



January 14, 2019

Project No. 18109907

Mr. Chance Goodin

Texas Commission on Environmental Quality
12100 Park 35 Circle, Building F
Austin, Texas 78753

**PERMIT MODIFICATION – ATTACHMENT 14
REMEDATION PLAN FOR LANDFILL GAS EXCEEDANCES
POLK COUNTY WASTE MANAGEMENT FACILITY (PERMIT NO. 1384A)
RN102668654/CN600336077**

Dear Mr. Goodin

On behalf of Santek Waste Services, LLC (Santek), Golder Associates Inc. (Golder) is submitting this Permit Modification (PM) for the Texas Commission on Environmental Quality (TCEQ) Permit Number Municipal Solid Waste (MSW) 1384A, at the Polk County Waste Management Facility located in Polk County, Texas. This PM is being submitted to update the Landfill Gas Management Plan (LGMP) for the site to incorporate the vertical gas extraction wells within the landfill footprint along with optional passive vents to remediate methane exceedances at gas probes.

The proposed PM discussed in this letter is summarized in the following table:

Proposed Modification	Modification Classification Reference
Installation of a landfill gas collection system for a landfill gas remediation plan	Title 30 Texas Administrative Code - 30 TAC §305.70(k)(3)

The following items are included with this letter:

- A discussion of background information related to the Polk County Waste Management Facility;
- A discussion of the requested PM and the PM classification;
- A revised TCEQ Form 20650 and Applicant's Signature Page;
- An updated landowners map and an updated landowners list; and
- A closing

Background Information

As documented in a report by SCS Engineers dated September 11, 2018, a landfill gas remediation plan was implemented at the Polk County Waste Management Facility to correct exceedances in gas probes GMP-3, GMP-6, and GMP-7A. The landfill gas remediation plan had a positive effect on GMP-6 but did not sufficiently lower the methane gas levels in GMP-3 or GMP-7A. Furthermore, the September 11, 2018 report stated that the facility would submit a permit modification application for a gas collection and control system.

This letter serves as the permit modification application for the proposed gas collection and control system to remediate the methane exceedances.

Requested Permit Modification

To remediate the gas exceedances, Santek proposes additional gas collection and control system (GCCS) components within the landfill footprint consisting of vertical gas extraction wells with associated laterals, headers with associated airlines and force mains, and condensate sumps.

The proposed GCCS layout and details have been added as Appendix C to Attachment 14 – Leachate Gas Management Plan (LGMP).

Changes To Permit Documents

The following summarizes the changes made to the existing Attachment 14 – LGMP.

- Cover Page (updated date and Golder's address)
- Table of Contents (added new sections to section 5 and reference to Appendix C)
- Section 5 (Landfill Gas Control Plan)
- Section 6 (Record Keeping and Reporting)
- Appendix C (added proposed GCCS to remediate gas exceedances)

Revisions to the existing LFGMP text are indicated by "striking out" the text to be replaced (e.g., old text) and "underlining" the replacement text (e.g., new text).

Enclosure A to this letter includes the changes to the LFGMP text in the indicated "striking out" and "underlining" format, and Enclosure B to this letter includes the "unmarked" changes to the LFGMP text for inclusion into the Permit notebooks.

Modification Classification

The requested PM is specifically identified as a modification requiring public notice in 30 TAC §305.70(k)(3): installation of a landfill gas collection system for a landfill gas remediation plan in accordance with §330.371 (Landfill Gas Management).

TCEQ Form 20650

The TCEQ Form 20650 is included in Enclosure C to this letter. In accordance with §330.59(h)(1), a payment of \$150 has been made online through the TCEQ ePay system as noted on page 1 of the TCEQ Form 20650.

Additionally, as noted on page 1 of the form, this application will be posted on the internet at <http://www.co.polk.tx.us/upload/page/3552/GCCS%20Notice%20Mod.pdf>.

Landowners Notification

In accordance with 30 TAC §305.70(k)(3), this PM is submitted with public notice in accordance with 30 TAC §39.413. The landowner's map and list reflecting current property owners within ¼-mile of the permit boundary are included in Enclosure D.

Closing

If you have any questions, please contact Jeff Fassett or Mario Cruz of Golder at (281) 821-6868.

Sincerely,

Golder Associates Inc.

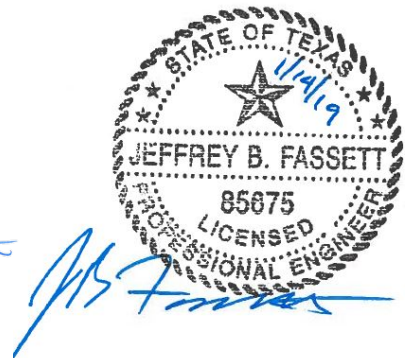


Mario G. Cruz
Staff Engineer

JBF/MC/jbf



Jeffrey B. Fassett, PE
Associate



GOLDER ASSOCIATES, INC
TEXAS REGISTRATION F-2578

CC: John Preston, Santek Waste Services

Attachments: Enclosure A – Marked (Redline/Strikeout) Pages
Enclosure B – Unmarked Revised Pages
Enclosure C – TCEQ 20650 Form
Enclosure D – Land Ownership Map and List

p:_2018 project folders\18109907 santek polk co gccs design\permit modification\pm text.docx

ENCLOSURE A

MARKED (REDLINE/STRIKEOUT) PAGES

ATTACHMENT 14

LANDFILL GAS MANAGEMENT PLAN

FOR

POLK COUNTY REGIONAL WASTE MANAGEMENT FACILITY
POLK COUNTY, TEXAS
MSW PERMIT NO. 1384A

Santek Environmental of Texas, LLC
3477 FM 942 West
Leggett, Texas 77350

Prepared by:



~~15603 West Hardy St.~~ 14950 Heathrow Forest Parkway
Suite ~~345~~ 280
Houston, Texas ~~77060~~ 77032
~~(281) 931-8674~~ (281) 821 6868

July 2002
December 2002 (Revision 1)
February 2003 (Revision 2)
November 2009 (Revision 3)
January 2019 (Revision 4)

ATTACHMENT 14

**POLK COUNTY REGIONAL WASTE MANAGEMENT FACILITY
POLK COUNTY, TEXAS
PERMIT 1384A**

TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	REGULATORY SUMMARY	3
2.1	RCRA Subtitle D	3
2.2	State Program.....	3
3.0	GENERAL SITE INFORMATION	4
3.1	Location and Land Use	4
3.2	History of Use	4
3.3	Regional Geology	4
3.4	Site Geology	5
3.5	Hydrogeology	5
3.6	Climate.....	5
3.7	Previous Landfill Gas Monitoring, Assessment, and Remediation Activities.....	6
4.0	LANDFILL GAS MONITORING PLAN.....	8
4.1	Perimeter Monitoring.....	8
4.1.1	Gas Monitoring Probe Placement	8
4.1.1.1	Demonstration of Single Probe Adequacy.....	10
4.1.2	Gas Monitoring Probe Construction	10
4.1.3	Inspection and Maintenance	13 ¹²
4.1.4	Monitoring Equipment.....	13 ¹²
4.1.5	Gas Monitor Probe Sampling Procedures.....	13 ¹²
4.2	Building/Structure Monitoring.....	14 ¹³
4.2.1	Installed Monitoring Systems	14 ¹³
4.2.2	Supplemental Systems	15 ¹⁴
4.2.2.3	Inspection and Maintenance	16 ¹⁵
5.0	LANDFILL GAS CONTROL PLAN.....	17 ¹⁶
5.1	Gas Collection and Control System Design.....	18 ¹⁶
5.2	Landfill Gas Blower-Flare Station.....	19 ¹⁷
5.3	Backup Plan	19 ¹⁷
6.0	RECORD KEEPING AND REPORTING	21 ¹⁹
7.0	CONTINGENCY PLAN	22 ²⁰
7.1	Immediate Actions to Protect Human Health	22 ²⁰
7.2	Action Within Seven Days to Update the Operating Record.....	23 ²¹
7.3	Action Within 60 Days to Implement a Remediation Plan.....	23 ²¹
8.0	REFERENCES	25 ²²

ATTACHMENT 14

**LANDFILL GAS MANAGEMENT PLAN
POLK COUNTY REGIONAL WASTE MANAGEMENT FACILITY
POLK COUNTY, TEXAS
PERMIT 1384A**

TABLE OF CONTENTS (continued)

TABLES

Table ATT14-1	Minimum Water Levels
Table ATT14-2	Gas Monitor Probe Data Summary

FIGURES

Figure ATT14-1	General Location Map
Figure ATT14-2	Existing and Proposed Gas Monitoring System
Figure ATT14-3	Typical Gas Monitoring Probe Detail

APPENDICES

Appendix A	Gas Monitoring Data Form
Appendix B	Previous Plans and Reports
<u>Appendix C</u>	<u>Landfill Gas Collection and Control System Plan and Details</u>

5.0 LANDFILL GAS CONTROL PLAN

~~As described in Section 3.7, a total of 24 passive vents have been installed at the site. Passive vents PV-14 through PV-16, located near GMP-8 have been removed and replaced by a methane interceptor trench. The facility is in the process of constructing an approved gas collection system in the areas of both GMP-7 and GMP-3. The systems will actively extract landfill gas from existing passive vents, which will be retrofitted with new wellheads, header piping, and valves. Each wellhead will be equipped with a flow control valve and monitoring port. The sampling port will allow monitoring of gas pressure, temperature, and gas concentrations. Flow control valving will allow adjustment of vacuum and flow rate at each vent. The vents will be connected to a blower by a collection piping system. The collection piping will be fitted with a condensate collection device. Gas extracted through the blower will be routed to a flare for disposal.~~

~~The passive vents near GMP-7 and the methane interceptor trench near GMP-8 are located within the lateral expansion area and will therefore need to be abandoned. The exact sequence will depend on a number of factors, however, the existing vents and interceptor trench will be left in place as long as practical. Gas that continues to migrate within this area will be detected once it reaches the perimeter gas monitor probes.~~

~~Due to the shallow occurrence of landfill gas near GMP-8, an interceptor trench has been constructed in this area. Construction of the trench was initiated on August 27, 2001 and completed on September 12, 2001. The interceptor trench is located so as to control landfill gas in the area of GMP-8. Existing passive vents PV-14, PV-15, and PV-16 were removed to allow trench construction between the gas monitor probe and waste disposal area. The trench is oriented east to west and located parallel to the facility property boundary just south of GMP-8. Monitoring of landfill gas is on going in assessing the effectiveness of remedial efforts in this area.~~

~~It appears that the gas occurring near GMP-8 and the interceptor trench is the result of decomposing waste within the existing landfill area west of the current fill area. As the landfill expansion is developed, the waste within this area will be removed and relocated. Therefore, the gas generation in this area is expected to greatly decrease.~~

~~This section describes the Landfill Gas Control Plan (LGCP) developed for the facility to provide a site-specific approach to implementing LFG control.~~

The NSPS for MSW landfills applies to landfills with design capacities greater than 2.5 million megagrams (2.75 million tons) and annual estimated emissions of non-methane organic compounds (NMOCs) above 50 megagrams per year. The design capacity of the Polk County Regional Waste Management Facility will exceed 2.75 million tons. Therefore, once the emission rate is greater than 50 megagrams per year of NMOC, the site will require a landfill gas collection and control system (GCCS) per the NSPS. Consistent with the NSPS, the applicant will make the necessary submittals to the Commission Office of Air Quality, which administers the NSPS. As required per the NSPS and MSW Permits Section requirements, a landfill gas collection and control system will be installed, operated, and monitored per the NSPS requirements.

The GCCS may be installed and expanded prior to the regulatory timeframe to control odors or potential methane migration. The components of the GCCS may include:

- Passive gas vents

- Gas interceptor trenches
- LFG wells extending into the waste
- LFG collection system
- LFG flare station

As-constructed record drawings will be prepared documenting the GCCS installation (LFG well locations, header piping locations, lateral piping locations, etc.) and will be maintained as part of the Site Operating Record.

5.1 Gas Collection and Control System Design

As documented in Section 3.7 and Appendix B, a number of passive vents, interceptor trenches, and flares have been installed at various times at the facility. Additional vents and trenches may be installed as needed to control gas migration.

Within the landfill, the GCCS will consist of vertical and horizontal gas extraction wells installed over disposal areas. Each gas well will be connected to laterals that convey flow to headers. A vacuum will be induced on the header by a blower located at the flare station. The applied vacuum will pull the gas from the extraction wells into the header, which conveys the gas to the flare for combustion. As additional waste is placed, the existing LFG extraction wells will either be extended or redrilled.

As the site develops, additional extraction wells will be installed over the active waste disposal area as needed to enhance gas recovery and to meet New Source Performance Standards (NSPS) requirements. Vertical and horizontal gas wells will be constructed through the final cover components or intermediate cover soils and into the underlying waste. The vertical gas wells will consist of a high-density polyethylene (HDPE) or polyvinyl chloride (PVC) pipe. The lower portion of the pipe will be perforated or slotted HDPE or PVC pipe. The perforated or slotted pipe will be embedded in aggregate backfill or wrapped with a geosynthetic drainage layer.

Horizontal LFG wells may also be installed within the waste. The horizontal gas wells will consist of HDPE or PVC pipe. The initial 20 feet (minimum) of the well will consist of non-perforated HDPE or PVC pipe. The remaining pipe will be perforated or slotted HDPE or PVC and will be embedded in aggregate backfill.

A wellhead will be attached to the top of each gas well. The wellhead will include a valve for LFG flow control, access, and sample ports for measuring pressure, vacuum, and gas composition.

HDPE piping will be installed above or below areas with intermediate cover and below the final cover in closed areas to convey LFG to the LFG flare station. Condensate knockouts and condensate sumps will be provided to remove condensate accumulations in the LFG collection piping. Liquids collected from the condensate knockouts and condensate sumps will be transferred to the leachate storage system or to a separate condensate tank. Liquids from the LFG system may be recirculated in the Subtitle D portions of the landfill or collected in the leachate storage system or in temporary storage tanks.

The gas control system will be installed in a manner that protects the integrity of the liner, leachate collection, and final cover systems. Gas wells will be drilled such that they terminate above bottom of waste to avoid damage to the liner system. Penetrations in the final cover system will be sealed appropriately to minimize the intrusion of water and air into the waste.

Plans and details of the current landfill GCCS proposed to control gas migration are included in Appendix C.

Operational activities for the GCCS typically include periodic maintenance activities and system balancing. Wellfield technicians visually check the active gas extraction wells for excessive settlement, well head integrity, and to verify the condition of seals, monitoring ports, and connections. All monitoring and inspection reports will be maintained in the Site Operating Record. As needed, wells will be adjusted so that flow volumes will minimize potential air intrusion into the waste.

5.2 Landfill Gas Blower-Flare Station

A LFG blower-flare station with a candlestick flare will be used for combustion of the LFG. The LFG blower-flare station will include the following components:

- An inlet knockout vessel to remove suspended particles and entrained liquid from the LFG
- Blower/compressor equipment to create vacuum and withdraw the LFG from the landfill
- A flame arrestor to prevent the flame from entering the LFG collection system piping
- Miscellaneous electrical controls and monitoring equipment

5.3+ Backup Plan

The backup plan, in the event of possible failure or inadequate performance of the gas monitoring or gas collection system, will consist of an evaluation of the system and implementation of measures to ensure adequate performance of the system. The evaluation will be based on data collected during the operation/performance of the in-place gas collection system until such time as a potential inadequacy is determined.

The following is a back-up plan to be used if monitoring probes, ~~or~~ continuous monitoring devices, or GCCS components if installed, become unusable or inoperative.

Stationary Perimeter Probes

1. Upon approval of the Commission, damaged or inoperative perimeter probes will be repaired or replaced within 60 days.
2. With 30 days of completion of the replacement probe, an installation report including boring logs and construction details will be submitted to the Commission.
3. Should a monitoring event occur prior to replacement of a damaged probe, a barhole may be placed next to the damaged probe or vent, and a portable gas monitor used until the probe or vent is replaced.

Stationary Combustible Gas Monitor

1. Damaged or inoperative combustible gas monitors will be repaired or replaced within 60 days.
2. A portable gas indicator calibrated in the LEL range for methane will be used until the damaged or inoperative stationary unit is repaired or replaced.

Gas Collection and Control System

1. A rental or spare part will be used to replace the affected GCCS component until a new part or the repaired part is ready for service. If due to equipment breakdown or overload, backup equipment may include a rental flare, blower skid, or other equipment required for operation of the GCCS. All replacement or new parts will be of a similar design and capability as the original part.

6.0 RECORD KEEPING AND REPORTING

Records of the installation for monitoring probes, vents, gas extraction wells, flares, and continuous monitors will be maintained in the Site Operating Record. The quarterly sampling results, recorded as detailed in Section 4 will be submitted to the Executive Director and will be also placed in the Site Operating Record. Data recorded on a form such as the Gas Monitoring Data Form, similar to that provided in Appendix A of this plan, will be included.

ENCLOSURE B

UNMARKED REVISED PAGES

ATTACHMENT 14

LANDFILL GAS MANAGEMENT PLAN

FOR

POLK COUNTY REGIONAL WASTE MANAGEMENT FACILITY
POLK COUNTY, TEXAS
MSW PERMIT NO. 1384A

Santek Environmental of Texas, LLC
3477 FM 942 West
Leggett, Texas 77350

Prepared by:



14950 Heathrow Forest Parkway
Suite 280
Houston, Texas 77032
(281) 821 6868

July 2002
December 2002 (Revision 1)
February 2003 (Revision 2)
November 2009 (Revision 3)
January 2019 (Revision 4)



GOLDER ASSOCIATES, INC
TEXAS REGISTRATION F-2578

ATTACHMENT 14

**POLK COUNTY REGIONAL WASTE MANAGEMENT FACILITY
POLK COUNTY, TEXAS
PERMIT 1384A**

TABLE OF CONTENTS



GOLDER ASSOCIATES, INC
TEXAS REGISTRATION F-2578

1.0	INTRODUCTION	3
2.0	REGULATORY SUMMARY	3
2.1	RCRA Subtitle D	3
2.2	State Program.....	3
3.0	GENERAL SITE INFORMATION	4
3.1	Location and Land Use	4
3.2	History of Use	4
3.3	Regional Geology	4
3.4	Site Geology	4
3.5	Hydrogeology	5
3.6	Climate.....	5
3.7	Previous Landfill Gas Monitoring, Assessment, and Remediation Activities.....	6
4.0	LANDFILL GAS MONITORING PLAN.....	8
4.1	Perimeter Monitoring.....	8
4.1.1	Gas Monitoring Probe Placement.....	8
4.1.1.1	Demonstration of Single Probe Adequacy.....	10
4.1.2	Gas Monitoring Probe Construction	10
4.1.3	Inspection and Maintenance	12
4.1.4	Monitoring Equipment.....	12
4.1.5	Gas Monitor Probe Sampling Procedures.....	12
4.2	Building/Structure Monitoring.....	13
4.2.1	Installed Monitoring Systems	13
4.2.2	Supplemental Systems	14
4.2.2.3	Inspection and Maintenance	15
5.0	LANDFILL GAS CONTROL PLAN.....	16
5.1	Gas Collection and Control System Design.....	16
5.2	Landfill Gas Blower-Flare Station.....	17
5.3	Backup Plan	17
6.0	RECORD KEEPING AND REPORTING	19
7.0	CONTINGENCY PLAN	20
7.1	Immediate Actions to Protect Human Health	20
7.2	Action Within Seven Days to Update the Operating Record.....	21
7.3	Action Within 60 Days to Implement a Remediation Plan.....	21
8.0	REFERENCES	23

ATTACHMENT 14

**LANDFILL GAS MANAGEMENT PLAN
POLK COUNTY REGIONAL WASTE MANAGEMENT FACILITY
POLK COUNTY, TEXAS
PERMIT 1384A**

TABLE OF CONTENTS (continued)

TABLES

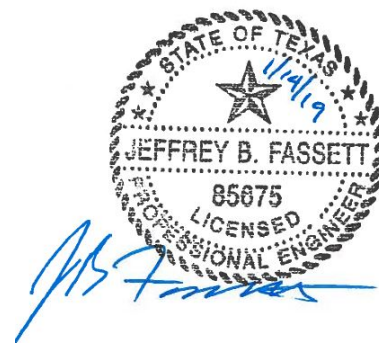
Table ATT14-1	Minimum Water Levels
Table ATT14-2	Gas Monitor Probe Data Summary

FIGURES

Figure ATT14-1	General Location Map
Figure ATT14-2	Existing and Proposed Gas Monitoring System
Figure ATT14-3	Typical Gas Monitoring Probe Detail

APPENDICES

Appendix A	Gas Monitoring Data Form
Appendix B	Previous Plans and Reports
Appendix C	Landfill Gas Collection and Control System Plan and Details



GOLDER ASSOCIATES, INC
TEXAS REGISTRATION F-2578

5.0 LANDFILL GAS CONTROL PLAN

This section describes the Landfill Gas Control Plan (LGCP) developed for the facility to provide a site-specific approach to implementing LFG control.

The NSPS for MSW landfills applies to landfills with design capacities greater than 2.5 million megagrams (2.75 million tons) and annual estimated emissions of non-methane organic compounds (NMOCs) above 50 megagrams per year. The design capacity of the Polk County Regional Waste Management Facility will exceed 2.75 million tons. Therefore, once the emission rate is greater than 50 megagrams per year of NMOC, the site will require a landfill gas collection and control system (GCCS) per the NSPS. Consistent with the NSPS, the applicant will make the necessary submittals to the Commission Office of Air Quality, which administers the NSPS. As required per the NSPS and MSW Permits Section requirements, a landfill gas collection and control system will be installed, operated, and monitored per the NSPS requirements.

The GCCS may be installed and expanded prior to the regulatory timeframe to control odors or potential methane migration. The components of the GCCS may include:

- Passive gas vents
- Gas interceptor trenches
- LFG wells extending into the waste
- LFG collection system
- LFG flare station

As-constructed record drawings will be prepared documenting the GCCS installation (LFG well locations, header piping locations, lateral piping locations, etc.) and will be maintained as part of the Site Operating Record.

5.1 Gas Collection and Control System Design

As documented in Section 3.7 and Appendix B, a number of passive vents, interceptor trenches, and flares have been installed at various times at the facility. Additional vents and trenches may be installed as needed to control gas migration.

Within the landfill, the GCCS will consist of vertical and horizontal gas extraction wells installed over disposal areas. Each gas well will be connected to laterals that convey flow to headers. A vacuum will be induced on the header by a blower located at the flare station. The applied vacuum will pull the gas from the extraction wells into the header, which conveys the gas to the flare for combustion. As additional waste is placed, the existing LFG extraction wells will either be extended or redrilled.

As the site develops, additional extraction wells will be installed over the active waste disposal area as needed to enhance gas recovery and to meet New Source Performance Standards (NSPS) requirements. Vertical and horizontal gas wells will be constructed through the final cover components or intermediate cover soils and into the underlying waste. The vertical gas wells will consist of a high-density polyethylene (HDPE) or polyvinyl chloride (PVC) pipe. The lower portion of the pipe will be perforated or slotted HDPE or PVC pipe. The perforated or slotted pipe will be embedded in aggregate backfill or wrapped with a geosynthetic drainage layer.

Horizontal LFG wells may also be installed within the waste. The horizontal gas wells will consist of HDPE or PVC pipe. The initial 20 feet (minimum) of the well will consist of non-perforated HDPE or PVC pipe. The remaining pipe will be perforated or slotted HDPE or PVC and will be embedded in aggregate backfill.

A wellhead will be attached to the top of each gas well. The wellhead will include a valve for LFG flow control, access, and sample ports for measuring pressure, vacuum, and gas composition.

HDPE piping will be installed above or below areas with intermediate cover and below the final cover in closed areas to convey LFG to the LFG flare station. Condensate knockouts and condensate sumps will be provided to remove condensate accumulations in the LFG collection piping. Liquids collected from the condensate knockouts and condensate sumps will be transferred to the leachate storage system or to a separate condensate tank. Liquids from the LFG system may be recirculated in the Subtitle D portions of the landfill or collected in the leachate storage system or in temporary storage tanks.

The gas control system will be installed in a manner that protects the integrity of the liner, leachate collection, and final cover systems. Gas wells will be drilled such that they terminate above bottom of waste to avoid damage to the liner system. Penetrations in the final cover system will be sealed appropriately to minimize the intrusion of water and air into the waste.

Plans and details of the current landfill GCCS proposed to control gas migration are included in Appendix C.

Operational activities for the GCCS typically include periodic maintenance activities and system balancing. Wellfield technicians visually check the active gas extraction wells for excessive settlement, well head integrity, and to verify the condition of seals, monitoring ports, and connections. All monitoring and inspection reports will be maintained in the Site Operating Record. As needed, wells will be adjusted so that flow volumes will minimize potential air intrusion into the waste.

5.2 Landfill Gas Blower-Flare Station

A LFG blower-flare station with a candlestick flare will be used for combustion of the LFG. The LFG blower-flare station will include the following components:

- An inlet knockout vessel to remove suspended particles and entrained liquid from the LFG
- Blower/compressor equipment to create vacuum and withdraw the LFG from the landfill
- A flame arrestor to prevent the flame from entering the LFG collection system piping
- Miscellaneous electrical controls and monitoring equipment

5.3 Backup Plan

The backup plan, in the event of possible failure or inadequate performance of the gas monitoring or gas collection system, will consist of an evaluation of the system and implementation of measures to ensure adequate performance of the system. The evaluation will be based on data collected during the operation/performance of the in-place gas collection system until such time as a potential inadequacy is determined.

The following is a back-up plan to be used if monitoring probes, continuous monitoring devices, or GCCS components if installed, become unusable or inoperative.

Stationary Perimeter Probes

1. Upon approval of the Commission, damaged or inoperative perimeter probes will be repaired or replaced within 60 days.

2. With 30 days of completion of the replacement probe, an installation report including boring logs and construction details will be submitted to the Commission.
3. Should a monitoring event occur prior to replacement of a damaged probe, a barhole may be placed next to the damaged probe or vent, and a portable gas monitor used until the probe or vent is replaced.

Stationary Combustible Gas Monitor

1. Damaged or inoperative combustible gas monitors will be repaired or replaced within 60 days.
2. A portable gas indicator calibrated in the LEL range for methane will be used until the damaged or inoperative stationary unit is repaired or replaced.

Gas Collection and Control System

1. A rental or spare part will be used to replace the affected GCCS component until a new part or the repaired part is ready for service. If due to equipment breakdown or overload, backup equipment may include a rental flare, blower skid, or other equipment required for operation of the GCCS. All replacement or new parts will be of a similar design and capability as the original part.

6.0 RECORD KEEPING AND REPORTING

Records of the installation for monitoring probes, vents, gas extraction wells, flares, and continuous monitors will be maintained in the Site Operating Record. The quarterly sampling results, recorded as detailed in Section 4 will be submitted to the Executive Director and will be also placed in the Site Operating Record. Data recorded on a form such as the Gas Monitoring Data Form, similar to that provided in Appendix A of this plan, will be included.

APPENDIX C

LANDFILL GAS COLLECTION AND CONTROL SYSTEM PLAN AND DETAILS

Path: \\usaster\drawing\2019\18109907 - polk county land\PRODUCTIONA - GCCS Design\1 File Name: 18109907A001.dwg | Last Edited By: mscuz Date: 2019-01-14 Time: 11:43:04 AM | Printed By: MCruz Date: 2019-01-14 Time: 11:44:53 AM



LEGEND

- EXISTING GROUND 10 ft CONTOUR
- EXISTING GROUND 2 ft CONTOUR
- PERMIT BOUNDARY
- LIMITS OF WASTE
- MW- EXISTING MONITORING WELL
- GMP- EXISTING GAS MONITORING PROBE
- PV- EXISTING PASSIVE VENT
- GW- PROPOSED VERTICAL GAS COLLECTION WELL
- CS- PROPOSED CONDENSATE SUMP
- PROPOSED ACCESS RISER
- PROPOSED GAS COLLECTION PIPE

- NOTE(S)**
- LANDFILL TOPOGRAPHY COMPILED BY PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY DATED APRIL 26, 2018.
 - AS-CONSTRUCTED INFORMATION INCLUDES INFORMATION PROVIDED BY OTHERS.

FOR PERMITTING PURPOSES ONLY



0	2019-01-14	FOR PERMITTING PURPOSES ONLY	MGC	MGC	WEG	JBF
REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED

SEAL

JEFFREY B. FASSETT
85675
LICENSED PROFESSIONAL ENGINEER

GOLDER ASSOCIATES, INC
TEXAS REGISTRATION F-2578

CLIENT
SANTEK
Waste Services
CONSULTANT

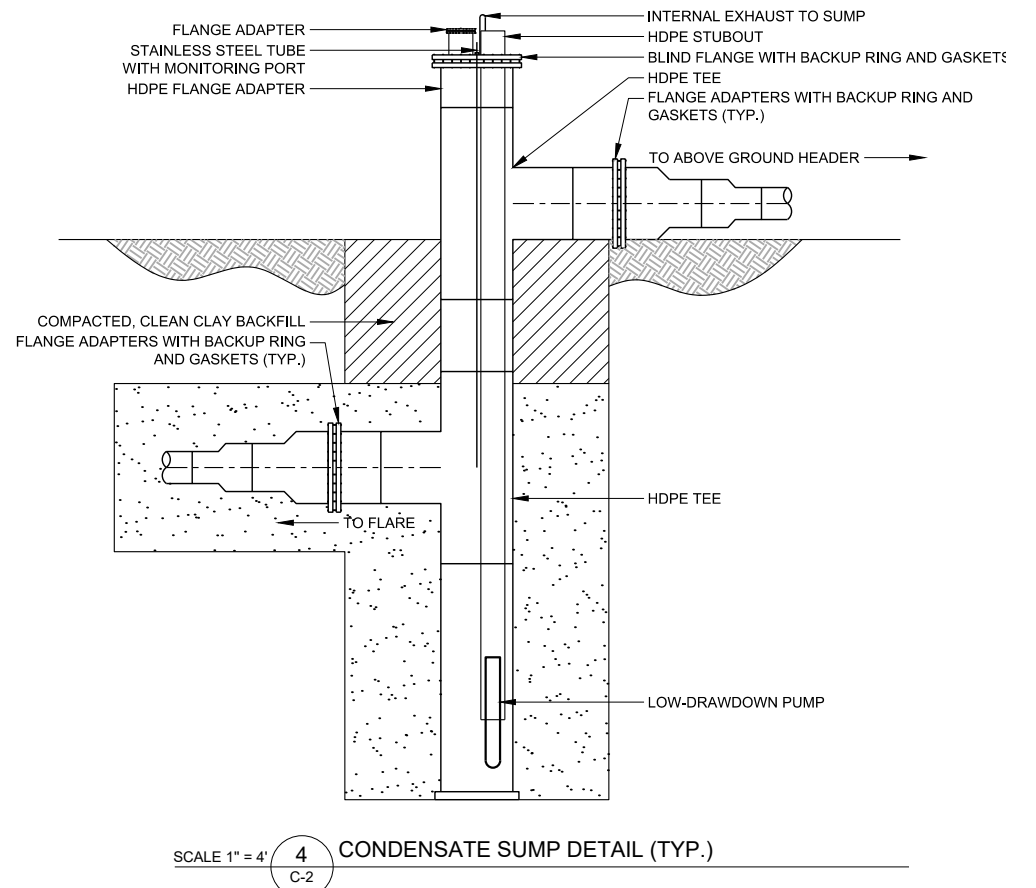
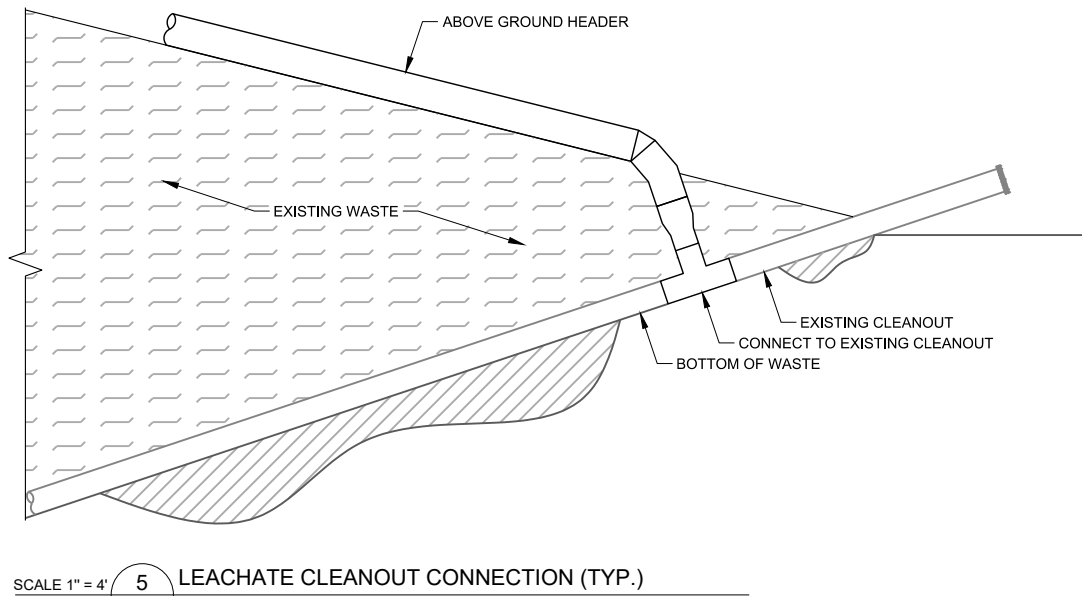
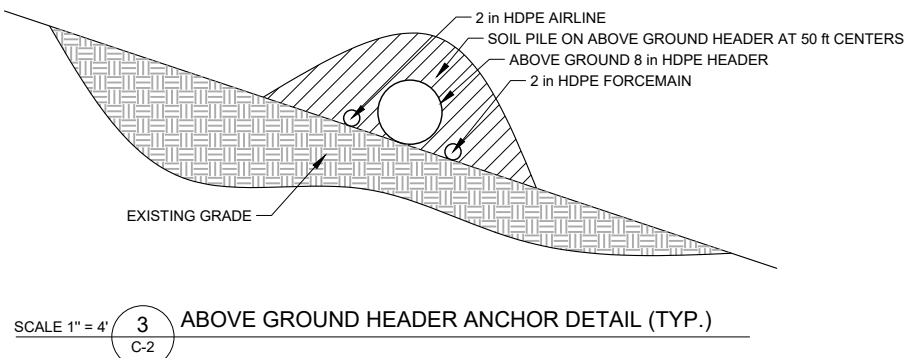
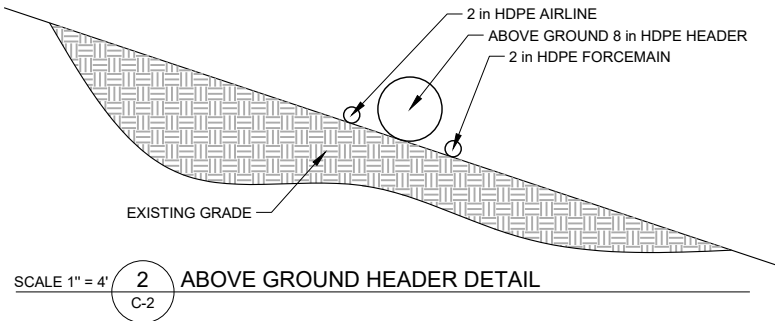
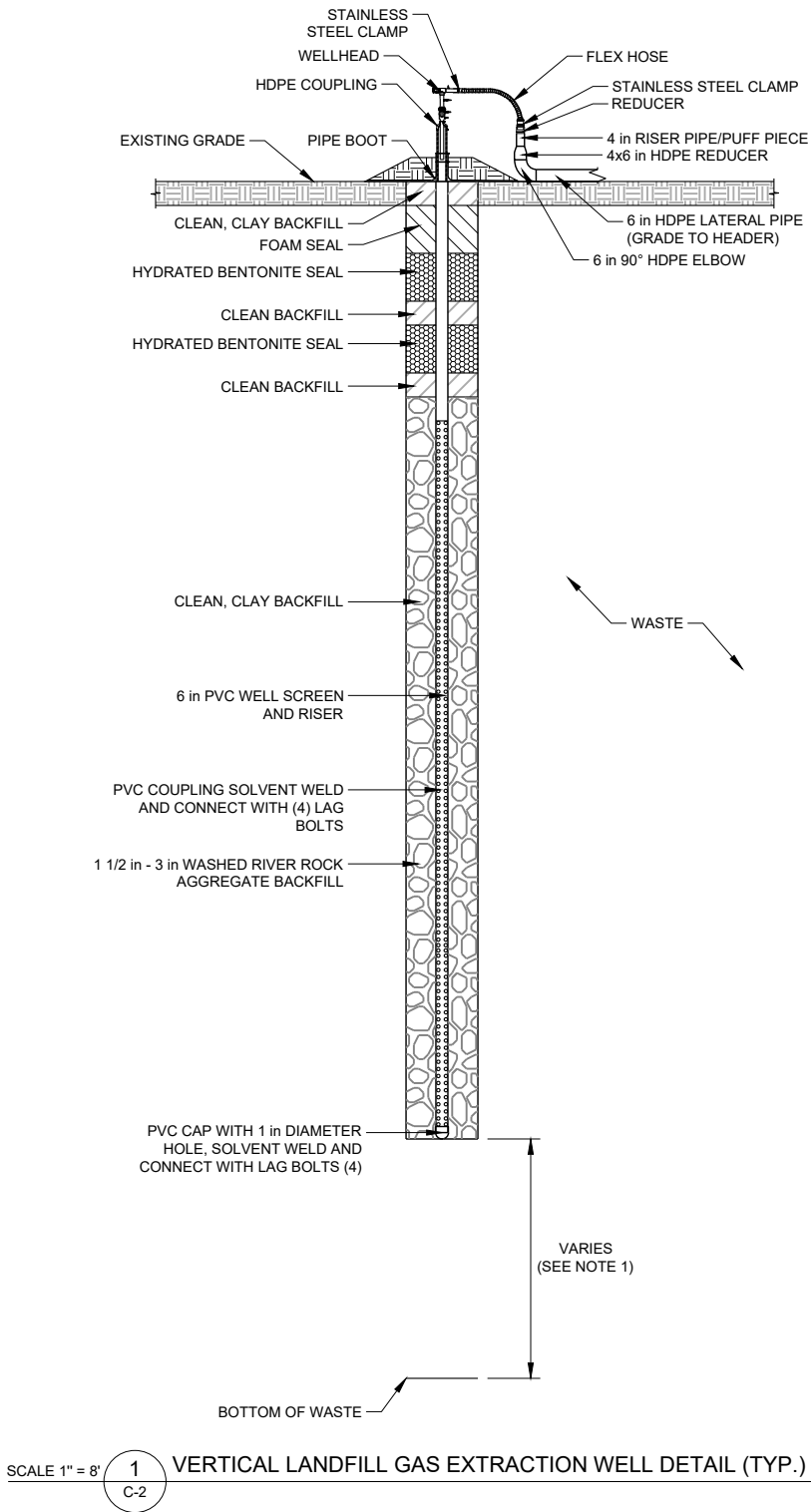
GOLDER

HOUSTON NORTH OFFICE
14950 HEATHROW FOREST PARKWAY, STE 280
HOUSTON, TEXAS 77032
USA
[+1] (281) 821 6868
www.golder.com

PROJECT				
LANDFILL GAS COLLECTION AND CONTROL SYSTEM DESIGN				
POLK COUNTY LANDFILL, TCEQ PERMIT NO. MSW-1384A				
POLK COUNTY, TEXAS				
TITLE				
GAS COLLECTION AND CONTROL SYSTEM				
PROJECT NO.	PHASE	REV.	1 of 2	FIGURE
18109907	0001	0		C-1

1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI B

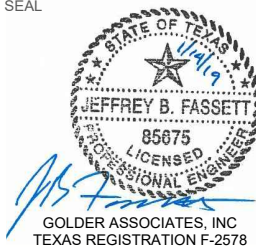
Path: \\uswest\engineering\2019\18109907 - polk county landfill\PRODUCTION\A - GCCS Design\1 Last Edited By: mcz Date: 2019-01-14 Time: 11:42:41 AM | Printed By: MZC Date: 2019-01-14 Time: 11:45:31 AM



- NOTE(S)**
1. BOTTOM OF WELL ELEVATIONS SHALL BE LOCATED A MINIMUM OF 10 ft ABOVE BOTTOM OF WASTE ELEVATIONS IN AREAS LINED WITH GEOSYNTHETIC LINER. BOTTOM OF WELL ELEVATIONS IN PRE-SUBTITLE D AREAS WILL BE KEPT WITHIN WASTE BASED ON THE PERMITTED CLAY LINER ELEVATIONS.
 2. UPON EXPANSION OF THE GAS COLLECTION SYSTEM, LIQUIDS MAY BE COLLECTED BY CONNECTING PIPING TO CELL LEACHATE CLEANOUT RISERS AS NECESSARY.

0	2019-01-14	FOR PERMITTING PURPOSES ONLY	MGC	MGC	WEG	JBF
REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED

SEAL



CLIENT
SANTEK
WasteServices
CONSULTANT



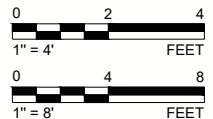
HOUSTON NORTH OFFICE
14950 HEATHROW FOREST PARKWAY, STE 280
HOUSTON, TEXAS 77032
USA
[+1] (281) 821 6868
www.golder.com

PROJECT
LANDFILL GAS COLLECTION AND CONTROL SYSTEM DESIGN
POLK COUNTY LANDFILL, TCEQ PERMIT NO. MSW-1384A
POLK COUNTY, TEXAS

TITLE
GAS COLLECTION AND CONTROL SYSTEM DETAILS

PROJECT NO. 18109907	PHASE 0001	REV. 0	2 of 2	FIGURE C-2
-------------------------	---------------	-----------	--------	---------------

FOR PERMITTING PURPOSES ONLY



1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI B

ENCLOSURE C

TCEQ – 20650 FORM

Facility Name:
Permittee/Registrant Name:
MSW Authorization #:
Initial Submittal Date:
Revision Date:



Texas Commission on Environmental Quality

Permit/Registration Modification and Temporary Authorization Application Form for an MSW Facility

1. Reason for Submittal

- ☐ Initial Submittal ☐ Notice of Deficiency (NOD) Response

2. Authorization Type

- ☐ Permit ☐ Registration

3. Application Type

- ☐ Modification with Public Notice ☐ Modification without Public Notice
☐ Temporary Authorization (TA) ☐ Modification for Name Change/Transfer

4. Application Fees

- ☐ Pay by Check ☐ Online Payment

If paid online, e-Pay Confirmation Number:

5. Application URL

Is the application submitted for a permit/registration modification with public notice?

- ☐ Yes ☐ No

If the answer is "Yes", enter the URL address of a publicly accessible internet web site where the application and all revisions to that application will be posted in the space provided: <http://>

6. Confidential Documents

Does the application contain confidential documents?

- ☐ Yes ☐ No

If "Yes", cross-reference the confidential documents throughout the application and submit as a separate attachment in a binder clearly marked "CONFIDENTIAL."

Facility Name:
MSW Authorization #:

Initial Submittal Date:
Revision Date:

7. General Facility Information

Facility Name:

MSW Authorization No.:

Regulated Entity Reference No.:

Physical or Street Address (if available):

City:

County:

State:

Zip Code:

(Area code) Telephone Number:

Latitude:

Longitude:

8. Facility Type(s)

☐ Type I

☐ Type IV

☐ Type V

☐ Type I AE

☐ Type IV AE

☐ Type VI

9. Description of the Revisions to the Facility

Provide a brief description of all revisions to the permit/registration conditions and supporting documents referred by the permit/registration, and a reference to the specific provisions under which the modification/temporary authorization application is being made. Also, provide an explanation of why the modification/temporary authorization is requested:

Facility Name:
MSW Authorization #:

Initial Submittal Date:
Revision Date:

10. Facility Contact Information

Site Operator (Permittee/Registrant) Name:

Customer Reference No. (if issued)*: CN

Mailing Address:

City: County: State: Zip Code:

(Area Code) Telephone Number:

E-mail Address:

TX Secretary of State (SOS) Filing Number:

*If the Site Operator (Permittee/Registrant) does not have this number, complete a TCEQ Core Data Form (TCEQ-10400) and submit it with this application. List the Site Operator (Permittee/Registrant) as the Customer.

Operator Name¹:

Customer Reference No. (if issued)*: CN

Mailing Address:

City: County: State: Zip Code:

(Area Code) Telephone Number:

E-mail Address:

Charter Number:

¹If the Operator is the same as Site Operator/Permittee type "Same as "Site Operator (Permittee/Registrant)".

*If the Operator does not have this number, complete a TCEQ Core Data Form (TCEQ-10400) and submit it with this application. List the Operator as the customer.

Consultant Name (if applicable):

Texas Board of Professional Engineers Firm Registration Number:

Mailing Address:

City: County: State: Zip Code:

(Area Code) Telephone Number:

E-Mail Address:

Agent in Service Name (required only for out-of-state):

Mailing Address:

City: County: State: Zip Code:

(Area Code) Telephone Number:

E-Mail Address:

Facility Name:
MSW Authorization #:

Initial Submittal Date:
Revision Date:

11. Ownership Status of the Facility

Is this a modification that changes the legal description, the property owner, or the Site Operator (Permittee/Registrant)?

☐ Yes ☐ No

If the answer is "No", skip this section.

Does the Site Operator (Permittee/Registrant) own all the facility units and all the facility property?

☐ Yes ☐ No

If "No", provide the information requested below for any additional ownership.

Owner Name:

Street or P.O. Box:

City: County: State: Zip Code:

(Area Code) Telephone Number:

Email Address (optional):

Charter Number:

Signature Page

I, Sydney Murphy, Polk County Judge,
(Site Operator (Permittee/Registrant)'s Authorized Signatory) (Title)

certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: *Sydney Murphy*

Date: January 10, 2019

TO BE COMPLETED BY THE OPERATOR IF THE APPLICATION IS SIGNED BY AN AUTHORIZED REPRESENTATIVE FOR THE OPERATOR

I, _____, hereby designate _____
(Print or Type Operator Name) (Print or Type Representative Name)

as my representative and hereby authorize said representative to sign any application, submit additional information as may be requested by the Commission; and/or appear for me at any hearing or before the Texas Commission on Environmental Quality in conjunction with this request for a Texas Water Code or Texas Solid Waste Disposal Act permit. I further understand that I am responsible for the contents of this application, for oral statements given by my authorized representative in support of the application, and for compliance with the terms and conditions of any permit which might be issued based upon this application.

Printed or Typed Name of Operator or Principal Executive Officer

Signature

SUBSCRIBED AND SWORN to before me by the said Sydney Murphy

On this 10 day of January, 2019

My commission expires on the 28 day of April, 2019

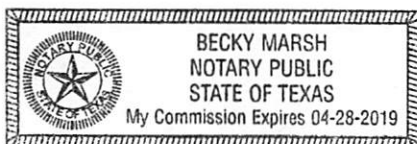
Becky Marsh

Becky Marsh
Notary Public in and for

Polk

County, Texas

(Note: Application Must Bear Signature & Seal of Notary Public)



Facility Name:
MSW Authorization #:

Initial Submittal Date:
Revision Date:

Permit/Registration Modification with Public Notice

(See Instructions for P.E. seal requirements.)

Required Attachments

Attachment No.

Land Ownership Map

Land Ownership List

Marked (Redline/Strikeout) Pages

Unmarked Revised Pages

Additional Attachments as Applicable- Select all those apply and add as necessary

- ☐ Signatory Authority
- ☐ Fee Payment Receipt
- ☐ Confidential Documents

Facility Name:
MSW Authorization #:

Initial Submittal Date:
Revision Date:

Permit/Registration Modification without Public Notice or TA

(See Instructions for P.E. seal requirements.)

Required Attachments (for Modifications only)

Attachment No.

Marked (Redline/Strikeout) Pages

Unmarked Revised Pages

Additional Attachments as Applicable- Select all those apply and add as necessary

- ☐ Signatory Authority
- ☐ Fee Payment Receipt
- ☐ Confidential Documents

Facility Name:
MSW Authorization #:

Initial Submittal Date:
Revision Date:

Permit/Registration Name Change/Transfer Modification

(See Instructions for P.E. seal requirements.)

Required Attachments

Attachment No.

TCEQ Core Data Form(s)

Property Legal Description

Property Metes and Bounds Description

Metes and Bounds Drawings

On-Site Easements Drawing

Land Ownership List

Land Ownership Map

Property Owner Affidavit

Verification of Legal Status

Evidence of Competency

Additional Attachments as Applicable- Select all those apply and add as necessary

- ☐ Signatory Authority
- ☐ Fee Payment Receipt
- ☐ Confidential Documents
- ☐ Final Plat Record of Property, if platted
- ☐ Assumed Name Certificate

[Questions or Comments >>](#)[Shopping Cart](#)[Select Fee](#)[Search Transactions](#)[Sign Out](#)

Your transaction is complete. Thank you for using TCEQ ePay.

Note: It may take up to 3 working days for this electronic payment to be processed and be reflected in the TCEQ ePay system. Print this receipt and the vouchers for your records. An email receipt has also been sent.

Transaction Information

Trace Number: 582EA000328169
Date: 01/14/2019 12:30 PM
Payment Method: CC - Authorization 0000882336
Amount: \$150.00
ePay Actor: Kelly Crowe
Actor Email: kcrowe@golder.com
IP: 76.247.111.229

Payment Contact Information

Name: Kelly Crowe
Company: Golder Associates Inc
Address: 14950 Heathrow Forest Pkwy, Houston, TX 77032
Phone: 281-821-6868

Cart Items

Click on the voucher number to see the voucher details.

Voucher	Fee Description	AR Number	Amount
400288	NONHAZARDOUS WASTE PERMIT - NEW, AMENDMENTS & MODIFICATIONS		\$100.00
400289	30 TAC 305.53B HWP NOTIFICATION FEE		\$50.00
Total fees for transaction:		\$150.00	

[ePay Again](#)[Exit ePay](#)

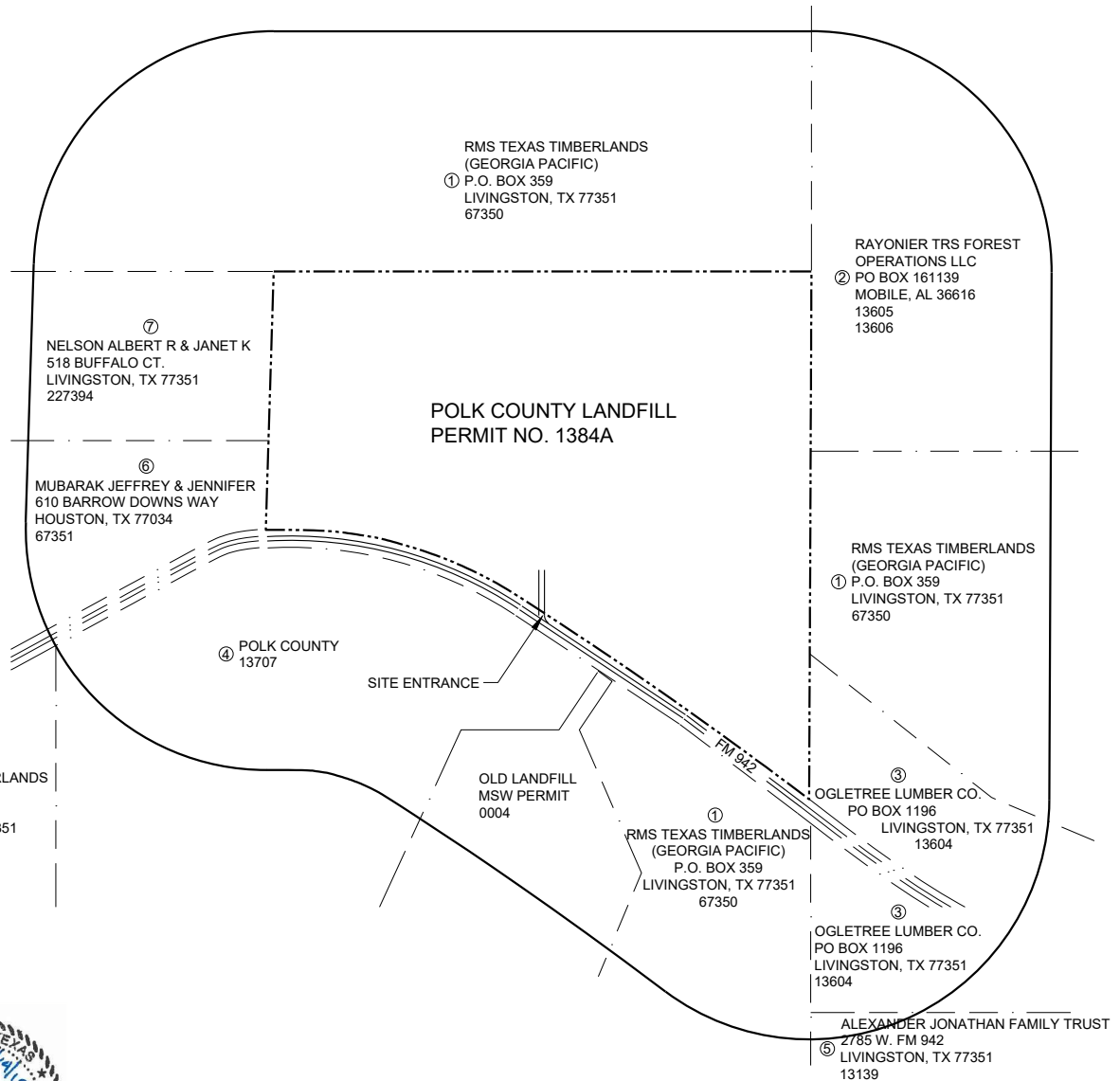
Note: It may take up to 3 working days for this electronic payment to be processed and be reflected in the TCEQ ePay system. Print this receipt for your records.

[Site Help](#) | [Disclaimer](#) | [Web Policies](#) | [Accessibility](#) | [Our Compact with Texans](#) | [TCEQ Homeland Security](#) | [Contact Us](#)
[Statewide Links](#): [Texas.gov](#) | [Texas Homeland Security](#) | [TRAIL Statewide Archive](#) | [Texas Veterans Portal](#)

© 2002-2013 Texas Commission on Environmental Quality

ENCLOSURE D

LAND OWNERSHIP MAP AND LIST



FOR PERMITTING PURPOSES ONLY

NOTE(S)

1. PROPOERTY OWNERS WITHIN 1/4 MILE OF THE LANDFILL PERMIT BOUNDARY IDENTIFIED.
2. PROPERTY OWNERS LIST OBTAINED FROM POLK COUNTY APPRAISAL DISTRICT RECORDS IN JANUARY 2019.



CONSULTANT



YYYY-MM-DD 2019-01-14

DESIGNED MGC

PREPARED MGC

REVIEWED WEG

APPROVED JBF

PROJECT

LANDFILL GAS COLLECTION AND CONTROL SYSTEM DESIGN
POLK COUNTY LANDFILL, TCEQ PERMIT NO. MSW-1384A
POLK COUNTY, TEXAS

TITLE

ADJACENT LANDOWNERS MAP

PROJECT NO.
18109907

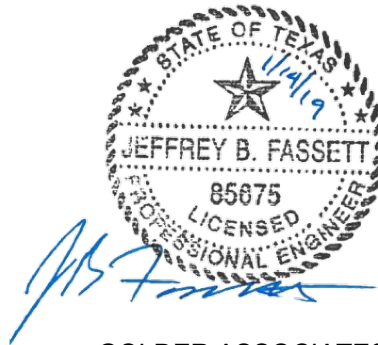
PHASE
0001

REV.
0

FIGURE
D-1

ADJACENT LANDOWNERS LIST

- 1 RMS TEXAS TIMBERLANDS (GEORGIA PACIFIC)
P.O. BOX 359
LIVINGSTON, TX 77351
- 2 RAYONIER TRS FOREST OPERATIONS LLC
PO BOX 161139
MOBILE, AL 36616
- 3 OGLETREE LUMBER CO.
PO BOX 1196
LIVINGSTON, TX 77351
- 4 POLK COUNTY
W. FM 942
LEGGETT, TX 77350
- 5 JONATHAN ALEXANDER FAMILY TRUST
3785 W. FM 942
LIVINGSTON, TX 77351
- 6 JEFFREY & JENNIFER MUBARAK
610 BARROW DOWNS WAY
HOUSTON, TX 77034
- 7 ALBERT R. & JANET K. NELSON
518 BUFFALO CT.
LIVINGSTON, TX 77351



GOLDER ASSOCIATES INC.
Professional Engineering Firm
Registration Number F-2578