwest. There are multiple water wells within a half mile of the Facility completed in the Gulf Coast Aquifer, as discussed in Section 21.4. The well reports and boring logs presented in the Environmental Data Resources (EDR) half mile and mile radius water well report indicate alternating clay and sands down to over 200 feet (Appendix G).

Locally and regionally, the Beaumont Formation sand bodies are isolated in floodplain muds and lack the interconnected sand bodies that exist in the Lissie Formation; because of this, the

Beaumont Formation provides a measurable amount of protection to water level change by hydraulically isolating shallow wells completed within the Beaumont Formation [e.g., wells screened less than 200 feet below ground surface (ft bgs)] from the underlying Lissie Formation (Young, 2015).

21.2 Subsurface Soil Investigation

As described in Section 21.1, the Beaumont Formation is found at the surface at the Facility. The Beaumont is composed of clay-rich sediments transected by sandy fluvial and deltaic-distributary channels (Young, 2012). The Geologic Atlas of Texas (GAT sheet) (Fisher, 1974) described the Beaumont Formation as clay, silt, and sand with concretions of calcium carbonate, iron oxide, and iron-manganese oxides common in zones of weathering with a thickness of about 100 feet. Two subunits are distinguished in the Seguin Sheet: (1) dominantly clay and mud of low permeability; and (2) dominantly clayey sand and silt of low to moderate permeability.

As part of this permit application, a boring plan was prepared by DBS&A on July 22, 2015 and revised on October 14, 2015 in accordance with Title 30 of the TAC, Chapter 332.47 (30 TAC 332.47), specifically, Part (6)(B)(iv) of 30 TAC 332.47 (DBS&A, 2015). On October 26, 2015, the boring plan was approved by the TCEQ (Tracking Number 19844155). The approved boring plan is included as Appendix J.

The data acquired from the subsurface investigation were used to support the completion of this Geologic/Hydrogeologic evaluation, including design and installation of required piezometers [proposed Part (6)(B)(v)], completion of a groundwater investigation report [proposed Part (6)(B)(v)], and development of a groundwater monitor system [proposed Part (6)(C)(ii)].

The subsurface investigation was conducted on two occasions during September and October 2015. As part of the investigation, five soil borings were installed at the Facility using hollow-stem auger drilling methods. Each boring was logged in order to characterize soils, collect geotechnical samples, and characterize the shallow groundwater-bearing unit encountered below the property.

Currently, the western portion of the property contains thick grasses and large pecan trees, and the east side of the Facility contains plowed fields. Soil borings SB-1 and SB-4 were installed in the western portion of the Facility and SB-2, SB-3, and SB-5 were installed on the eastern portion of the Facility. The borings were located at the boundaries of the proposed composting pad and were converted to 2-inch-diameter monitoring wells for future groundwater monitoring locations. Sheet 3 illustrates the surveyed locations of the monitoring wells.

The borings were advanced using 8¼-inch-outer diameter hollow stem augers. A 5-foot, 3-inch-diameter core barrel was advanced inside of the augers to allow for continuous sampling, and a 2.5-foot, 3-inch-diameter Shelby tube was advanced in front of the augers to allow the collection of geotechnical samples. Soil cores were inspected by the DBS&A geologist and screened for the presence of hydrocarbons using a photoionization detector (PID) with an 11.2-electron volt lamp. There were no elevated PID responses for any interval of any boring. During the field exploration activities, the DBS&A geologist recorded detailed soil descriptions using the Unified Soil Classification System, including the symbol, soil type, color, texture, grain size, sorting,

plasticity, and moisture content. Soil borings SB-1 and SB-5 were continuously logged using the core barrel sampler. SB-2 was continuously logged down to 10 feet and then logged by observing the soil cuttings at surface as the augers were advanced to desired depth. SB-3 and SB-4 were logged using soil cuttings only.

Organic soil with sand was encountered at each boring ranging from 1 to 1.5 ft bgs. Below the organic soils, silty and lean clays of low to moderate permeability were logged to a depth of 6 feet at SB-1, 9 feet at SB-2, 15 feet at SB-3, 15 feet at SB-4, and 12 feet at SB-5. Silty and poorly graded sands with silt and gravel were encountered at each boring below the silty and lean clays. At each boring, sands extended down to 85 feet in SB-1, 82 feet in SB-2, 81 feet in SB-3, 83 feet in SB-4, and 82 feet in SB-5. Below the sands, a clay with gravel layer was encountered followed by a stiff, waxy clay at each boring. A claystone was encountered at 87.5 feet in SB-5. Cross sections using the information from each boring and depicting the generalized strata are presented on Figure 14. Boring logs are provided in Appendix K. Based on the information obtained from the soil borings, DBS&A confirms that the Facility overlies the Beaumont Formation as shown by the alternating fine grained clays, silts, sands, and some gravel. The evaluation of the five soil borings indicated no underlying hydraulically interconnected aquifers below the Facility. A discussion of the confining unit identified at the Facility is provided in the Section 21.3 and 21.5.

21.3 Groundwater Investigation

Following soil boring installation and sampling, each boring was completed as a permanent above-grade monitoring well (SB-1/MW-1 through SB-5/MW-5). MW-1, MW-2, MW-3, and MW-4 were screened from 45 to 65 ft bgs. MW-5 was screened from 49 to 69 ft bgs. Well completion diagrams are included on the boring logs provided in Appendix K. The wells were completed with 20 feet of 2-inch-diameter, 0.010-inch slotted polyvinyl chloride (PVC) screen, and sufficient 2-inch-diameter PVC riser pipe to extend from the top of the well screen to approximately 3 feet above the ground surface. The well screen was set to straddle the top of the saturated zone, extending at least 15 feet below the observed saturated zone. A graded clean silica sand filter pack was emplaced in the annulus of the screened interval from the total depth of the soil boring to approximately 2 feet above the top of the screened interval. A hydrated bentonite seal was placed above the sand filter pack.

On October 16, 2015, static water levels from ground surface were measured at 48.00 ft bgs at MW-1, 51.48 ft bgs at MW-2, 58.17 ft bgs at MW-3, 49.83 ft bgs at MW-4, and 56.75 ft bgs at MW-5. The average groundwater gradient at the Facility is 0.00086 feet per foot and flow is to the south (Figure 15). In preparing the boring plan for this Facility, surrounding water well reports were reviewed and a generalized cross section was prepared (Figure 16). Based on the generalized cross section A to A', it appears that there are multiple confining clay units below the shallow groundwater bearing unit at the Facility. As shown in Table 9, the surrounding wells are screened at much deeper depths than the on-site monitoring wells, but static water levels range from 30 to 95 ft bgs, indicating a shallow confined groundwater bearing unit. This is consistent with the Beaumont Formation description in Section 21.1 having isolated sand bodies in flood plain muds. The geotechnical sample results are discussed in Section 21.5.

The groundwater data collected from the Facility to date and in the future will be used to establish and present the groundwater flow characteristics at the site, including groundwater elevation, groundwater gradient, direction, flow characteristics, and most likely pathway(s) for potential pollutant migration.

Table 9. Surrounding Well Information

Well ID	Distance to Site Boundary (mile)	Well Depth (ft bgs)	Static Water Level (ft bgs)	Confining Clay Interval (ft bgs)	Screen Interval (ft bgs)
228635	0.49	200	66	101-163	166-186
113203	0.22	307	95	98-120	287-307
8(5)	0.06	160	60	80-110	140-160
53981	0.04	368	70	92-150	379-389
82106	0.16	271	55	105-125	217-267
284690	0.4	216	30	80-100	205-215
66168AA	0.61	143	55	83-134	135-143

21.4 Surrounding Water Wells

Well data for wells within one mile of the site were aggregated from various sources by EDR and presented in the Texas Water Well Report (2015a) and the Texas Oil & Gas Report (2015b). Additional research was conducted by DBS&A personnel using the TWDB's Water Data Interactive viewer to expand the search radius slightly to encompass an area one mile from the site boundary, rather than the site center. Some older wells found in the TWDB groundwater database are identified by an eight-digit well identification (ID) that corresponds to the specific State Well Grid number in which the well is located and the order in which the well was cataloged. Other wells are identified by a five- or six-digit State of Texas Well Report Tracking Number. All other wells have either incomplete well IDs or no ID associated with them and were assigned map IDs by EDR. The present use of groundwater withdrawn from aquifers in the vicinity of the Facility is domestic, irrigation, industrial, and public supply.

There are no active oil or gas wells within the investigative area, although three dry holes and one canceled location were identified by EDR during their records search (EDR, 2015b). These four locations are greater than 0.5 mile from the site.

There are 38 water wells identified by EDR and DBS&A personnel within the investigative area; 22 of the wells are within 0.5 mile of the site, but all are more than 500 feet from the site (EDR, 2015a; TWDB, 2015). Table 10 presents the wells within 1 mile of the site found during the records search.

Geographic coordinates for Map ID 53981 indicate that the well is less than 500 feet from the site. However, these coordinates lack precision, and site visits have not revealed the presence of a well indicated on the map. It is likely that this well is located closer to the building owned by Vital Link.

Geographic coordinates for Map ID 8(5) are not recorded on the well log. The location by street address, as plotted by EDR, is in the middle of I-10. It is highly unlikely that there is a domestic well at that location, and it is safe to assume that the well, if it exists, is greater than 500 feet from the site.

Field observations have not observed any wells within 500 feet of the site.

Table 10. Wells within 1 Mile

Map ID	Well ID	Owner	Distance to Site Boundary (mile)	Latitude	Longitude	Elevation (feet)	Well Depth (feet)	Static Water Level (feet)	Use [a]
1	82106[1]	Pencco	0.16	29.776667	–96.072222	135	271	55	I
2	8(1)[1]	David & Terri Windsor	0.13	NR	NR	NR	194	30	D
3	37049[1]	Vital Link	0.25	29.774242	–96.070847	NR	389	70	P
4	53981[1]	Vital Link	0.04	29.774167	–96.074722	NR	368	70	I
5	8(3)[1]	Vital Link	0.18	29.775425	–96.071541	NR	401	81	P
6	6616807[1]	Rendrag, Inc.	0.13	29.774443	–96.072777	150	248	54	I
7	8(5)[1]	Bob Young	0.06	NR	NR	NR	160	60	D
8	6616808[1]	Steve Silva	0.23	29.771943	–96.073054	150	78	46	D
9	6616809[1]	Frank Lezak	0.26	29.771943	–96.072221	151	86	35	D
10	U1[1]	I. Zapolac	0.28	NR	NR	NR	80	53	D
11	8(4)[1]	James Ford	0.23	NR	NR	NR	274	NR	D
12	24756[1]	AEM	0.12	29.773056	–96.08	NR	163	52	D
13	6616806[1]	Frank Kucera	0.13	29.773054	–96.081110	150	50	NR	D
14	113203[1]	Adan Chavez	0.22	29.771944	–96.080833	NR	307	95	D
15	38315[1]	Al Konvicka	0.29	29.770556	–96.079444	NR	143	67	D
16	6616804[1]	NR	0.75	29.788055	–96.076110	126	NR	26.55	S
17	396529[1]	Frank Ehon	0.73	29.787222	–96.074167	132	180	35	D
18	175239[1]	Val Eschenberg	0.7	29.786944	–96.074167	NR	167	34	D
19	8(6)[1]	Cliff Jones	0.76	NR	NR	NR	216	27	D
20	66168AA[1]	John Scheffer	0.61	NR	NR	NR	143	55	D
21	284690[1]	Brian Bro	0.4	29.779444	–96.068887	NR	216	30	Ir
22	274817[1]	Brian Bro	0.39	29.774167	–96.068333	NR	218	80	Ir
23	6616811[1]	Vick Boyd	0.49	29.773888	–96.066943	140	300	NR	D
24	6616801[3]	V. L. Boyd	0.84	29.772777	–96.061111	142	100	46.3	U
25	6616802[3]	V. L. Boyd	0.93	29.776388	–96.059444	130	300	38.15	D
26	6616810[1]	Johnny Wells	0.40	29.771666	–96.069443	150	257	52.2	D
27	8(7)[1]	Joseph Manak	0.57	NR	NR	NR	92	50	D
28	66168A[1]	Donald Hamil	0.66	NR	NR	NR	88	48	D
29	8(2)[1]	Adela Hundl	0.82	NR	NR	NR	96	52	D
30	175236[1]	Larry and Cindy Siska	0.65	29.765278	–96.079722	NR	200	64	D
31	66168CC[1]	Charles Mlcak	0.41	NR	NR	NR	86	48	D
32	228635[1]	Larry Siska	0.49	29.767778	–96.081667	NR	200	66	D

Map ID	Well ID	Owner	Distance to Site Boundary (mile)	Latitude	Longitude	Elevation (feet)	Well Depth (feet)	Static Water Level (feet)	Use [a]
33	96325[1]	Apex Stone LLC	0.33	29.773889	–96.085833	NR	240	60	I
34	6616702[1]	Ronnie Ross	0.83	29.774721	–96.094166	150	98	48	D
35	66168K[1]	George Smith	0.65	NR	NR	NR	78	50	D
36	209680[1]	Jose Benitez	0.77	29.782222	–96.091111	NR	220	83	D
37	322099[1]	Jose Arriaga	0.83	29.783056	–96.091111	167	228	91	D

Table 10. Wells within 1 Mile (continued)

Map ID	Well ID	Owner	Distance to Site Boundary (mile)	Latitude	Longitude	Elevation (feet)	Well Depth (feet)	Static Water Level (feet)	Use [a]
38	10070[1]	Debbie Thomas	0.78	29.785278	–96.088611	NR	140	55	D
39	1[2]	NA - dry hole	0.73	29.7853	–96.0680	—	—	—	—
40	2[2]	NA - dry hole	0.6	29.7737	–96.0650	—	—	—	—
41	3[2]	NA - dry hole	0.77	29.7729	–96.0622	—	—	—	—
42	4[2]	NA - canceled	0.55	29.7712	–96.0667	—	—	—	—

[a] D = Domestic
I = Industrial
P = Public Supply
Ir = Irrigation
S = Stock
U = Unused

Sources: [1] EDR Texas Water Well Report, 2015
[2] EDR Texas Oil & Gas Report, 2015
[3] TWDB Water Data Interactive, 2015

NR = Not reported
NA = Not applicable
— = No well

21.5 Geotechnical Study

During the subsurface investigation, DBS&A personnel advanced Shelby tubes for the collection of geotechnical samples at six intervals. The samples were submitted to the DBS&A Soil Testing and Research Laboratory in Albuquerque, New Mexico and were analyzed for dry bulk density (ASTM D7263), moisture content (ASTM D7263, ASTM D2216), calculated porosity (ASTM D7263), saturated hydraulic conductivity (ASTM D 2434), falling head rising tail (ASTM D5084), particle size analysis, USCS (ASTM) Classification (ASTM D422, ASTM D2487), USDA Classification (ASTM D422, USDA Soil Textural Triangle), Atterberg Limits (ASTM D4318), and visual-manual description (ASTM D2488). Geotechnical reports for samples obtained during the subsurface investigation include tabulated results and are provided in Appendix L.

Undisturbed geotechnical samples could not be collected from the base of soil borings SB-1 and SB-5 due to the center drill rod locking up from flowing sands at SB-1 and the extremely hard nature of the claystone encountered at 87.5 ft bgs at SB-5. However, clay was observed as it adhered to the last hollow stem auger advanced at both locations. At each boring, the clay was described as dry to moist clay with gravel with medium plasticity. The clay and claystone encountered at the terminal depth of the borings are consistent with the information presented in the generalized cross section (Figure 16); this observation confirms the clay confining unit of the

uppermost aquifer. In addition, two disturbed bottom samples were collected at soil boring SB-5 from the 84-85 feet and 85-87.5 feet depth intervals. These samples were submitted to the laboratory and analyzed for the geotechnical parameters listed above. Based on the geotechnical laboratory report, the two SB-5 bottom samples indicate very low saturated hydraulic conductivities, which further confirms the aquiclude encountered within the uppermost aquifer. Results of the saturated hydraulic conductivities are summarized in Table 11.

Table 11. Saturated Hydraulic Conductivities

		Method of Analysis	
Sample Identification	K_{sat} (cm/s)	Constant Head Flexible Wall	Falling Head Flexible Wall
SB-1 (6'-8.5') Horizontal	7.3×10^{-3}	X	
SB-1 (12'-14.5') Vertical	1.8×10^{-2}	X	
SB-2 (6'-8.5') Horizontal	1.1×10^{-5}		X
SB-4 (3'-5.5') Horizontal	3.3×10^{-7}		X
SB-5 (6'-8.5') Horizontal	3.37×10^{-7}		X
SB-5 (12'-14.5') Vertical	3.68×10^{-6}		X
SB-5 (84'-85') Disturbed	6.42×10^{-9}		X
SB-5 (85'-87.5') Disturbed	4.08×10^{-9}		X

21.6 Active Geologic Processes

There are no differential subsidence or active geologic processes within ½ mile of the site including faults and/or subsidence in the area of the Facility. The nearest fault is approximately 15 miles northeast of the Facility. Faults are noted on the geologic map (Figure 12), as presented in the GAT sheet prepared by the Bureau of Economic Geology digital data set. Active faults are not known to exist within ½ mile of the property; therefore, the Facility is not required to investigate for unknown faults. There are no areas experiencing withdrawal of crude oil, natural gas, sulfur, etc., or significant amounts of groundwater; therefore, the possibility of differential subsidence or faulting investigation is not required.

Section 22. Groundwater Protection Plan

The Facility has been designed and will be constructed and operated to protect groundwater from impact from the Facility operations. The groundwater protection measures in place include a composite geomembrane liner system underlying the GSS processing area, management practices used in the composting process, and a groundwater monitoring system. Protection of the groundwater includes perched water or shallow surface infiltration.

22.1 Liner and Pad System

Composting and processing operations will be performed within an area constructed specifically for this purpose. To reduce the potential for run-off from the lined area, he composting area will be surrounded on all sides by earthen berms. These berms will also reduce the potential for run-

on to the composting pad, minimizing the potential presence of liquids above the liner. Three ramps will be constructed to allow access to the processing pad by vehicles and equipment. The ramps will be elevated above the surrounding ground surface, further preventing run-on to the pad. The composting pad has been designed to slope away from the ramps and toward the stormwater retention pond, preventing run-off from the pad.

A composite liner system will be constructed under the compost pad retention pond to provide an equivalent hydraulic conductivity of 1 x 10^{-7} centimeters per second (cm/s) or less. The subgrade will be excavated at least 6 inches below the liner and re-compacted to provide a uniformly compacted finished surface. The liner will include 2 feet of compacted, on-site clay soils, placed in 6-inch lifts, under a 40-mil double-textured HDPE liner. Protective soil over the liner will include 1 foot of on-site sandy soils and a minimum 6-inch layer of base-coarse. A 10-ounce nonwoven geotextile will be installed between the sand and base-coarse to provide soil stability and filtration capacity between the two materials. The fabric will also be a visual warning to scour and will help preserve the life of the underlying geomembrane.

Based on the DBS&A soils testing laboratory report (Appendix L), soil samples representative of on-site clay soils consist of more than 30 percent passing a number 200 sieve and have a liquid limit greater than 30 and a plasticity index greater than 15 as required in TAC 330.339.

22.2 Liner Quality Control Plan

In order to document the construction of the composite liner and subgrade, a Liner Quality Control Plan has been developed as the basis for the type and rate of quality control testing performance for the Liner Evaluation Report (LER) as required in 30 TAC §330.341of this title. This report will include an evaluation of both the soil and geomembrane components of the liner system and will be prepared in accordance with the approved Liner Quality Control Plan. The Liner Quality Control Plan is provided in Appendix M.

All field sampling and testing, both during construction and after completion of the lining, will be performed by, or under the direct supervision of, a qualified professional experienced in geotechnical engineering and/or engineering geology. All liners will have continuous on-site inspection during construction by the professional of record, or his designated representative.

All quality control testing of soil liners will be performed during the construction of the liner. Under no circumstance will any quality control field or laboratory testing be undertaken after completion of liner construction, except for that testing which is required of the final constructed lift, confirmation of liner thickness, or cover material thickness.

All soil testing and evaluation of either in situ soil or constructed soil liners will be complete prior to installing the leachate collection system or, if a leachate collection system is not required, prior to adding the 1 foot of protective cover on the evaluation area.

Soil and liner density will be expressed as a percentage of the maximum dry density and at the corresponding optimum moisture content specified as appropriate by a licensed professional engineer experienced in geotechnical engineering. Upon testing in either the laboratory or at a test pad in the field, the compacted soils must demonstrate a coefficient of permeability no greater than 1 x 10^{-7} cm/s.

Unless alternative construction procedures have prior written approval by the executive director, all constructed soil liners will be keyed into an underlying formation of sufficient strength to ensure stability of the constructed lining.

22.3 Management Practices

Composting operations will be performed to minimize the potential for uncontained free liquids on or off the pad. In the absence of free liquids, the potential for contaminant transport from the composting operations is minimized. Management practices that either contain or minimize free liquids include:

- Containment of all liquid feedstocks in steel, aboveground storage tanks, placed within a bermed spill control area.
- Limitation of feedstock application rates to avoid free liquid formation on the GSS composting pad or approved non-GSS waste composting areas.
- Use of highly sorptive bulking material (i.e., shredded wood and brush).
- The prompt mixing of windrows after feedstock application to maximize absorption of the feedstock liquids.
- Containment of rain falling directly on the GSS composting pad within a lined retention pond.

22.4 Groundwater Monitor System

The groundwater monitoring system is designed to reasonably assure detection of any contamination of the groundwater before it migrates beyond the boundaries of the site. The groundwater monitoring system consists of the five monitoring wells that were installed during the subsurface/groundwater investigation described in Section 21. The groundwater monitoring wells were installed around the perimeter of the processing area (Sheet 3), providing up-, cross-, and downgradient locations, and are screened within the uppermost water-bearing zone observed during drilling and logging activities. Given the construction and placement of the monitoring wells, if groundwater impact were to occur from composting operations, the well system will reasonably assure its detection.

A groundwater sampling program has been developed and is discussed in the Sampling and Monitoring section in Part IV of this application.

Section 23. Facility Closure Plan and Financial Assurance

23.1 Closure Plan Requirements

The following timeline will be used to implement the final closure plan:

1. 90 days prior to the initiation of closure activities, the Owner/Operator will:

a. Submit written notification to TCEQ of the intent to close the Facility and place this notice of intent in the operating record.

b. Provide a public notice for final closure in the newspaper(s) of largest circulation in the vicinity of the Facility. This notice will provide the name, address, and physical location of the Facility, the permit number, and the last date of intended receipt of waste.

2. 10 days prior to final closure, the Owner/Operator will:

   a. Submit a certification of final closure to the TCEQ for approval.

3. Upon TCEQ approval of closure plan certification and date, the Owner/Operator will:

   a. Make available an adequate number of copies of the approved final closure plan for public access and review.

   b. Post a minimum of one sign at the main entrance and all other frequently used points of access for the Facility notifying all persons who may use the Facility or site of the date of closing for the Facility and the prohibition against further receipt of waste materials after the stated date.

4. Date of closure, the Owner/Operator will:

   a. Terminate operations.

   b. Install suitable barriers at all gates to adequately prevent the unauthorized dumping of solid waste at the closed Facility.

5. 180 from date of closure the, Owner/Operator will:

   a. Complete final closure activities for the Facility in accordance with the approved final closure plan unless additional time is approved in writing by TCEQ.

   b. Submit, if required, a request to the Executive Director for an extension for the completion of final closure activities. The request will include all applicable documentation necessary to demonstrate that final closure will take longer than 180 days, and all steps have been taken and will continue to be taken to prevent threats to human health and the environment from the site.

6. 9 days after completion of all final closure activities the Owner/Operator will submit to the TCEQ, for review and approval:

   a. A closure report and certification, signed and sealed by an independent Texas Licensed Professional Engineer, verifying that final closure has been completed in accordance with the approved final closure plan. The submission will include all applicable documentation necessary for certification of final closure.

   b. Certification and request for post closure maintenance variance.

   c. Request a voluntary revocation of the Facility permit.

7. Upon TCEQ approval of the final closure certification, the approved certification will be placed in the operating record.

23.2 Operation Termination Requirements

The following steps will be taken to terminate operations.

1. Place barriers to prevent access for disposal of solid wastes at the Facility;
2. Cease accepting all solid waste deliveries;
3. Process materials on hand;
4. Deliver products on hand to vendors or customers;
5. Terminate all operations; and
6. Engage the services of a qualified Texas Licensed Professional Engineer, who will:
    a. Inspect the site for signs of possible releases and review past release records;
    b. Implement a sampling and analysis plan;
    c. Implement a site cleanup or mitigation plan;
    d. Certify removal and disposal of residual materials, decontamination of equipment and processing/storage areas, and mitigation results;
    e. Prepare or review and seal the closure report; and
    f. Submit a signed and sealed certification verifying that final closure has been completed in accordance with the approved final closure plan.

23.3 Procedure for Closure of Facility by Owner/Operator

After operation termination, the closure of the Facility would be conducted by the Owner/Operator in the following sequence.

23.3.1 Removal

The Owner/Operator will process material on hand and mitigate residual materials with the following protocol:

1. Empty liquid feedstock storage tanks;
2. Remove sludge from storage/tanks;
3. Remove materials and equipment from GSS processing and bulk material storage areas;
4. Sample and analyze soil and groundwater in accordance with the closure sampling and analysis plan (CSAP) presented in Section 23.4;
5. Transport liquid and/or sludge to a TCEQ-approved disposal or recycling facility; ~~and~~

6. Dispose or recycle chemicals in storage based on manufacturers' recommendations or results of analytical characterization in accordance with the CSAP**; and**.

~~6.~~**7. Test finished compost materials planned for use during revegetation for maturity and/or final product parameters as described in Section 35.3 in Part IV of this application.**

23.3.2 Decontamination

1. Power wash tanks, hard plumbed pipes, and exposed equipment with a surfactant/water solution;
2. Circulate the surfactant/water solution through piping and ancillary equipment;
3. Rinse decontaminated units and areas, as necessary, with a power wash unit containing water until all surfactant/water solution and residuals are removed;
4. Collect wash waters and any remaining materials and place in appropriate transport containers;
5. Sample and analyze wash down waters and any remaining materials in accordance with the CSAP; and
6. Transport material(s) to an authorized disposal or re-use facility.

23.3.3 Compost Pad Retention Pond

1. **If present, collect, transport, and dispose accumulated stormwater off-site at an authorized disposal or re-use facility;**
2. **Backfill pond using on-site soils in 12- to 24-inch lifts; and**
3. **Compact soil lifts to similar density and water content as native on-site materials.**

23.4 Closure Sampling and Analysis Plan

The following is a preliminary CSAP based on proposed operations and chemical use.

23.4.1 Sampling

23.4.1.1 Residual Materials

Representative composite grab samples will be collected for wash water and residual materials.

Eight to ten individual grab samples will be collected from each matrix to prepare a composite sample of each matrix.

Each matrix composite sample will be analyzed as describe in the CSAP, as appropriate.

23.4.1.2 Chemicals in Storage

Safety Data Sheets (SDS) will be used to characterize chemicals in storage at the time of closure. To characterize chemicals lacking SDS sheets, samples will be collected and analyzed.

23.4.1.3 Soil and Groundwater

Soil and groundwater will be sampled based on evidence of releases and/or visual impacts to soil and groundwater using the following scenarios:

No release evident scenario. If no releases are evident, the following sampling protocol will be implemented:

1. Collect a minimum of four surface soil samples from native material at a minimum depth of 1 foot bgs from the GSS processing area;
2. Check for visual impacts at minimum depth; and
3. If visual impacts are absent, then sampling is concluded.

Release evident or visual impact scenario. If a release is evident or visual impacts are present, the following sampling protocol will be implemented:

1. Collect samples based on evidence of past releases or visual impact observations;
2. Collect subsurface and groundwater samples based on the presence of visual impacts;
3. Sample at 1 foot intervals until visual impact is no longer evident;
4. Conduct analyses described in the CSAP; and
5. Conduct additional analyses based on the nature of chemicals stored in the vicinity of the release.

23.4.2 Analysis

Wash water and residual materials samples, at a minimum, will be analyzed for pH, hazardous metals as defined by the Resource Conservation and Recovery Act (RCRA), and total petroleum hydrocarbons using methods approved by TCEQ or U.S. Environmental Protection Agency. A Laboratory certified to analyze RCRA metals and total petroleum will be used to analyze samples off-site.

23.5 Reporting

The following will be submitted to TCEQ within 10 days of final closure activities:

- Closure report;
- Certification verifying that final closure has been completed in accordance with the approved final closure plan;

- Certification that the Facility is not subject to post-closure care maintenance requirements for MSW management units and request for variance; and
- Request for voluntary revocation of the Facility permit

A qualified Texas Professional Engineer will prepare or review and sign and seal the closure report and certifications. The closure report and certification will include all applicable documentation necessary to demonstrate that closure of the Facility, with no post-closure maintenance, is sufficient to protect human health and the environment and complies with the approved closure plan.

23.6 Procedure for Closure of Facility by an Independent Third Party

The closure of the Facility would be conducted by an independent third party in the following sequence, if required:

1. Characterize contents in the liquid feedstock s tanks, processing equipment, and processing areas.
2. Remove and transport liquid and solids to an appropriate disposal or recycling facility.
3. Characterize sludge from tank bottoms and equipment and transport to an authorized off-site waste disposal facility.
4. Pressure wash empty tanks, hard plumbed pipes, and other equipment with a surfactant/water solution.
5. Decontaminate piping and equipment by circulating the surfactant/water solution through the piping and ancillary equipment.
6. Rinse the tanks and equipment, as necessary, using a pressure washer until all surfactant and residuals are removed.
7. Characterize wash water and transfer to an appropriate transport container for disposal or recycling at an off-site facility.
8. Characterize and dispose or recycle remaining chemicals and equipment at the Facility.
9. Observe the site for signs of possible releases.
10. Sample and analyze soil and groundwater as described in the CSAP.
11. Prepare closure report for submission to TCEQ. The closure report must be prepared or reviewed and sealed by a qualified professional engineer.

The development of an independent third party closure plan should not be construed as the Owner/Operator's authorization for voluntary third party closure.

23.7 Financial Assurance

The closure cost estimate included as Appendix N was prepared under the direction of a qualified professional engineer licensed in the State of Texas who has affixed the Professional Engineer's Seal to the cost estimate. The current cost of the anticipated closure is estimated to be $798,636.

In accordance with 30 TAC §37.31, financial assurance documentation will be submitted to the TCEQ at least 60 days after the permit is signed by the executive director or commission.

The Owner/Operator will review and adjust the Facility's closure cost annually to compensate for inflation. The closure cost will be verified that the current active areas match the areas on which the closure cost estimates are based. If for some reason, the closure cost estimate changes (either increases or decreases) at any time during the life of the Facility, changes to the final closure plan and financial assurance will be made and detailed justification will be provided to the TCEQ. Changes to the closure cost estimate and the financial assurance may be made under a permit modification. Within 10 days prior to final closure, the Owner/Operator will submit a certification of final closure to the TCEQ for approval.

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SouthWaste Disposal, LLC.
Sealy Composting Facility
Municipal Solid Waste Permit Application

PART IV

Application Submittal Date: November 16, 2015

Revised: May 27, 2016**,** ~~and~~ August 10, 2016**, and November 15, 2016**

Project Information

MSW Permit # 2388 ***RN: 108878331***

Project Name: Sealy Composting Facility

Project Location: Intersection of Bartlett Road and Brazos 10 Lane, Austin County, Texas.
Near San Felipe, Texas.

Project Description: Project is a composting facility that processes compostable municipal solid waste such as grease trap waste/septic/sewage sludge and distributes final product for sale.

Project Location Description: The facility is located in a rural area east of the corporate city limits of San Felipe, Texas, near the intersection of Bartlett Road and Brazos 10 Lane.

Applicant Information

CN: 603436114

Owner/Operator: SouthWaste Disposal, LLC.

Address: 9575 Katy Freeway, Suite 130 Houston, Harris County, Texas 77024

Telephone: 866-413-9494

Email: tcox@southwaste.com

Fed Tax ID: 203596390

Preparer Information

Firm: Daniel B. Stephens & Associates, Inc.
(Texas Registered Engineering Firm F-286; Registered Texas P.G. Firm #50045)

Preparer: Benjamin Camacho

Engineer: Thomas Golden, P.E.

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Part IV *Site Operating Plan, Sampling and Monitoring Plan, and Quality Assurance and Quality Control for a composting facility. This document provides guidance from the design engineer to site management and operating personnel in sufficient detail to enable day-to-day operations in a manner consistent with the engineer's design.*

List of Tables

List of Appendices

Acronyms

ADT	average daily traffic
ALU	aquatic life use
Avg	average
BACT	best achievable control technology
BOD	biological oxygen demand
CCN	Certificate of Convenience and Necessity
cfh	cubic feet per hour
cfm	cubic feet per minute
CR	County Road

CSAP	Closure Sampling Plan
EPA	United States Environmental Protection Agency
EQ	exceptional quality
°F	Fahrenheit degrees
FM	Farm to Market Road
FOG	fats, oil, and grease
ft	feet
gpm	gallons per minute
GTW	grease trap wastes
hp	horse power
in	inch(es)
kips	kilo pounds per inch
LCN	laboratory case narrative
MCL	maximum contaminate level
MSS	maintenance, start up, and shut down
MSW	municipal solid waste
NAICS	North American Industry Classification System
NIST	National Institute of Standards and Technology
OIC	Operator In Charge
OSSF	on-site sewage facility
pci	pounds per cubic inch
plf	pounds per linear feet
psi	pounds per square inch
PWS	public water system
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance and Quality Control Plan
RCRA	Resource Conservation and Recovery Act
ROM	reduction in organic matter

SDS	safety data sheet
SC-SM	silty, clayey sand
SIC	Standard Classification
SO_2	sulfur dioxide
SOP	Standard Operating Procedures
SSO	sanitary sewer overflows
SUD	Sewer Use District
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality (Executive Director)
TCLP	toxic characteristic leaching procedure
THC	Texas Historical Commission
THSC	Texas Health and Safety Code
TLAP	Texas Land Application Permit
TMDL	total maximum daily load
TPDES	Texas Pollution Discharge Elimination System
TPH	total petroleum hydrocarbon
TSS	total suspended solids
TWC	Texas Water Code
TWDB	Texas Water Development Board
TXDOT	Texas Department of Transportation
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VCP	Vector Control Program
VTCA	Vernon's Texas Codes Annotated
WoC	Wolfpen loamy fine sand
WSC	water supply company
WWTP	wastewater treatment plant
yd	yard(s)

Section 24. Personnel

24.1 Operator in Charge

The operator in charge (OIC) will be present at the Facility when visitors or transporters are present. Deliveries will be scheduled by the OIC.

24.1.1 Training

The following training program will be developed for each OIC at the Facility:

- Identification of material sources and characteristics and manifests;
- Composting operations management of the windrows and feedstock;
- Sampling, inspection, and monitoring;
- Heavy equipment operation;
- Emergency response actions of this plan; and
- Waste acceptance and handling.

24.1.2 Duties

The OIC will be responsible for, at least, the following (new responsibilities will be added to this list as needed):

- Perform day to day operations;
- Schedule waste acceptance and processing;
- Train and supervise staff;
- Implement and supervise emergency response actions and spill clean-up;
- Implement safety and security;
- Complete manifests and return the generator copy, as required, within the stipulated time frame; and
- Sample and monitor feedstocks and products.

24.2 Laborers

Laborers will work under the supervision of the OIC. Laborers will perform day-to-day operations under the supervision of the OIC. A training program for laborers will be developed to include the following:

- Day to day operations;
- Composting operations, including operating equipment, mixing, and tilling;
- Spill reporting;
- Security and safety procedures;
- Pollution prevention;
- Emergency response actions;
- Proper use of chemicals;
- Personal protection equipment; and
- Heavy equipment operation.

Section 25. Equipment

25.1 Equipment Type, Function, Inspection, and Maintenance

The primary pieces of equipment used in the composting process are front-end loader(s), a self-propelled tiller, vacuum truck(s), aboveground storage tanks, a mobile chipper/grinder, and a mechanical screen. At least one of each piece of equipment is required to perform the composting process.

The aboveground storage tanks will be used to store liquid feedstocks until needed in the composting process. Bulking material will either delivered to the Facility already chipped and shredded from off-property sources, or it may be brought to the Facility in raw form and chipped and shredded on the property. A chipper/grinder will be present at the Facility to produce bulking material before it is placed on the processing areas. The front-end loader will be used to build and maintain the stockpiles and windrows and to move compost materials within the processing area. Vacuum trucks, or equivalent, will be used to apply feedstock to the windrows. The self-propelled tiller will be used to mix the bulking material and feedstocks within the windrows. The mechanical screen will be brought to the Facility on an as-needed basis to remove undesirable and oversized material from the mature compost.

Equipment will be inspected according to the standards outlined in Table 7, included in Part III, Section 18.2 of this application. Additional inspection and maintenance will be added to Table 7 as equipment is added.

Inspection, repairs, and maintenance records will be maintained in a weekly log.

Section 26. Production Processes

26.1 Control of Unloading for Unauthorized Materials

Only the designated feedstocks will be accepted at the Facility. The following will be implemented to control the unloading of un-compostable material (unauthorized materials):

- Feedstock will be received by authorized transport vehicles only.
- A sign will be placed at the property entrance that indicates the type of facility, permit number, standard hours of operation, and allowable feedstocks.
- Delivery trucks entering the property are inspected by the OIC for the presence of unauthorized materials during unloading. Loads determined to contain unprocessable, prohibited, or unauthorized materials are refused. In the event that unprocessable, prohibited, or unauthorized materials is discovered after delivery, these materials will be removed from the Facility and disposed of at an authorized municipal solid waste facility.
- Coarse straining may be used to remove non compostable materials in liquid feed stock.
- Manifests or Bill of Lading are examined for each load to ensure that they describe the load's waste source, contents, and volumes.
- The OIC will confirm that all haulers have the appropriate licenses or registrations.

26.2 Material Processing

26.2.1 Liquids

An estimated 270,000 tons of feedstock will be composted annually. The largest portion of the incoming feedstock will be grease trap waste. The quantity of incoming feedstock to be received will not exceed 72 million gallons per year. This quantity is 930 tons per day (22,300 tons per month, assuming 24 operating days per month) or 250,000 gallons per operating day (assuming 7.44 pounds per gallon typical for grease trap waste). The estimated quantities of grease trap, septage, and dairy/food (including meat and fish) wastes to be received are 225,000, 12,500, and 12,500 gallons per operating day, respectively.

Feedstock is received at the Facility by tanker trunks. The liquid feedstock will be either pumped into one of eight 31,500-gallon aboveground storage tanks for temporary storage or pumped to the Facility vacuum truck to be sprayed directly onto prepared windrows of bulking material located within the processing areas. The storage capacity of the aboveground tanks will allow the liquid feedstocks to be applied in a consistent manner and provide additional feedstock storage capacity that can be used during periods of rainfall that limit feedstock application. The maximum amount of feedstock stored on-site at any one time will not exceed 252,000 gallons (the combined capacity of the storage tanks). No feedstock will be accepted in excess of the available capacity of the storage tanks. The OIC monitors traffic and off-loading to prevent spills, leaks, and unauthorized materials or dumping. A Manifest or Bill of Lading is required for each load that describes the load's source, contents, and volume. Haulers are required to have the appropriate licenses or registrations.

Due to the way the liquid feedstocks are handled, the potential for spillage outside the lined processing area will be minimal. In the event liquid feedstock is spilled outside the composting pad, the feedstock and affected surface soils will be promptly recovered using a front-end loader and incorporated into the composting process. In the event that bulking material is spilled onto

the ground, will be promptly recovered with a front-end loader and returned to the windrows. The front-end loader and shovels will be used daily to maintain the tipping area and windrows.

26.2.2 Solids

The OIC will supervise the delivery of bulking material and chemicals and will direct deliveries to the appropriate storage area. Bulking material will be inventoried daily to ensure an adequate amount is on-site to cover or process the feedstock. Record inspections and volume of bulking material will be recorded on the weekly log.

Both pre-chipped and shredded bulking material and raw bulking material will be delivered by truck to the property. An estimated 111 tons of chipped bulking material will be received daily. The maximum amount of bulking material stored on-site at any one time will not exceed 32,000 cubic yards (8,000 tons). Raw bulking material will be stored and then chipped and screened in an on-property area east of the processing area (Figure 2). A chipper/grinder will be present at the property to chip and grind raw bulk material. The grinder will be equipped with low-velocity spray nozzles to minimize the generation of dust during operation. The chipped and shredded bulking material will be placed on the processing areas in windrows using a front-end loader.

- Bulking materials
  - Remove solids from the dewaterer onto the intermediate transfer station where it is inspected for un-compostable material.
  - Divert un-compostable material to the waste storage area.
  - Load compostable material with bulking material in composter or moved to the Feed stock storage area for accumulation.
  - Cover solids with bulking material if there is a potential for odor production.
- Receiving solids
  - Receiving solids are materials with less than 50 percent moisture and bulking materials. Receiving solids will be stored in the feedstock holding area.
  - Cover solids that may attract vectors or produce orders with bulking material and process within 72 hours.
  - Limit materials that have a potential for spontaneous combustion to storage depth of 4 feet.
  - Load solids and bulking material into the in-vessel composter at 40 percent moisture.

26.2.3 Composting

Feedstocks will be applied to the windrows using a vacuum truck, or equivalent, equipped with a 3- or 4-inch hose. Once the feedstock is applied to a windrow, the windrow will be immediately turned, mixed, and re-homogenized using a self-propelled tiller to thoroughly mix feedstock and bulking material. This process allows the feedstocks to be evenly distributed through the windrows and prevents moisture or liquids from collecting at the base of the compost material.

Feedstock and bulking material will not exceed the capacities described above. The maximum and average time the feedstock and bulking material will remain on the composting pad is 90 days. The maximum and average processing time will be 90 days, the time required for a compost windrow to reach maturity.

Once tilled, the windrows will be monitored and measurements will be taken daily to ensure the moisture content and carbon to nitrogen ratio are consistent to maintaining adequate composting.

The desired initial moisture content of the compost is 40 to 60 percent by weight. Moisture content is evaluated and measured daily. Moisture content will be determined during the composting process using the "squeeze test." The squeeze test is performed by manually gathering and squeezing a handful of the compost material. If water drips out while the compost is under hand pressure, the material is too wet. If the material crumbles apart when the pressure is released, it is too dry. Squeeze test samples will be collected from varying depths and areas of the windrows to evaluate the moisture content throughout the windrow. High moisture contents will be corrected by adding additional bulking material and/or by additional tilling. Low moisture content will be corrected by adding potable water, liquids collected in the compost pad retention pond (for GSS composting only), or liquid feedstock, and then tilling.

Once a windrow is considered to have the appropriate moisture content and mixture of bulking material and feedstock, it will be monitored for 15 days. During the monitoring period, the windrow temperature will be measured and recorded regularly using a bi-metal thermometer with a 4-foot probe. Temperature measurements will be collected every 5 to 10 feet along the length of the windrow at a depth of approximately one-third of the windrow height. A temperature of at least 55 degrees centigrade (131 degrees Fahrenheit) will be maintained during the monitoring period. During the 15-day monitoring period, the windrow will be turned a minimum of five times to maintain an even temperature throughout in order to aid in consistent, thorough composting and to reduce pathogens. The temperature will be measured and recorded each time the windrow is turned during the monitoring period. Once the 15-day monitoring period is completed, the composted material will enter the post- processing phase.

In order to avoid contaminating the final product, no feedstocks or retention pond liquids will be added to a windrow once it enters the monitoring period. In the event that additional feedstocks are inadvertently added to material during the monitoring period, the monitoring period for that material will start over.

26.3 Waste Storage and Disposal

26.3.1 Non-Hazardous Waste

Non-hazardous solid wastes will be stored in a dumpster near the maintenance shop area. Non-hazardous wastes will be transported and disposed of at a permitted landfill on a minimally weekly basis, more often to prevent nuisance conditions.

26.3.2 Hazardous Wastes

Every effort will be made to exclude hazardous material from the processing system. In the unlikely event that hazardous material does accumulate at the Facility, a "One-Time Waste

Shipment" registration will be applied for. Hazardous waste will be segregated from non-hazardous waste and transported and disposed at a permitted hazardous waste facility.

26.4 Product Distribution

Under the proposed variance, storage of finished Grade 1 or Grade 2 compost (not Waste Grade) will be placed on an unlined portion of the Facility. Given that only GSS compost meeting the maturity requirements discussed in Section 35.3.1 and bulking material would be placed outside the liner in this manner, this should not result in any compromise to public health and safety. The finished material is intended for use in landscaping, vegetable gardens, and similar uses; therefore storage on the unlined ground should not present any potential for damage or impact to groundwater resources.

Currently, compost will be sold only in bulk form. At some time in the future, the Facility may sell containerized compost. Bulk product will be loaded into the purchaser's truck using a font-end loader. The Facility does not currently plan to produce any Grade 2 compost, but may at some time in the future. The intended final use of the Grade 1 composted material will be used as a soil amendment in residential and commercial applications. In the event that final testing indicates that the composted material is Grade 2, it will either be disposed of at a permitted MSW facility or sold only to commercial users and labeled as not for use at residences or child-care facilities. Grade 1 and Grade 2 compost products will not be tracked. The batch number, the permit number of the disposal facility, dates, and disposed volumes will be tracked for all batches of Waste Grade compost (i.e., compost to be disposed off-site).

Section 27. Alternate Disposal

27.1 Non Standard Products

Compost that does not meet the compost Grade 1 or Grade 2 standards will be transported to and disposed of at a permitted landfill.

Compost characterized as hazardous waste will be transported to and disposed of at a permitted hazardous waste facility.

Non-compostable material will be transported to a permitted landfill.

Section 28. Pollution Prevention Plan

28.1 Unauthorized Material

The control of unauthorized material entering the Facility will be enforced by implementing the following:

- At least one employee will be on-site during receiving hours to inspect each delivery of feedstock or bulking agents to ensure that no unauthorized or prohibited material is incorporated into the feedstock.

- Waste unloading will be confined to designated areas, and signs will be maintained that indicate where vehicles unload.
- Traffic will be directed to use only gravel roads. Gates will be locked when not accepting waste. Transporters' licenses will be checked at the Facility entrance.
- Solid waste that will cause or may cause problems in maintaining full and continuous compliance will not be accepted.
- Unloading of waste in unauthorized areas will be prohibited.
- Waste deposited in an unauthorized area will immediately be removed and disposed of properly. Prohibited waste will immediately be returned to the transporter or generator of the waste.

28.2 Sanitation and Litter

28.2.1 Facility Generated Wastes

Non-compostable material, plastics, and metal aggregate found in the feedstock will be transferred to the waste holding area and transferred to a permitted municipal solid waste (MSW) landfill. Wastes will be limited to 1.5 percent of dry weight of solids.

The dumpster will be emptied at an interval that would prevent nuisance conditions but at least weekly. Septage generated by the Facility's septic tank during routine septic maintenance and cleaning will be processed as feedstock.

Washing activities will be performed using freshwater and will not interfere with the feedstock processing, feedstock application, or final compost grade. Washing activities will occur on the lined compost pad and will consist of washing hand tools and chemical-free equipment that come into contact with the composting operations. Equipment containing hydrocarbons or chemicals (e.g., vehicles, tractors, chipper/grinder) will not be washed at the Facility. In the event that equipment containing hydrocarbons or chemicals requires washing, then these types of equipment will be washed off-site at an approved washing facility.

The Facility's septic sludge will be recycled and processed as feedstock. Septic sludge passing the Paint Filter Liquids Test, (United States Environmental Protection Agency (EPA) method 9095) as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" (EPA Publication Number SW-846, September 1986) is acceptable at MSW landfills. If for some reason septic sludge cannot be processed as feedstock, the sludge will be screened using a Paint Filter Liquids Test prior to disposal at an off-site permitted landfill. In addition to the Paint Filter Liquids Test, sludge disposed at an off-site MSW facility will not exceed the standards presented in Table 12.

Table 12. MSW Disposal Limits

Contaminant	Total Limit (mg/Kg)	TCLP Limit (mg/L)
Benzene	10	0.5
Lead	30	1.5
Total petroleum hydrocarbons (TPH)	1,500	NA

mg/Kg = Milligrams per kilogram
TCLP = Toxicity characteristics leaching procedure'
mg/L = Milligrams per liter

Septic sludges exceeding these limits will not be disposed in MSW landfills. Septic sludges and composts that are non-hazardous will be disposed at a MSW landfill with dedicated Class 1 solid waste cells. Sludges and composts that are characterized as a hazardous waste will be sent to an authorized treatment, storage, or disposal facility for further processing or disposal.

28.2.2 Storage Requirements

Non-hazardous solid waste will be stored in covered dumpsters.

Liquid feedstock will be pumped into one of eight 31,500-gallon aboveground storage tanks for temporary storage or pumped to the Facility vacuum truck, or equivalent, to be sprayed directly onto prepared windrows of bulking material located within the processing areas.

Haulers and generators will be responsible for storage and transportation of waste in a safe manner prior to delivery to the Facility.

28.2.3 Materials along the Route to the Facility

Vehicles hauling liquid feedstock to the Facility will consist of an enclosed tank hold to effectively secure the load to prevent the escape of any part of the load by blowing or spilling. Vehicles hauling bulking material will be equipped with a tarpaulin, net, or other means to effectively secure the load.

Signs will be posted to direct materials to proper storage areas and to prohibit unauthorized materials or disposal.

Offenders will be reported to proper law enforcement officers or the TCEQ. Surcharges will be charged for unauthorized dumping.

28.2.4 Work Area Sanitation

Potable water will be provided to the Facility. Water connections will be provided with a back flow check valve to prevent cross contamination. This connection will be used for weekly cleanup activities which may include sweeping, mopping, and/or washing down with water. A pressure washer will periodically be used to remove residuals not removed with the more conservative cleaning methods. The owner/operator may hire a contracting company to perform the pressure washing, as needed.

28.2.5 Employee Sanitation Facilities

Potable water and sanitary facilities will be supplied for employees and visitors.

28.2.6 Control of Windblown Material

The feedstocks accepted at the Facility are aqueous and therefore not susceptible to being windblown. The bulking material used at the Facility consists of chipped and shredded wood and vegetative matter that is not susceptible to being windblown. The Facility does not accept paper, cardboard, cloth, or other materials that would be more susceptible to being windblown. The application of feedstock and tilling of windrows is not performed during periods of high wind. In the event that high winds should result in bulking material being blown from windrows or piles, the material will be picked up daily and returned to the windrows or stockpiles from which the material originated. Equipment engines will be maintained in good condition and well-tuned and serviced at manufacturers' recommended service schedules.

Windblown material and litter will be collected and placed in a waste container as necessary, and at least once per day on days that the Facility is in operation.

28.2.7 Road Maintenance

If applicable, the county road servicing the Facility will be swept as needed.

On-site roads and paved areas will be repaired and graded to minimize depressions, ruts, and potholes. On-site roads and paved areas will be watered to control dust.

In response to the recommendation by TxDOT in their letter to TCEQ dated July 1, 2016 (Appendix O), the Facility will remove all litter from the highway right-of-ways attributable to Facility operations, to standards and at frequencies to be determined by TxDOT. Prior to initiating operations, the Owner/Operator will contact TxDOT to discuss the litter removal criteria. Additionally, the Facility will accommodate and execute provisions requested by TxDOT to prevent the tracking of mud onto the highway.

28.3 Ventilation and Odor Control

An odor audit will be completed daily. If detected odors are creating a nuisance, then an odor investigation will be conducted. The protocol for the audit and investigation is detailed in Section 35.2.

Odors will be minimized through the use of best management practices (BMPs), including:

- Storing liquid feedstocks in enclosed aboveground storage tanks;
- Suspending application of feedstocks during high winds;
- Using adequate bulking material, and
- Turning or tilling bulking material immediately after feedstocks are applied.

If the odor investigation indicates that the compost is the source of the odor, turning rates for the compost will be increased and, if needed, production method modifications will be made, such as adding a layer of bulking material on top of the composted material.

Nuisance odors will be prevented from leaving the boundary of the Facility. If nuisance odors are found to be passing the Facility boundary, the Facility OIC will suspend odor-producing operations until the nuisance is abated.

28.4 Overloading and Breakdown

28.4.1 Design Capacity

The design capacity of a processing will not be exceeded during operation. The Facility will not accumulate waste in quantities that cannot be processed within a time frame that will preclude the creation of odors, insect breeding, or harborage of other vectors. If such accumulations occur, additional waste will not be received until the adverse conditions are abated.

28.4.2 Equipment Failures

Equipment that has failed will be promptly repaired to minimize disruption of normal operations. The necessary equipment to perform normal operations is commonly available for rent. In the event that any piece of equipment cannot be repaired in a timely fashion, the necessary equipment will be rented from a local supplier. In addition, the surplus tankage volume on-site would typically allow the continued acceptance and storage of feedstocks during equipment down time.

If a significant work stoppage should occur due to a mechanical breakdown or other causes, the Facility will restrict the receiving of waste. If the work stoppage is anticipated to last long enough to create objectionable odors, insect breeding, or harborage of vectors, steps will be taken to remove the accumulated waste from the Facility and transport it to an approved backup processing or disposal facility.

The OIC will refuse wastes or divert wastes to a permitted landfill or processing/disposal facility if processing or disposal procedures for the waste becomes inoperable for periods exceeding 24 hours or if the volume of feedstock within the storage tanks approaches maximum capacity.

28.4.3 Back Up Processing or Disposal

Backup processing facilities include landfills permitted to take liquid wastes and wastewater treatment systems that accept the typical wastes accepted at the Facility. A list of wastewater treatment plants (Wets), MSW processing facilities, and landfills that will accept wastes will be maintained at the Facility.

28.5 Final Product Use

The anticipated final product grade of all compost is Grade 1. The intended final use of the Grade I composted materials is as a soil amendment in residential and commercial applications. In the event that final testing indicates that the composted material is Grade 2, it will either be

disposed at a permitted MSW facility, or sold only to commercial users and will be labeled as not for use at residences or child-care facilities. In the event that final testing indicates that the composted material is Waste Grade, it will be disposed at a permitted MSW facility.

All compost sold will be labeled in accordance with 30 Texas Administrative Code (TAC) §332.74. Compost sold in bulk form will be labeled in the form of a voucher provided to the buyer with each load of compost. In the future, if the Facility elects to sell compost in containers, a label will be attached to each container. Each voucher and label will include the following information grouped together and printed in both English and Spanish:

- For Grade I Compost: "This product is considered Grade 1 Compost and meets the requirements and standards described in 30 Texas Administrative Code, §332.72 and has unrestricted use. It is recommended that compost be mixed into the top 6 inches (15 centimeters) of soil."
- For Grade 2 Compost: "This product is considered Grade 2 Compost and meets the requirements and standards described in 30 Texas Administrative Code, §332.72 and cannot be used at a residence or licensed child-care facility. It is recommended that compost be mixed into the top 6 inches (15 centimeters) of soil."
- Feedstocks from which the compost was derived (grease trap waste, etc.) will be listed in descending order of predominance by wet weight. (Added water is not considered a feedstock.) The label will identify one or more of the following general descriptions of feedstock:
    - Source-separated organic materials;
    - Source-separated meat, fish, or greases;
    - Municipal sewage sludge; or
    - Grease trap waste.

Section 29. Vector Control Plan

This Facility controls vectors that include rodents, insects, birds, scavenging animals, bacteria, and viruses through the following vector control (VC) program.

The locations in or around the Facility where vectors maybe problematic are feedstock storage, processed material storage, final product storage, and surrounding landscapes.

29.1 Inspection and Monitoring

Weekly inspections: The OIC or designee will perform an inspection weekly to identify problems and corrective actions needed to prevent and/or manage vector infestations. The OIC will plan and schedule corrective actions.

For current, recent, or likely vector infestations, a weekly monitoring program to detect vector infestations may be implemented as follows:

- Rodents: Baited rodent traps will be placed at the maintenance shop and office and will be checked and emptied as needed.
- Insects: Sticky cardboard monitors will be used to monitor for ants and cockroaches at the maintenance shop and office, as needed.
- All other vectors: Weekly monitoring by visual inspection will be performed by designated staff indoors and outdoors.
- Vector identification: When vectors are detected, the specific identification of the vector will be obtained using professional resources, as needed. The OIC will consult with professional resources to determine methods that will control vectors without impacting the quality of the final products.

Vectors will be controlled through the use of BMPs, including:

- No storage or acceptance of unapproved wastes;
- The immediate incorporation of feedstocks into the bulking material or their storage in steel storage tanks until they are used;
- The use of a selected group of microbes, fungi, yeast, molds, and enzymes in the composting process that accelerate decomposition rate of the feedstocks and that also deter the reproduction of flies and fly larvae;
- A 25-foot vegetative buffer surrounding the processing area will be mowed to reduce habitat of vectors.
- Along with sanitation and maintenance actions to eliminate food, water, shelter, and entryways for vectors, traps will be used to reduce vectors when practicable and effective.
- The maintenance of a temperature of at least 55 degrees centigrade in composting materials which discourages pathogen growth; and
- The immediate cleanup of spills.

29.2 Facility Program Evaluation

The Facility VC plan will be evaluated every at least once a year. The OIC will consult with professional resources to evaluate the effectiveness of the VC program and to develop improvements as needed.

The Facility reserves the right to train its employees and obtain applicable licenses and/or certifications to apply pesticides at the Facility or contract with a professional service provider. The Facility will not apply fungicides, herbicides, insecticides, or other pesticides that contain constituents listed in 40 CFR Part 261, Appendix VIII-Hazardous Constituents, or on the Hazardous Substance List as defined in the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). The Facility will also not incorporate

pesticides into feedstocks, in-process materials, or processed materials. Authorized fungicides, herbicides, insecticides, or other pesticides would be applied in accordance with manufacturers' instructions and in conformance with applicable federal, state, and local regulations.

29.3 Records and Documents

A weekly log will be kept on file by the OIC, or designee, and will include:

- Vector inspection results;
- Applications of pesticides, including type, brand, and purposes; and
- Vector activity sightings, including identification of the vector (if known), number seen, other evidence (such as animal droppings), date, time, and location.

Section 30. Security

30.1 Facility Access

Access to the Facility will be controlled to prevent disposal of unauthorized and prohibited materials, and scavenging. The following measures will be implemented:

- Unauthorized access will be prohibited.
- The Facility will be enclosed with fencing and vehicle access will be controlled through a locked entry gate.
- No trespassing and notification signs will be maintained around the perimeter of the Facility.
- All truck traffic must proceed directly to the material unloading area and supervised by the on-site staff.
- The facility will have a sign at the entrance indicating the type of facility, the permit number, hours of operation, and the allowable feedstocks.
- Clearly posted signage at the Facility entrance will specify a 10-mile per hour speed limit on the entrance road. The maximum speed allowed in the processing area will be 5-miles per hour. Parking will be allowed only in designated areas.
- Only vehicles authorized by the OIC, personal vehicles of employees, and authorized haul vehicles will have access beyond the Facility entrance, and all vehicles will be closely monitored.
- The Facility business hours are Monday through Sunday, 7:00 a.m. to 7:00 p.m. During these times, the Facility is open to sell compost. Feedstock receiving, off-loading, loading, and processing preparation will be 7:00 a.m. to 7:00 p.m. Operating hours for operating heavy equipment and transporting materials on-site or off-site will be Monday

through Sunday from 6:00 a.m. to 8:00 p.m. Composting operations will sometimes be performed outside those hours as required by weather, holidays, or emergency situations that could result in the disruption of composting services in the area.. When any alternative operating hours are needed, Facility personnel will record the dates, times, and duration in the site operating record.

- Security lighting will be provided in the vicinity of the Facility entrance and office trailers.
- The entrance/exit gates will be secured when the Facility is not operational. After-hours access will be allowed only with prior arrangement with the Facility manager.
- Security personnel will be present on-site outside of operating hours. Security personnel will be made aware of the site hazards and will be provided the list of emergency contact information.
- The fence, gates, and roads will be inspected on a weekly basis. Any access breach or unsafe condition will be repaired as soon as practical and will be noted in the Facility weekly log.
- Facility personnel will coordinate with local law enforcement officials (i.e., police/sheriff, highway patrol, emergency medical corps units, fire department, and utility emergency teams) in the event of any emergency situation.

Section 31. Emergency Action Plan

The following plans will be implemented in each emergency.

31.1 Spills

Spills at the Facility will follow steps outlined in the Spill Containment and Contingency Plan described in Section 33.

31.2 Fire

The OIC or designee will perform the following:

- Attend to the immediate safety of personnel and visitors.
- Call 911 and report any fires. All staff will carry cellular phones which will be used to contact emergency assistance.
- If the fire is small and localized, control the spread of the fire.
- If needed, use a loader, bull dozer, or other earth moving equipment to create a fire break or extinguish small fires with dirt.
- The local fire response has equipment and experience to fight rural fires.

31.3 Medical

The OIC or designee will perform the following:

- See to the immediate safety of the injured person(s), personnel, and visitors.
- If the injury is not critical and only requires first aid, first aid will be applied.
- Call 911 and report the medical emergency, if needed. All staff will carry cellular phones which will be used to contact emergency assistance.
- MSDS sheets will be provided in the event of a chemical exposure.

31.4 Adverse Weather

Adverse weather includes tornados, lightening, and high wind conditions. In the event of adverse weather conditions, the OIC will perform the following:

- Receive advance notification from the local weather station as to the extent and nature of the impending weather emergency.
- Relay emergency actions required to staff and visitors.

31.5 Health and Safety Training

Facility personnel will be trained in the Facility's health and safety plan to include required OSHA training. The OIC will assess training needs and develop a training program to meet regulatory requirements.

Section 32. Fire Prevention and Control Plan

32.1 Fire Response

The Sealy Fire Department and San Felipe- Frydek Volunteer Fire Department will receive Tier I reports that list the amount and types of stored materials on a facility map, annually. Additionally, SouthWaste will provide these departments with a description of the nature of the Facility and its location, as well as a copy of this Fire Prevention and Control Plan.

Staff will attempt to control small fires using rural firefighting techniques. Staff will call 911 if the fire is too large to control.

Staff may install fire breaks during fires to reduce off-site migration of the fire. Fire breaks generally consist of plowed areas around fire perimeter or perimeter fencing.

Equipment for staff response to fires consists of fire extinguishers, area soil, and front-end loader.

In the event of a fire with visible flames, SouthWaste will immediately notify the local fire department. Emergency contact information is provided in Table 13.

Table 13. Emergency Contact Information

Agency	Emergency Phone Number	Non-Emergency Phone Number
Sealy Fire Department 1207 Highway 90 W Sealy, TX 77474	911	(979) 885-2222
San Felipe- Frydek Vol. Fire Department 15023 Fm 1458 Rd Sealy, TX 77474	911	(979) 885-7081
Austin County Sherriff 417 N. Chesley St. Bellville, TX 77418	911	979-865-3111

32.2 Fire Prevention

The Facility is not located within a city limit; therefore, local city fire codes do not apply. Austin County follows the guidelines set forth by the State Fire Marshal's Office. The National Fire Protection Association Life Safety Code (NFPA 101) is the adopted inspection standard of the State Fire Marshal's Office. The State Fire Marshal utilizes other NFPA fire codes for guidance in assessing and directing remediation of fire hazards in other than occupied buildings. This Fire Prevention and Control Plan is intended to comply with the requirements of the NFPA fire code.

Non-hazardous materials handled by the Facility do not typically pose fire hazards but staff must stay alert for signs of fire such as smoke, steam, or excessive heat. As a cooperative rural community, adjacent agricultural operations will stay alert to signs of fire to assist neighboring operations in the control of fires.

Fire prevention techniques include:

- Equipment will be regularly cleaned to remove combustible waste and caked material which can cause overheating and increase fire potential.
- Smoking will not be permitted near material management areas. Designated smoking areas at the office will be equipped with proper disposal containers.
- No smoking signs will be placed near material management areas.
- The presence of the earthen berms surrounding the processing area will inhibit the spread of fire to or from the composting material.
- Fire lanes will be maintained around the Facility, including feedstock storage tanks and processing areas.
- The potential for fires within the composting material will be limited by the maintenance of a moisture content near 60 percent.

- Vegetation within 25 feet of the processing and storage areas will be watered and mowed as much as practicable.
- As required by the 2003 International Fire Code, bulking material storage piles and compost material piles will not exceed 25 feet in height, 150 feet in width, or 250 feet in length.
- All storage piles will be accessible by fire-fighting equipment via access roads.
- Sufficient ABC type fire extinguishers are located on-site.
- Staff will be alert to signs of fire such as smoke, heat, or odors.
- Fire extinguishers are visually inspected monthly by staff with an annual inspection/maintenance completed by a State licensed fire protection contractor.
- Compost materials that may generate heat will be turned periodically to reduce internal temperature.

32.3 Fire Control

Water will be available for firefighting from a potable well water source. Additionally, water for firefighting will be obtained from the Facility's compost pad retention pond.

The local fire department has vehicles specifically outfitted to pump water, including carrying a water reservoir and using drafting and water tenders to obtain further supply typically used in a rural area.

Rural firefighting techniques that include fire breaks and other firefighting techniques will be applied. Equipment available on-site for the use in firefighting will include:

- Fire extinguishers;
- Compost pad retention pond, pump, and hoses;
- Vacuum truck, or equivalent; and
- Front-end loader.

In the event of a smoldering fire (i.e., evidenced by smoke but with no visible flames), the vacuum truck, or equivalent, can be filled using water from either the compost pad retention pond or the municipal water supply, and then can spray the water directly on the fire and surrounding combustible materials. The front-end loader will be used, as necessary, to physically separate any smoldering or burning materials from other combustible materials. After the fire is extinguished, the front-end loader will be used to break apart the burnt material to allow the material in the interior of the pile or windrow to be saturated with water to prevent re-ignition or smoldering.

Firefighting equipment is readily available for small fires. For fires too large for the Facility staff to handle, the county has an emergency response system that responds to fires. The jurisdictional fire department will respond to fires that cannot be controlled by staff.

32.4 Staff Training

All staff will be trained in fire prevention, to recognize signs of fire, and to inspect equipment. Staff will be trained to properly use fire extinguishers and emergency evacuation procedures.

The OIC will have additional training in fire break construction and fire buffer maintenance to prevent off-site fire migration.

The local fire department will be called in the event the fire is too large for staff to control.

Section 33. Spill Containment and Contingency Plan

Storage and processing areas are designed to control and contain spills or contaminated water from leaving the Facility. The design is sufficient to control and contain a worst case spill or release from the largest tank volume within the liquid feedstock storage area and precipitation from a 25-year, 24-hour storm. Secondary containment calculations are provided in Appendix I.

33.1 Leak Detection

33.1.1 Storage Tanks

A daily inspection of liquid feedstock storage tanks for leaks or spills will be performed. Accumulated stormwater within the secondary containment berm surrounding the storage tanks will be pumped out and sprayed onto the composting pad.

33.1.2 Liner

The geomembrane liner will be periodically inspected for cracks to prevent pollutant transport. Repairs will be made within two weeks. Damaged areas identified throughout the synthetic liner will be replaced or repaired in accordance with the Liner Quality Control Plan (Appendix M). Repairs for the clay liner include rewetting and packing the surface layer to a depth of 6 inches.

33.2 Spill Prevention and Control

Spill prevention and control have been developed for receiving and transfer areas. The following discusses each measure for each area. When a spill is discovered, the emergency action plan for spills will be followed.

33.2.1 Receiving and Liquid Feedstock Transfers

Liquid feedstock will be pumped into the liquid feedstock storage tank unless it is being directly sprayed onto the composting pad. Liquid waste haulers are directed to the designated unloading area located near the storage tanks.

Liquid feedstock within the storage tanks will be routinely measured to determine the volume stored within each tank. An attendant monitors transfer hoses for leaks and spills.

The tanks will be contained in the secondary containment system and daily inspection will be performed to check for leaks and spills. Spills will be cleaned up by vacuuming liquids and transferring the material into the liquid feedstock storage tanks. Residual solids will be excavated and disposed off-site to a permitted MSW landfill.

Accumulated stormwater is pumped out and sprayed onto the compost pad for processing.

33.2.2 Sanitation

Washing activities will be performed using freshwater and will not interfere with the feedstock processing, feedstock application, or final compost grade. Washing activities will occur on the lined compost pad and will consist of washing hand tools and chemical-free equipment that comes into contact with the composting operations. Wash-water will be collected and diverted to the liquid feedstock storage tanks for processing. The OIC will monitor the clean-up and collection procedures for leaks and spills. Spills will be cleaned up and liquids will either be applied to the windrows or diverted to the liquid feedstock storage tank. Equipment containing hydrocarbons or chemicals (e.g., vehicles, tractors, chipper/grinder) will not be washed at the Facility. In the event that equipment containing hydrocarbons or chemicals requires washing, then these types of equipment will be washed off-site at an approved washing facility.

33.3 Spill Emergency Actions

The emergency action plan procedures in the event of a spill occurrence outside the composting pad are:

- Liquid spills will consist of the following actions:
  - If spill is outside secondary containment, then earthen berms or spill booms will be utilized in order to contain the spill.
  - If feedstock spills, the reclaimed material will be returned to the liquid feedstock storage tanks.
  - If fuel and chemical spills, the material will be remediated and disposed of to provide the most effective mitigation.
- Solid spills, primarily in the form of sludge, will consist of the following actions:
  - Solids will be protected from stormwater incursion
  - Using the front-end loader, solids will be collected, transported, and applied to the composting pad.
- Upon completion of remedial activities, the area of the spill will be assessed for signs of impact.

- Reportable quantities will be reported as required by federal, state, or local rules or regulations.

Section 34. Recordkeeping and Reporting Requirements

34.1 Recordkeeping

A copy of the permit, the approved permit application, and any other required plans or other related document will be maintained at the Facility at all times during construction.

After completion of construction, an as-built set of construction plans and specifications will be maintained at the Facility. The plans will be made available for inspection by agency representatives or other interested parties. These documents will be considered a part of the operating record for the Facility.

The OIC will promptly record and retain, in an operating record, the following information:

- All location-restriction demonstrations;
- Inspection records and training procedures;
- Closure plans and any monitoring, testing, or analytical data relating to closure requirements;
- All cost estimates and financial assurance documentation relating to financial assurance for closure;
- Copies of all correspondence and responses relating to the operation of the Facility, modifications to the permit, approvals, and other matters pertaining to technical assistance;
- All documents, manifests, shipping documents, trip tickets, involving special waste;
- Any other document(s) as specified by the approved authority or by the executive director; and
- Record retention provisions for trip tickets as required by 30 TAC §312.145.

The following records will be maintained on-site permanently, or until facility closure:

- TCEQ facility operating permit;
- Sampling plan and procedures;
- Staff training and certification records;
- Maturity protocol test results; and
- Annual groundwater sampling results.

Records will be maintained on-site and available for inspection by the executive director for a period consisting of the two most recent calendar years of the following:

- A log of abnormal events at the Facility, including, but not limited to, hazardous constituents uncovered, fires, explosions, process disruptions, extended equipment failures, injuries, and weather damage; and
- Results of monthly final product testing report. Documentation of final product testing will be maintained for a period of three years after the final product is shipped off-site or after facility closure.

Copies of the annual reports will be kept on-site for a period of five years following submittal to the TCEQ.

34.2 Signatory

For signatories to reports, the following conditions apply:

- The owner or operator will sign all reports and other information requested by the executive director as described in §305.44(a) or by a duly authorized representative of the owner or operator.
- If an authorization is no longer accurate because of a change in individuals or position, a new authorization satisfying the requirements of 30 TAC §330.219(c) must be submitted to the executive director prior to, or together with, any reports, information, or applications to be signed by an authorized representative.
- Any person signing a report will make the certification in accordance with 30 TAC §305.44(b).

34.3 Reporting Requirements

All plans described in the site operating plan presented above will be furnished upon request to the executive director and will be made available at all reasonable times for inspection by the executive director.

The Facility will retain all information contained within the operating record and the different plans required for the Facility for the life of the Facility.

34.3.1 Documentation and Reporting of Final Product Testing

Final product documentation maintained will include:

- Batch numbers identifying the final product sampling batch;
- Quantities, types, and sources of feedstocks received and the dates received (this information is typically documented on the manifest form that accompanies each delivery of feedstock);

- The quantity of final product and final product standard code assigned;
- The final product grade or permit number of the disposal facility receiving the final product if it is not Grade 1 or Grade 2 compost;
- Date of sampling; and
- Analytical results used to characterize the final product including laboratory quality assurance and quality control (QA/QC) data and chain-of-custody documentation.

A monthly final product testing report will be submitted to the TCEQ within two months after the end of the reporting period. The monthly final product testing report will include the above information for each batch of final product sampled that month.

34.3.2 Annual Reporting

An annual report will be prepared and submitted to the TCEQ. The annual report will provide the following information for the year of the report:

- Documentation of compost input and output quantities;
- Description of the end-product distribution;
- All results of any required compost laboratory testing; and
- Groundwater sampling results.

Annual reports will be prepared and submitted to the TCEQ not later than 45 days following the calendar year.

Section 35. Sampling and Monitoring

35.1 Facility Inspections

35.1.1 Inspection Locations and Procedures

The Facility will be inspected for the items listed in Table 14.

Table 14. Facility Inspections

Item	Task	Frequency
Fence/gates	Inspect perimeter fence and gates for damage. Make repairs if necessary.	Weekly
Windblown material or waste	Check working area, access roads, entrance areas, and perimeter fence for loose trash. Clean up as necessary.	Daily
Facility access road	Inspect Facility access road for damage from vehicle traffic, erosion, or excessive mud accumulation. Maintain as needed.	Daily
Facility signs	Inspect all Facility signs for damage, general location, and accuracy of posted information.	Weekly

Table 14. Facility Inspections (continued)

Item	Task	Frequency
Run off or pooled water	Inspect all areas that are exposed to stormwater for erosion or pooling. Inspect all areas for liquids pooled on the composting pad and storage areas. Clean up within 2 weeks. Repair or redesign as necessary.	Weekly
Unauthorized entry	Inspect for signs of unauthorized entry of humans and animals. Make repairs or review security plan.	Weekly
Equipment	Inspect loader, excavator, chipper/grinder, and transfer trucks for leaks, and operation efficiency. Repair as needed.	Weekly
Geomembrane liner	Inspect weekly for cracks. Repair as needed. Wet Clay liner periodically to prevent cracking. Re-compact if crack compromises the integrity of the liner. Patch material can be used as specified by the manufacturer for the synthetic liner.	
Seepage in and around the composting facility.	Inspect areas around the liners for seepage. Makes repairs as needed.	Weekly

35.1.2 Reporting Requirements

Inspections logs will be maintained in Facility records. Noncompliance items will be reported if required to TCEQ.

35.2 Odor Audit/Investigation

Matrix and Location. Monitoring will be conducted along the route to and from the Facility, at the gate, and at the Facility. Particular attention should be paid to odors that are detected beyond the 50-foot buffer of the Facility.

Purpose. The purpose of the audit is to determine the cause of the odor and corrective actions and as a preventive measure for nuisance conditions.

Frequencies. A daily audit will be performed during operations hours. A frequency, intensity, duration, and offensiveness (FIDO) (TCEQ, 2007) inspection will be performed if an odor is detected.

Collection Procedures. If an odor is detected, the OIC will perform an odor investigation:

1. Locate and assess the odor
    a. Describe the intensity and offensiveness of any odors observed using the TCEQ Odor Log, which can be downloaded for the TCEQ website at http://www.tceq.texas.gov/assets/public/compliance/odor-log-public.pdf
    b. Describe any physical effects experienced by the investigator which are indicative of adverse effects upon health (burning eyes, nose, throat, headache, vomiting, etc.)
    c. Determine and document the extent of the odor plume. Document on a map of the vicinity the odor survey route, the time the investigator was at each location, and the odor observations at each location. This survey should include upwind and downwind observations at least.

2. Locate the source(s) of the odor.
3. Locate the specific cause of the odor (i.e., the specific compound, equipment, or process emitting the odor, and the reason(s), such as a plant upset).
4. Document estimates of wind speed and direction, temperature, humidity, precipitation, and sky cover.
5. If odors have been detected at the same location at other times, document a comparison of the current observations with the prior observations.
6. Correct or initiate procedures for odor control and eliminate nuisance conditions. Nuisance conditions exist if "an odor has been emitted in such concentration and duration as to be injurious to or adversely affect human health, welfare, animal life, vegetation, or property, or interfere with normal use and enjoyment of animal life, vegetation, or property."

FIDO results will be maintained in Facility records. Corrective actions will be maintained in the Facility records.

35.3 Compost

Compost will have visual inspections and lab analysis as required by TCEQ Compost rules 30 TAC §332.71. Two types of sampling and analysis will be performed; sampling and analysis for maturity and sampling and analysis for final product grading.

35.3.1 Sampling and Analysis for Maturity

At the completion of the composting process, a maturity protocol will be developed by SouthWaste to measure the potential for biological activity in the composted materials. Maturity protocol testing will be performed during the first 18 months after permit issuance.

Development of the maturity protocol will include sampling to measure the reduction of organic matter (ROM) in composting material from the time it is initially mixed until it is mature. The ROM will be calculated using the Loss-on-Ignition Organic Matter (LOI) method. To address seasonal variations in compost feedstock during maturity protocol development, four sets of maturity protocol samples will be collected and analyzed as follows:

1. Sample 1 batch when initially mixed during the first quarter of the first operating year, and then at 60 days, at 120 days, and at 180 days after initial mixing.
2. Sample 1 batch when initially mixed during the second quarter of the first operating year, and then at 60 days, at 120 days, and at 180 days after initial mixing.
3. Sample 1 batch when initially mixed during the third quarter of the first operating year, and then at 60 days, at 120 days, and at 180 days after initial mixing.
4. Sample 1 batch when initially mixed during the fourth quarter of the first operating year, and then at 60 days, at 120 days, and at 180 days after initial mixing.

The results of the ROM analysis of the initially mixed samples will be compared to the ROM results of the 60-day, 120-day, and 180-day samples. Compost will be considered "mature," when the reduction of organic matter from the initially mixed material is between 40 and 60 percent. Compost will be considered cured when the reduction of organic matter from the initially mixed material is greater than 60 percent.

The maturity testing sampling results will be evaluated to establish a typical baseline organic matter content for initial mixes, a typical baseline organic matter content for cured compost, and an estimated composting duration necessary to achieve cured compost. This information will be used to develop recommended maturity testing methods and frequencies to allow the classification of compost into maturity grades, and the identification of materials that are stable but not mature. This will constitute the maturity protocol. The maturity protocol will be submitted to the TCEQ for review and approval, as well as for any future revision. Once approved, the maturing protocol will be used to classify all future compost.

Maturity protocol testing and the maturity testing results for final products for classification will be documented and maintained as described in Section 35.3.1.

35.3.2 Sampling and Analysis of Final Product

In addition to maturity testing, all batches of final product will be analyzed for the parameters listed in Table 15. The executive director may at any time request that additional parameters be tested.

Table 15. Final Product Analytical Requirements and Standards

Parameter	Analytical Method	Final Product Standards for Grade 1 Compost	Final Product Standards for Grade 2 Compost
Total Metals			
As	SW-846, Method 6020	≤ 10 mg/kg	≤ 41 mg/kg [a]
Cd	SW-846, Method 6020	≤ 16 mg/kg	≤ 39 mg/kg [a]
Cr (total)	SW-846, Method 6020	≤ 180 mg/kg	≤ 1,200 mg/kg [a]
Cu	SW-846, Method 6020	≤ 1,020 mg/kg	≤ 1,500 mg/kg [a]
Pb	SW-846, Method 6020	≤ 300 mg/kg	≤ 300 mg/kg [a]
Hg	SW-846, Method 7470	≤ 11 mg/kg	≤ 17 mg/kg [a]
Mo	SW-846, Method 6020	≤ 75 mg/kg	≤ 75 mg/kg [a]
Ni	SW-846, Method 6020	≤ 160 mg/kg	≤ 420 mg/kg [a]
Se	SW-846, Method 6020	≤ 36 mg/kg	≤ 36 mg/kg [a]
Zn	SW-846, Method 6020	≤ 2,190 mg/kg	≤ 2,800 mg/kg [a]
Pathogens			
Salmonella	Standard Methods for the Examination of Water and Wastewater, Water Pollution Control Federation	< 3 MPN per 4 grams total solids or meets PFRP	No Value
Fecal Coliform		< 1,000 MPN per gram of solids or meets PFRP	Geometric mean density <2,000,000 MPN per gram of solids or meets PFRP

Table 15. Final Product Analytical Requirements and Standards (continued)

Parameter	Analytical Method	Final Product Standards for Grade 1 Compost	Final Product Standards for Grade 2 Compost
Other Parameters			
Maturity / Stability	Maturity Protocol (see Section 35.3.1)	> 60% Reduction of Organic Matter	> 20 % Reduction of Organic Matter
Weight% Foreign Matter	Dry weight basis (Recommended Test Methods for the Examination of Composts and Composting, Composting Council, 1995)	1.5% on a 4mm screen	1.5% on a 4mm screen
pH	North Central Regional Method 14 for Saturated Media	5.0 to 8.51	5.0 to 8.5 1
Salinity	North Central Regional Method 14 for Saturated Media	10 mmhos/cm	10 mmhos/cm
PCBs	SW-846, Method 8082	1 mg/kg	10 mg/kg

[a] Metals concentrations are for a cured compost. Compost which is semi-mature or mature will have the metal concentrations adjusted to reflect the metal concentration that would be present if the compost met the criteria of a cured compost.

[b] A conductivity or pH outside the indicated range may be appropriate if the compost is specified for a special use.

PFRP = Processes to further reduce pathogens
MPN = Most probable number
PCBs = Polychlorinated biphenyls

A final product grade will be assigned prior to sale based on the standards listed in Table 15 above. The following paragraphs describe sample collection and analyses requirements for final products.

The following paragraphs describe sample collection and analyses requirements for final products.

Collection. At a minimum, one sample will be collected either for every 3,000 cubic yards of final product, or one sample will be collected monthly, whichever is more frequent. Each sample will consist of nine grab samples which will be collected as follows:

- Three grab samples will be collected from the base of the windrow or stockpile, at least 12 inches into the pile at ground level.
- Three grab samples will be collected from the exposed surface of the windrow or stockpile.
- Three grab samples will be collected from a depth of 2 feet from the exposed surface of the windrow or stockpile.

The nine grab samples will be combined and thoroughly mixed to form a composite. A single sample will be collected and analyzed from the composited sample material.

After one year of final product testing, a request for an alternative testing frequency may be submitted to the TCEQ in accordance with 30 TAC §332.71 (f)(3).

Sample Analysis. Final product samples will be analyzed for the parameters and by the methods listed in Table 15, and the analytical results will be used to assign a final product grade. Product grades include Grade 1 Compost, Grade 2 Compost, and Waste Grade Compost. Grade 1 Compost and Grade 2 Compost will not contain foreign matter of a size or shape that can cause human or animal injury, and will meet the other applicable standards presented in Table 15. Waste Grade Compost is any material that does not meet the final product standards for either Grade 1 or Grade 2.

35.4 Groundwater

After completion of the following analysis, an original and two copies of each analysis will be sent to the executive director and a copy will be maintained on-site.

35.4.1 Background Samples

Four background groundwater samples of the monitor well will be provided to TCEQ within 24 months from the date of the issuance of the permit.

Background levels will be established from samples collected from each well at least once during each of the four calendar quarters: January to March; April to June; July to September; and October to December. Samples from any monitoring well will not be collected for at least 45 days fo11owing the collection of the previous sample from that well, unless that new sample is intended as a replacement. At least one sample per well will be collected and submitted to a laboratory for analysis within 60 days of permit issuance.

Background groundwater samples will be analyzed for the laboratory and field parameters listed in Table 16.

Table 16. Groundwater Sampling Parameters

Sampling Parameter	Background Sampling	Annual Sampling	Method
Heavy metals			
Arsenic	X		EPA 6020
Barium	X		EPA 6020
Cadmium	X		EPA 6020
Chromium	X		EPA 6020
Copper	X		EPA 6020
Iron	X	X	EPA 6020
Lead	X		EPA 6020
Mercury	X		EPA 7470A
Selenium	X		EPA 6020
Zinc	X		EPA 6020
Other parameters			
Calcium	X		EPA 6020
Magnesium	X		EPA 6020
Manganese	X	X	EPA 6020

Table 16. Groundwater Sampling Parameters (continued)

Sampling Parameter	Background Sampling	Annual Sampling	Method
Other parameters (cont.)			
Sodium	X		EPA 6020
Carbonate	X		SM2320B
Bicarbonate	X		SM2320B
Sulfate	X		EPA 300
Fluoride	X		EPA 300
Nitrate (as N)	X		EPA 300
Total Dissolved Solids	X	X	SM2540C
Phenolphthalein Alkalinity as CaCo3	X		SM2320B
Alkalinity as CaCo3	X		SM2320B
Hardness as CaCo3	X		SM2340B
pH	X	X	In-field measurement
Specific Conductance	X		In-field measurement
Anion-Cation Balance	X		Calculated based on anion/cation lab data
Total Organic Carbon (4 replicates will be collected per sample)	X	X	ASTM D2974/EPA 415.1
Chloride	X	X	EPA 300

Background sampling results will be reported to the TCEQ as discussed in Section 36.1.12.

35.4.2 Annual Samples

Following the completion of background groundwater sampling described in Section 35.4.1, each groundwater monitoring well will be sampled annually. Depth to groundwater and pH will be measured and documented each time a monitoring well is sampled. Annual groundwater samples will be analyzed for total organic carbon (4 replicates per sample), iron, manganese, chloride, and total dissolved solids. Analytical methods for these parameters will be the same as those used for background sampling (Table 16).

35.4.3 Analytical Methods

The analytical methods are noted in Table 16 conform to TCEQ and U. S. Environmental Protection Agency (EPA) approved testing methods. The practical quantitation limits for the constituents of concern will be set by standard methods or detection limits, whichever is lower. The detection limits will be below the maximum contaminant level values or as low as practicably feasible.

The quantitation limits will be set and reviewed with the contract laboratory. The review of limits will take place at least annually or when a new contract laboratory is used.

35.5 Data Precision and Accuracy

Data precision and accuracy will comply with the methods used for each matrix and parameter. The contract laboratory will document the data precision and accuracy requirements and any deviations.

35.6 Documentation

Field conditions and analysis will be documented on the chain of custody for each sampling event. Laboratory analysis procedures, QA/QC, and any deviations will be documented in the Laboratory Case Narrative.

35.7 Reporting Requirements

Sample analytical results will be reported to the TCEQ in a data package that contains, at a minimum, the analytical test reports documenting the analytical results and methods for each sample and analyte. The test reports will include the method-required quality control information needed to evaluate the analytical results of sampling and analysis with comparison to quality control standards and corrective action upon failure.

SouthWaste will ensure that the results of each test analysis carried out by the laboratory will be reported:

- Accurately, clearly, unambiguously, and objectively, and in accordance with any specific instruction in the test method, work plan, permit, or program.
- In a test report and include all the information required for TCEQ submission and necessary for the interpretation of the test results and all information required by the method used, project quality objectives, or permit.
- Unless otherwise specified by project objectives, all analytical results reported for sludge, compost, soil, and sediment samples will be reported on a dry weight basis with the percent solids (or percent moisture) also reported on the test reports, to allow back calculation of the result to a wet weight basis.
- Includes at least the following information, unless the laboratory has valid reasons for not doing so:
    - A title (e.g., "test report");
    - The name and address of the laboratory or facility and the location where the test and calibrations were carried out;
    - Unique identification of the test report, and on each page an identification in order to ensure that the page is recognized as a part of the test report;
    - Name and address of the owner;
    - Identification of the analytical method used;
    - Dates of measurements, as well as the report date;

- Reference to the sampling plan and procedures used by the laboratory where these are relevant to the validity or application of the results;
- The test results and units of measurement;
- The names, functions, and signatures or equivalent identification of persons authorizing the test report; and
- Where necessary for the interpretation of the test results, a laboratory case narrative as described below.

Section 36. Quality Assurance and Quality Control

36.1 Sampling, Monitoring, and Inspection

A sampling QA/QC program has been developed and will be periodically revised to reflect analysis and contract laboratory QA/QC requirements. The contracts laboratory will be periodically reviewed to ensure the standards in this chapter and future standards are met.

The QA/QC program establishes field and laboratory sampling and analysis procedures for all tested analytes to ensure proper collection preparation and analysis of representative samples. The QA/QC program also evaluates completeness, correctness, and conformance or compliance of a specific data set against method, procedural, or contractual requirements.

To achieve accuracy (correctness) and completeness, the owner adopts acceptable data quality standards and ensures that all sample collection, preparation and analyses, and data management activities are conducted in accordance with the standards. These activities will be reviewed regularly to ensure compliance with the standards. QC checks must be performed and corrective action taken when indicated.

36.1.1 Records Control

The OIC will ensure that all QA/QC records are legible and stored and maintained in such a way that they are readily retrievable and stored in an acceptable environment to prevent damage, deterioration, or loss. At a minimum, analytical records retention will meet a five-year record retention schedule.

36.1.2 Matrix Spikes and Matrix Spike Duplicates

The OIC will ensure that:

- The data package will include matrix spikes and matrix spike duplicate sample recovery percentages and relative percent differences for each matrix and analyte.
- The subset will include analytes representative of the chemical properties of the project analytes of concern, if analytes are not specified for a project only a subset of the project analytes are evaluated with matrix spikes and matrix spike duplicates.
- Each matrix spike and matrix spike duplicate test report will include the following:

- Spike concentration added to the sample;
- Measured concentration of the analyte in the unspiked sample;
- Measured concentration of the analyte in both the matrix spike and matrix spike duplicate;
- Calculated percentage matrix spike/matrix spike duplicate recoveries and relative percent difference; and
- Laboratory and/or method quality control limits (acceptance criteria) for both matrix spike/matrix spike duplicate recovery and relative percent difference.

- The data set will include the laboratory batch number and the laboratory identification number of the sample spiked.
- The laboratory will perform matrix spikes at a minimum frequency of one out of every 20 samples per matrix type, except for analytes for which spiking solutions are not available (e.g., total dissolved solids, total volatile solids, total solids, pH, color, temperature, or dissolved oxygen).

When results of the matrix spikes and matrix spike duplicate are outside of the acceptable limits, The OIC will arrange for the laboratory to check other quality control results (e.g., laboratory control sample), and, if appropriate, have the laboratory qualify the results or use another analytical method. The results of the matrix spikes and matrix spike duplicate are sample and matrix- specific and may not normally be used to determine the validity of the entire batch of samples.

36.1.3 Method Blanks

The OIC will ensure that the laboratory reprocess any sample associated with the contaminated blank that exceeds a concentration greater than one-tenth of the measured concentration of any sample in the associated batch or exceeds the concentration present in the samples and is greater than one-tenth of a specified regulatory limit for analysis or the results reported with appropriate data-qualifying codes and submitted in the data package. These are minimum criteria to be used in cases where blank acceptance criteria are not defined in the referenced methodology used for analysis.

36.1.4 Laboratory Control Samples and Laboratory Control Sample Duplicates

The laboratory control sample and laboratory control sample duplicate are composed of a sample matrix that is free from analytes of interest and spiked with known amounts of analytes or material containing known and verified amounts of analyses. The laboratory control sample and laboratory control sample duplicate are used to establish intra-laboratory or analyst-specific precision and accuracy of certain parts of the analytical methodology.

The OIC will ensure that the laboratory:

- Analyzes laboratory control samples at a minimum of 1 each per batch of 20 samples or less, per matrix type, except for analytes for which spiking solutions are not available. A

laboratory control sample duplicate will be processed with the batch where needed to demonstrate precision.

- Calculate the results of the laboratory control sample to assess precision based on the recovery percentages of the analytes of interest within the analytical methodology.

36.1.5 Surrogates

The OIC will have the laboratory review the surrogate recoveries used to measure method efficiency. The laboratory can, with qualifications, estimate the overall method efficiency.

36.1.6 Data Reduction, Evaluation, and Review

The OIC will ensure that a data reviewer consider the project data quality objectives to determine if the sample test results meet the project needs with regard to completeness, representativeness, and accuracy (bias and precision).

The OIC will review all data prior to submittal for commission review. The data review will include examination of the quality control results and other supporting data, including any data review by the laboratory, and will identify any potential impacts such as bias on the quality of the data using qualifiers in the test reports tied to explanations in footnotes and in the laboratory case narrative.

The criteria used to evaluate each quality control parameter will be defined in the OIC's sampling and analysis plan, project quality objectives, and/or other reference(s) of documented analytical laboratory or method criteria.

The OIC will ensure that the recordkeeping system allow historical reconstruction of all laboratory activities used in the data reduction, validation, and review of the analytical data.

36.1.7 Matrix Interferences and Sample Dilutions

The OIC will ensure that the laboratory:

- Documents and reports problems and anomalies observed during analysis that might have an impact on the quality of the data. The laboratory must document any evidence of matrix interference or any situation where the analysis is out of control (quality control results outside of laboratory or method limits), as well as the measures taken to eliminate or reduce the interference or corrective action to bring the analysis back into control.

- Uses the smallest dilution factor needed to overcome or minimize a problem of matrix interference or to bring an analysis back into control

36.1.8 Chain of Custody

Chain of custody forms are used to document custody of the samples during collection, transport, and initial receipt of samples at the analytical laboratory. A laboratory may also use chain of custody forms to document the movement and analysis of samples within the laboratory.

The Operator will ensure that the laboratory:

- Submit all data packages with completed field chain of custody forms and other documentation, including the following:
  - Field sample identification;
  - Date and time of sample collection;
  - Preservation type;
  - Analytical methods requested and/or analytes requested;
  - Signatures of all personnel with custody prior to receipt by the laboratory;
  - Signature of laboratory personnel taking custody samples; and
  - Date and time of custody transfers.
- Document if samples are received outside of the recommended holding times for a particular analyte or method.
- Record, upon receipt, the condition of the sample, including any abnormalities or departures from standard conditions as prescribed in the relevant test method.
- Have procedures for checking the chemical preservation using readily available techniques prior to or during sample preparation or analysis.
- Store samples according to the conditions specified by preservation protocols.

All samples that require thermal preservation will be considered acceptable if the arrival temperature is either within 2 degrees Celsius (°C) of the required temperature or the method specified range. For samples requiring thermal preservation to 4°C, a temperature ranging from just above the freezing temperature of water to 6°C will be acceptable.

36.1.9 Sample Collection and Preparation

The OIC will:

- Collect adequate sample volumes for all analytical needs for subsequent testing or analyses, when possible.
- Base sampling plans, whenever reasonable, on appropriate statistical methods. Sampling procedures should describe the selection, sampling plan, collection, and preparation of a sample or samples from a waste or medium.
- Collect representative samples of the waste or medium. The concentration of the analyses of interest, the types of analyses, and the sample media will determine the sample volume requirements.
- Ensure that the method and federal regulatory program requirements for these sample management aspects be followed for all methods of testing and, if violated, have the data flagged and qualified.

- Ensure that field personnel have procedures for recording relevant characteristics and other data relating to the sampling operations that form part of the testing or measurement that is undertaken.

- Ensure that chain of custody records and field notes include the sampling procedure used, the identification of the sampler, environmental conditions (if relevant), diagrams, or other equivalent means to identify the sampling location, and all associated sample identification numbers.

36.1.10 Analytical Method Detection Limits and Method Performance

The OIC will ensure that:

- The laboratory determines detection limits by the protocol in the mandated test method or applicable federal or state regulation.

- The laboratory uses a test method that provides a detection limit that is appropriate and relevant for the intended use of the data and establishes procedures to relate method detection limits with the practical quantitation limits.

- All samples are analyzed according to methods specified by TCEQ or U.S. EPA programs.

- If the protocol for determining detection limits is not specified in the test method, the selection of a procedure must reflect instrument limitations and the intended application of the test method. Whenever possible, analytical methods must have method detection levels that are one-fifth to one-third of the regulatory action level.

- It reviews all quality control data within the data package subject to compliance with the TCEQ and federal programs which will include information regarding precision, bias, and accuracy.

- Data with quality control results outside of the quality control limits should be flagged in the data package with explanation of problems encountered by the laboratory and the corrective action(s) attempted to resolve the analytical problems.

- The laboratory documents all corrective action associated with the analysis and maintains all records.

Failure to meet the quality control goals in accordance with the data quality standards of the study does not necessarily mean the data are unusable.

36.1.11 Instrument and Equipment Calibration and Frequency

The OIC will ensure that:

- The laboratory maintain equipment in proper working order and calibrate equipment and devices that may not be the actual test instrument, but are necessary to support laboratory operations and measurements as often as recommended by the manufacturer, using

National Institute of Standards and Technology (NIST) traceable references when available, over the entire range of their use. These include, but are not limited to: balances, ovens, refrigerators, freezers, incubators, water baths, and temperature measuring devices. Calibration results will be within the specifications required for each application or measurement for which this equipment is used.

- The laboratory will maintain records of corrective actions implemented to correct all measurements.
- Standards used for the calibration of field instruments are, when available, traceable to certified standards or reference material.
- The laboratory equipment is calibrated or standardized against NIST traceable reference materials and standards.
- Documentation of the certificate of analysis and traceability of the standards and reagents is maintained by field or laboratory personnel.
- Calibration of field instruments and equipment is performed at approved intervals as specified by the manufacturer or more frequently as conditions dictate. Calibrations may also be performed at the start and completion of each test run.
- Records of calibration, repair, or replacement are filed and maintained by the designated field staff.
- Calibration and standardization of laboratory equipment are based on procedures described in each contract laboratory quality assurance plan or standard operating procedure.
- Records of calibration, repair, or replacement are filed and maintained by the designated laboratory personnel performing quality control activities in accordance with manufacturer requirements.
- Calibration records are filed and maintained at the laboratory location where the work is performed and subject to commission review during a quality assurance audit.

36.1.12 Laboratory Case Narrative

The OIC will ensure that the laboratory case narrative:

- Explains each failed precision and accuracy measurement determined to be outside of the laboratory and/or method control limits, and the effect of the failure on the results (positive or negative bias) when reporting QC results (precision and accuracy).
- States the exact number of samples, identification numbers, testing parameters, and sample matrix, as well as the name(s) of the laboratory(ies) involved in the analysis.
- Includes a statement of the test objective regarding the samples.

- Identifies the applicable QA/QC samples that require special attention by the reviewer, including field, trip, and laboratory blank(s); duplicate(s); field spike(s); QA audit sample(s); and laboratory control samples.
- Includes an acknowledgment and reference to current standards regarding sample holding, extraction, and analytical times along with a statement explaining whether the standards were met.
- Describes the extent of the delay and, if possible, provides an estimate of the bias within the data if samples are not analyzed within the prescribed holding times.
- Includes a statement that the laboratory conducting the analyses for environmental decision making have a QA program run by a QA officer to include the following:
    - System audits of field and/or laboratory operations using field surrogate samples;
    - Instrument calibration check samples used to determine the accuracy of the instrumentation;
    - Blind spikes of blanks, where the concentration of the blind spike is known only to the QA officer;
    - Verification of calibration accuracy via calibration check standard;
    - Internal surrogate spikes for determination of analytical extraction recovery; and
    - Overall assessment of the data quality based upon the reported QC data.
- Includes all QC results included in each data set that affect the quality of the data.
- Describes the bias within each data set as either positive or negative, when QC results are outside the method established and/or data quality objectives of the Facility groundwater sampling and analysis plan.
- Presents clearly the precision and accuracy determinations with all results calculated.
- Explains each failed precision and accuracy measurement determined to be outside of the method control limits and the effect of the failure on the results.
- Includes a review with comments that identify the problems associated with the sample results and explains the limitations on data usability.
- Includes a statement on the estimated uncertainty of analytical results of the samples involved and/or within the QC of the analytical method of the permit, project, and/or program required analytical recoveries information, when appropriate and/or requested.
- Includes all deviations from, additions to, or exclusions from the test method, and information on specific test conditions.
- Includes a statement of compliance/noncompliance with requirements and/or specifications, where relevant (e.g., holding times, dilutions).

36.2 Final Product Compost QA/QC

Quality control and assurance procedures will include careful examination of feedstocks. Final compost will be tested and inspected as described in "Test Methods for the Examination of Composting and Compost," US Composting Council [http://compostingcouncil.org].

References

Texas Commission on Environmental Quality (TCEQ). 2007. *Odor complaint investigation procedures*. September 18, 2007.

U. S. Environmental Protection Agency (EPA). *Test methods for evaluating solid wastes, physical/chemical methods.* September 1986. <http://www3.epa.gov/epawaste/hazard/testmethods/index.htm>.