REPUBLIC SERVICES

Blue Ridge Landfill - 2200 FM 521 Fresno, TX 77545
713-676-7669 / FAX 713-676-7882 /bstengle@republicservices.com

June 8, 2018

Mr. Chance Goodin
MC 126
Section Manager
Municipal Solid Waste Permits Section
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

Re: Permit Modification – Odor Control Plan
Blue Ridge Landfill - TCEQ MSW Permit No. 1505A
Fort Bend County, Texas
RN102610102/CN602820599

Dear Mr. Goodin:

On April 5, 2018 BRLF submitted the final revised Odor Control Plan, which was approved by the TCEQ on April 10, 2018. Agreed Odor TCEQ Docket No. 2016-1923-AIR-E for the Blue Ridge Landfill (BRLF) requires that a permit modification be submitted to revise Section 4.10 of site's existing Part IV-Site Operating Plan (SOP) to incorporate the TCEQ approved Odor Control Plan. As such, this Permit Modification is being submitted as outlined in the Agreed Order. In addition, other sections of the SOP as well as Attachments 14 and 15 of Part III-Site Development Plan have also been revised to provide consistency and references to the Odor Control Plan.

The following summarizes the changes made to the site's existing Part IV-SOP:

- The Part IV cover page has been revised to reflect the current revision date.
- Page v of Part IV-SOP Table of Contents was revised to indicate the addition of Appendix IVH.
- Section 2.1.2 Landfill Manager, Page IV-3 has been revised to provide reference to the TCEQ approved Odor Control Plan for the site.
- Section 2.1.3 Scale House Staff, Page IV-4 has been revised to provide reference to the TCEQ approved Odor Control Plan for the site.
- Section 3 Equipment, Page IV-12 has been revised to provide reference to the TCEQ approved Odor Control Plan for the site.
- Table 4.2.2 Citizen Collection Station Capacity Information, Page IV-18 has been revised to be consistent with the TCEQ approved Odor Control Plan for the site.

- Section 4.10 – Air Quality and Odor Management Plan, Pages IV-26 through IV-28 has been revised to be consistent with the TCEQ approved Odor Control Plan for the site.
- Section 4.18.2 Daily Cover, Page IV-33 has been revised to provide reference to the TCEQ approved Odor Control Plan for the site.
- Section 4.18.3 Intermediate Cover, Page IV-36 has been revised to provide reference to the TCEQ approved Odor Control Plan for the site.
- Section 4.18.4 Final Cover, Page IV-36 has been revised to provide reference to the TCEQ approved Odor Control Plan for the site.
- Table 4.23 Site Inspection and Maintenance List, Page IV-53 has been revised to be consistent with the TCEQ approved Odor Control Plan for the site.
- The Part IV Appendix IVD cover page has been revised to reflect the current revision date.
- Section 2.8 of Appendix IVD has been added to include the liquid waste bulking facility information consistent with the TCEQ Approved Odor Control Plan for the site.
- Appendix IVH has been added to include the Odor Control Plan.

The following summarizes the changes made to the site's existing Attachments 14 and 15 of the Part III - SDP:

- The Part III Attachment 14 cover page has been revised to reflect the current revision date.
- Attachment 14 Section 1.1 Scope, Page 14-1 has been revised to provide reference to the TCEQ approved Odor Control Plan for the site.
- Attachment 14 Section 6.1 Existing LFG Collection and Control System, Page 14-19 has been revised to provide reference to the TCEQ approved Odor Control Plan for the site.
- The Part III Attachment 15 cover page has been revised to reflect the current revision date.
- Attachment 15 Section 3.4 Leachate Sumps and Pumps, Page 15-6 has been revised to provide reference to the TCEQ approved Odor Control Plan for the site.
- Attachment 15 Section 4.1 Leachate Storage, Page 15-7 has been revised to provide reference to the TCEQ approved Odor Control Plan for the site.

Please process this permit modification request per 30 TAC §305.70(l). An applicant certification consistent with 30 TAC §305.44 and §305.70(f) is included on Page 5 of the TCEQ-

20650 Form in Attachment 5 of this submittal. In accordance with Title 30 TAC §330.59(h)(1), a $150 application fee has been submitted to TCEQ as documented on Page 1 of the TCEQ-20650 Form.

One original and one copy of the permit modification are provided for your use and distribution. To facilitate your review, we have included copies of the Part III – SDP and Part IV – SOP revisions in both clean and redline/strikeout formats. In addition, one copy of this permit modification has been provided to TCEQ Region 12 office. A copy of this submittal was also placed in the site operating record

If you have any questions or comments regarding this submittal, please do not hesitate to contact us.

Sincerely,

Burgess Stengl
Environmental Manager

Attachments: Attachment 1 – Part III – SDP & Part IV – SOP Revisions Pages (Clean Format)
Attachment 2 – Part III – SDP & Part IV – SOP Revisions Pages (Redline/Strikeout Format)
Attachment 3 – TCEQ-20650 Form

cc: TCEQ Region 12 Office
Matt K. Stutz, Weaver Consultants Group

ATTACHMENT 1

PART III – SDP REVISION PAGES
PART IV – SOP REVISION PAGES
(CLEAN FORMAT)

BLUE RIDGE LANDFILL
FORT BEND COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1505A

PART III – SITE DEVELOPMENT PLAN
ATTACHMENT 14
LANDFILL GAS MANAGEMENT PLAN

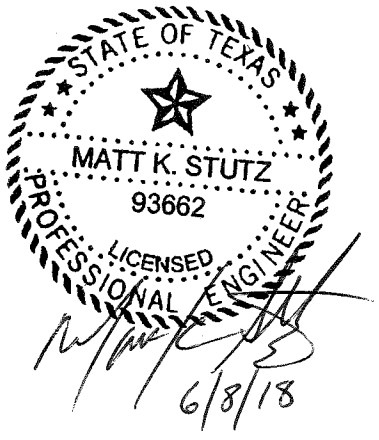
Prepared for

Blue Ridge Landfill TX, LP

Approved Site Development Plan July 2, 2010

Revised April 2011
Revised October 2017
Revised February 2018

Revised June 2018



Prepared by

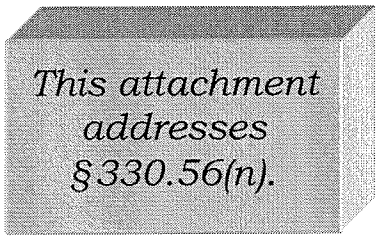
Weaver Consultants Group, LLC
TBPE Registration No. F-3727
6420 Southwest Blvd., Suite 206
Fort Worth, Texas 76109
817-735-9770

WCG Project No. 0120-405-11-91-01

1 INTRODUCTION

1.1 Scope

This Landfill Gas Management Plan (LGMP) has been developed for Blue Ridge Landfill TX, LP consistent with the requirements set forth in the Texas Commission on Environmental Quality (TCEQ) Municipal Solid Waste regulations 30 Texas Administrative Code (TAC) §330.56(n), §330.130, and RCRA Subtitle D regulations in 40 CFR §258.23. This LGMP will replace the previously approved LGMP (August 1994).



In accordance with TCEQ "Guidelines for Preparing a Landfill Gas Management Plan," this LGMP describes the existing landfill gas (LFG) monitoring network and proposed upgrades to the monitoring network. It also discusses the operation and monitoring of this network, procedures for verification of monitoring data, notification procedures, and outlines possible remediation activities, if required. In addition, this LGMP includes a description of the existing and proposed expansions to the Landfill Gas Collection and Control System (GCCS). Additional information and procedures regarding potential offsite odors from the site are described in the Odor Control Plan in Appendix IVH.

1.2 Purpose

30 TAC §330.130 requires landfills to develop a LGMP in accordance with §330.56(n). Compliance with §330.56(n) requires landfills to implement a routine monitoring program for methane to verify that (1) the concentration of methane does not exceed 25 percent of the lower explosive limit (LEL) for methane in facility structures (excluding LFG control or recovery system components) within the facility property boundary, and (2) the concentration of methane does not exceed the LEL for methane at the facility property boundary which is 5% methane by volume in air.

The purpose of the LGMP is to provide guidelines for management of LFG at the site. These guidelines cover the evaluation of the LFG migration at the points of compliance (facility property boundary) and in structures on the permitted site. This will be verified by monitoring LFG concentrations at the facility's property boundary and within on-site occupied structures. LFG migration may be controlled by various options which are discussed in Section 5.

6.3 Future LFG Control Capacity

Using the EPA Landfill Gas Emissions Model, it is estimated that the site will generate a maximum of approximately 36,800 standard cubic feet per minute (scfm) of LFG (Appendix 14G). As such, as needed in the future, additional collection and control equipment will be installed to provide the vacuum and capacity needed to handle the predicted maximum design flow rate of the GCCS. The Blue Ridge Landfill is operating under Standard Air Permit No. 55939 issued by the TCEQ in November 2003 and a Title V Operating Permit #0-01472 issued on December 4, 2000. Two utility flares have recently been installed using permit by rule registration under 30 TAC §106.492. The registration numbers are 77271 and 77703. As additional waste is received and LFG generation increases, the site will continue to add additional flares and/or develop landfill gas-to-energy projects. Future expansions of the control equipment by Blue Ridge Landfill, which may increase site emissions, will be performed following TCEQ approval of the appropriate air authorization.

6.4 GCCS Operation and Maintenance

The operation and maintenance of the GCCS is regulated under the NSPS regulation which is part of the sites Title V permit. The NSPS requires routine wellhead monitoring, surface emissions monitoring, and a variety of record keeping and reporting requirements. In addition, the site is required to follow a start-up, shutdown, and malfunction plan under the National Emission Standards of Hazardous Air Pollutants regulation. Semi-annual reports documenting compliance with these regulations are submitted to the TCEQ and maintained in the Site Operating Record. The Blue Ridge Landfill will continue to follow the operating and maintenance procedures described within these regulations as well as all other applicable regulations for GCCS operation. In addition, the GCCS will be expanded, operated, and maintained as outlined in the Odor Control Plan in Appendix IVH of the SOP.

6.5 LFG Treatment Facility Installation

A LFG treatment and processing facility will be installed at the Blue Ridge Landfill for the voluntary recovery for beneficial use of LFG. The LFG treatment and processing facility location is shown in Attachment 14F-3. The planned facility will utilize the site's gas system to recover methane generated by the landfill to process gas for sale and distribution as a fuel to the customers. Any LFG not used by the new facility will be directed to the flare facility for combustion. The new planned facility will be operated by a third party energy developer under a separate registration. In addition, the site also has existing energy facility which treats collected gas and processes it for sale off-site under registration by rule No. 48035.

BLUE RIDGE LANDFILL
FORT BEND COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1505A

PART III – SITE DEVELOPMENT PLAN
ATTACHMENT 15
LEACHATE AND CONTAMINATED WATER PLAN

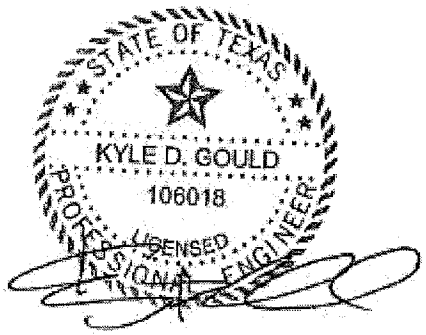
Prepared for

Blue Ridge Landfill TX, LP

Approved Site Development Plan July 2, 2010

Revised October 2010
Revised May 2011

Revised June 2018



6-8-18

Prepared by

Weaver Consultants Group, LLC
TBPE Registration No. F-3727
6420 Southwest Blvd., Suite 206
Fort Worth, Texas 76109
817-735-9770

WCG Project No. 0120-405-11-91-01

Refer to Appendix 15E for more information regarding temporary leachate collection sumps for Sector 4B/5B and Sector 6A. Refer to Appendix 15F for information regarding future temporary leachate collection sumps that may be used for partial sector development in the future, given that the area draining to the temporary sump is less than 15 acres. Additional information and procedures regarding potential odors at leachate sumps cleanout risers is provided in Section 2.6 of the Odor Control Plan in Appendix IVH.

3.5 Drainage Material (Rock or Pulverized Glass)

Drainage material (rock or pulverized glass) around the leachate collection pipes and in the LCS sumps will consist of durable particles of crushed material (rock or pulverized glass) free of silt, clay, or other unsuitable materials. The drainage material (rock or pulverized glass) shall have a loss of mass due to calcium carbonate of less than 15 percent (in accordance with JLT-S-105-89 or ASTM D 304 both modified to use a solution of hydrochloric acid having a pH of 5). The drainage material (rock or pulverized glass) will meet the following gradation in accordance with ASTM D 448, size number 467:

Sieve Size Square Opening	Percent Passing
2 inches	100
1½ inches	95 - 100
¾ inch	35 - 70
3/8 inch	10 - 30
No. 4 (3/16 inch)	0 - 5

Drainage materials (rock or pulverized glass) not complying with the above gradations may also be approved if demonstrated to have a hydraulic conductivity of at least 1 cm/s and meet the gradation requirements of the filter and leachate collection pipe. At a minimum, the drainage material (rock or pulverized glass) will meet the following criteria:

For circular holes:

$$\frac{\text{85 Percent Size of Filter Material}}{\text{Hole Diameter}} > 1.7$$

For slots:

$$\frac{\text{85 Percent Size of Filter Material}}{\text{Slot Width}} > 2.0$$

The drainage material (rock or pulverized glass) will be covered by a geotextile to maintain separation of drainage material (rock or pulverized glass) from the overlying operations layers. The geotextile will be inert to commonly encountered chemicals, hydrocarbons and mildew, and will be rot resistant. Geotextile design calculations are presented in Appendix 15B.

gallon storage tanks will be decommissioned. The northern most 10,000 gallon leachate tank located south of existing Sector 2A will be decommissioned prior to the development of Sector 9. The southern most 10,000 gallon leachate tanks located west of existing Sector I-6 will be decommissioned prior to the development of Sector 27.

The leachate storage tanks consist of double-walled tanks with leak detection sumps. Leachate storage capacity calculations are provided in Appendix 15D. The tank will be equipped with liquid-level sensors and high-level alarms to prevent overfill. The storage tanks will be emptied consistent with the leachate storage system operation plan detailed in Section 5. Disposal of leachate is also discussed in Section 5. The existing leachate storage tanks provide enough storage capacity for the leachate currently generated at the site. The storage tanks are emptied, as required, to maintain capacity for the leachate currently generated at the site.

The existing 100,000 gallon leachate tanks are double-walled steel tanks that contain an inner tank ("storage vessel") consisting of a geomembrane liner. The tanks are placed over a concrete foundation to provide stability for the tanks. The secondary geomembrane liner, attached to the inner surface of the steel tank, collects any leachate that may infiltrate through the primary geomembrane liner. Any leachate that migrates through the primary liner drains to a collection sump which is equipped with a witness riser pipe. The witness riser pipe extends under the tank and through the concrete foundation. As shown on Sheet 15D-5, a clear visual inspection pipe is provided so that the integrity of the tank's primary HDPE geomembrane liner can be visually monitored by site personnel on a weekly basis. Leachate in the visual inspection tube indicates a leak of the primary HDPE geomembrane liner. If this occurs, the tank will be drained and repaired.

A concrete truck loading pad is located adjacent to the 100,000 gallon storage tanks. Trucks will park on the load out pad when leachate is transferred from the tanks to the trucks. The load out pad is constructed of concrete and the pad is sloped to drain to a concrete collection sump (note that this is not the same sump as the leachate storage tank sump discussed above). In the event of a spill while the truck is loading, leachate will be contained within the loadout pad and will drain to the sump. Collected leachate in the sump will be pumped back to the leachate storage tank.

Leachate storage capacity calculations and sequencing plans are provided in Appendix 15D. The onsite leachate storage tanks will be emptied consistent with the leachate storage system operation plan detailed in Section 5. Disposal of leachate is also discussed in Section 5.

Refer to Section 2.4 of the Odor Control Plan in Appendix IVH in the SOP for the use of carbon canisters and the odor neutralizing systems at the leachate storage tank area.

BLUE RIDGE LANDFILL
FORT BEND COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1505A

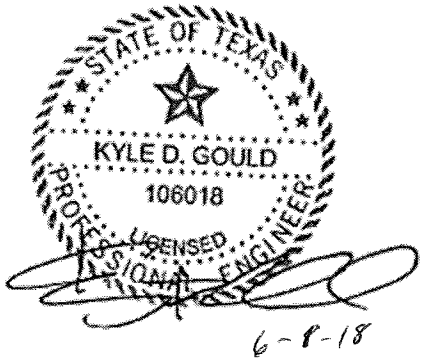
PART IV – SITE OPERATING PLAN

Prepared for

Blue Ridge Landfill TX, LP

Approved Site Operating Plan July 2, 2010
Revised April 2011
Revised September 2011
Revised 2014

Revised June 2018

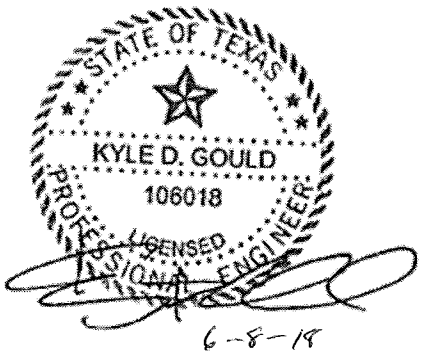


Prepared by

Weaver Consultants Group, LLC
TBPE Registration No. F-3727
6420 Southwest Blvd., Suite 206
Fort Worth, Texas 76109
817-735-9770

WCG Project No. 0120-405-11-91-01

CONTENTS (Continued)



Wherever this SOP provides that responsibility or authority is assigned to the Landfill Manager, this responsibility or authority is automatically transferred to the individual so designated by the Landfill Manager for this duty when the Landfill Manager is not present. The Scale House Staff, Equipment Operators, Mechanics, Spotters, and Laborers are under the supervision of the Landfill Manager or his designee. The Landfill Manager is responsible for hiring and terminating personnel in these positions.

The minimum qualifications for being the Landfill Manager include 5 years of landfill operations experience, the ability to fulfill the duties described for the Landfill Manager in this SOP, and the Landfill Manager must hold a Class A Letter of Competency. The Landfill Manager must be familiar with the specific operating procedures set forth in this plan and will participate in training with other employees. The Landfill Manager, or his designee, is also responsible for routine site inspections as described herein.

The Landfill Manager's responsibilities include the following:

1. Directing site personnel including Laborers, Spotters, Equipment Operators, Scale House Personnel, and Mechanics in the performance of tasks necessary for daily site operations.

2. Identifying any additional equipment or personnel necessary for normal operations in the event of equipment breakdowns, changes in waste volumes accepted, or other circumstances.

3. Performing inspections and completing inspection forms and checklists. The Landfill Manager may delegate this responsibility to other staff.

4. Monitoring and evaluating the performance of employees with respect to assigned duties and compliance with regulatory requirements.

5. Anticipating changes to the operating practices necessary due to changes in the weather, disposal location, or other conditions affecting site operations.

6. Ensuring that inspections and monitoring (e.g., leachate collection system, GCCS, perimeter LFG monitoring, and groundwater monitoring) are completed on schedule and in accordance with all requirements.

7. Monitoring for and abating any nuisance conditions, such as litter, odor, dust, and mud tracking.

8. Perform duties as outlined in the Odor Control Plan provided in Appendix IVH.

2.1.3 Scale House Staff

The primary job of the Scale House Staff, stationed near the site entrance, is to maintain complete and accurate records of vehicles and solid waste entering the facility. The Scale Attendant will be trained in site safety procedures, to visually check for unauthorized wastes, to weigh vehicles, collect waste disposal fees, and direct vehicles to the working face. The Scale Attendant reports to the Landfill Manager. Specifically, Scale House Staff are required to: (1) monitor the incoming vehicles for type of waste and exclude prohibited waste; (2) inspect waste loads to confirm that they are

authorized for disposal; (3) review manifests and other shipping documents: (4) record incoming waste loads; (5) review and confirm special waste documents; and (6) accept tipping fees. Refer to Section 2.1 of the Odor Control Plan in Appendix IVH for procedures for odiferous loads. Scale House Staff shall direct visitors to their destination within the facility.

Scale House Staff are supervised by the Landfill Manager and receive training from the Special Waste Department or the Special Waste Liaison with respect to special waste evaluation and acceptance. Any questions regarding acceptance of special waste are to be addressed to the Landfill Manager, the Special Waste Department, or the Special Waste Liaison.

The minimum qualifications for the Scale House Staff personnel include being able to fulfill the duties described in this section. In addition, the lead person on the Scale House Staff for each shift must have a minimum of 2 years experience performing the duties listed in this section.

2.1.3 Equipment Operators

Equipment Operators are responsible for the safe operation of the equipment. As the personnel most closely involved with the actual landfill operation, these employees are responsible for being alert for potentially dangerous conditions, or careless and improper actions on the part of nonemployees and other persons while on the premises. Equipment Operators monitor and direct unloading vehicles and are also responsible for maintenance, construction, litter abatement, and general site cleanup. Equipment Operators are also responsible for identifying prohibited wastes as discussed in Section 4.2. The Equipment Operators will intervene as necessary to prevent accidents and report any observed unsafe conditions immediately to the Landfill Manager or his designee. Equipment Operators will also report any operational problems to the Landfill Manager. The Equipment Operators report to the Landfill Manager. Equipment Operators that are hired on the basis of previous heavy equipment experience may be assigned to operate specific types of equipment without additional training. Upon their employment, all Equipment Operators without experience in the equipment assigned will receive on-the-job training and oversight from an experienced operator until the new operator becomes proficient on the particular piece(s) of equipment to which he has been assigned, or until he is reassigned to a different piece of equipment for which his previous training or experience is adequate. Equipment Operators may also be required to assist in bird control activities under the supervision of the Landfill Manager or his designee.

All Equipment Operators are required to wear safety equipment, which may include gloves, hardhats, boots, safety glasses, and high visibility clothing, as appropriate, for their work assignments.

Compactors will be used for spreading and compacting the refuse. An excavator and hauling trucks will be used for various purposes at the Blue Ridge Landfill, including excavating the cover material used in site operations. The dozer is mainly used to spread waste at the active face and assist with waste compaction. The motorgrader will be used for activities such as road maintenance, ditch construction, surface water control, and final grading of the completed fill areas. The water truck(s) will be used for dust control and moisture conditioning of soil materials, as necessary, and will be utilized, if necessary, in the event of a fire at the facility. The water trucks will be equipped with a water cannon (or equivalent) to facilitate fire fighting. The windscreens and temporary litter fencing will be used to control windblown waste and litter as discussed in Section 4.5. The maintenance truck is used to provide service to the other site operating vehicles. In addition to the above, miscellaneous pick-ups, vans, and other light utility vehicles as well as instruments and safety and training equipment will be on-site as necessary to assist with site operations.

For information relating to methane monitoring at the Blue Ridge Landfill, see Part III, Attachment 14 – Landfill Gas Management Plan. For information relating to leachate monitoring, and the control of contaminated water, see Part III, Attachment 15 – Leachate and Contaminated Water Plan. Equipment needed for the application of ADC is discussed in Appendix IVB. Other miscellaneous equipment will be required for the maintenance of the machinery and other duties. This miscellaneous equipment will be kept in a maintenance building at or near the Blue Ridge Landfill and will include a compressor, power equipment, and tools. Information on the equipment used for odor management is provided in the Odor Control Plan in Appendix IVH.

containers will be provided for the CCS consistent with the amount of incoming waste/recyclables. The size of the drop-off containers will range in capacity between 20 and 40 cubic yards. Additional capacity information is included in Table 4.2.2.

Table 4.2.2
Citizen Collection Station Capacity Information

Item	Quantity
Amount of waste or recyclable material to be received daily	Incoming waste or recyclable material to be directed to the CCS area is estimated to be between 0 tons/day and 300 tons/day.
Maximum amount of waste or recyclable material to be stored at any one point in time	240 cubic yards
The length of time the waste or recyclable material will remain in the CCS area	1 Day
The maximum and average processing time	The CCS area will not be used as a processing area. This area is only used for temporary storage of waste and recyclable materials. Therefore, maximum and average processing times are not applicable.

4.2.4 Prohibited Wastes

Prohibited waste that is not discovered until after it is unloaded shall be immediately returned to the vehicle that delivered the waste. That party shall be responsible for the proper disposal of this rejected waste at a permitted facility. In the event the unauthorized waste is not discovered until after the vehicle that delivered it is gone, the waste shall be segregated and controlled to the extent possible. The unauthorized waste will be covered with soil and no additional filling will occur over that area until the unauthorized waste is removed and disposed of properly. Survey stakes or similar markings will be placed around the perimeter of the area that contains the unauthorized waste so that it is clear where the unauthorized waste is located. Alternatively, the unauthorized waste may be segregated by placing the unauthorized waste in a roll-off or similar container.

An effort shall first be made to identify the entity that deposited the prohibited waste and have them return to the site and properly dispose of the waste. In the event that identification is not possible, Blue Ridge Landfill TX, LP will notify the TCEQ within 24-hours to seek guidance on how properly to dispose of the waste as soon as practical. A record of each unauthorized material removal event will be maintained in the Site Operating Record.

Signs with directional arrows and/or portable traffic barricades will help to restrict traffic to designated unloading areas. Signs will be placed along the access route to the current unloading areas. In addition, rules for waste disposal and prohibited waste will be prominently displayed on signs at the site entrance. Refer to Section 6 of this SOP for additional waste handling procedures.

Solid rubber tires may be accepted for disposal. Non-solid rubber tires will only be accepted for disposal if they are split, quartered, shredded, or filled with concrete.

4.10 Air Quality and Odor Management Plan

The site will comply with all the applicable air quality rules and regulations. The site is currently required to operate and maintain the landfill gas collection and control system (GCCS) in accordance with the New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) for MSW landfills.

The TCEQ issued the initial General Operating Permit authorization to operate (GOP No. O-01472) on December 4, 2000. The GOP was renewed on March 3, 2016 and revised on April 24, 2018. Emission sources at the site are authorized by Standard Permit No. 81004 that was approved by the TCEQ on September 22, 2017. The site also operates under the Odor Control Plan that was approved by the TCEQ on April 10, 2018. The TCEQ approved plan is included in Appendix IVH.

Steps will be taken to limit the impact of the facility's operation on air quality. Among the measures to be employed are the following:

- Accidental fires will be controlled as outlined in Section 7 of this SOP.
- Open burning of waste will not be permitted at this facility.
- Incoming waste will be promptly compacted into the active face area. Daily cover will be placed consistent with the procedures specified in Section 4.18.2 and Section 2.1 of the Odor Control Plan in Appendix IVH.
- Ponded water at the site will be controlled as detailed in Section 4.19 of this SOP.
- The Gas Collection and Control System (GCCS) will be expanded and operated in accordance with all applicable requirements and as described in the Odor Control Plan in Appendix IVH.
- As discussed in Section 4.12, the landfill haul roads and access roads will be maintained in a reasonable dust-free condition by periodic spraying from a water truck. During dry weather conditions, the Landfill Manager or his designee will routinely inspect the site and establish a frequency, if necessary, to spray the access roads with water to prevent nuisance conditions from developing.

The site management team (e.g., Landfill Manager, Environmental Manager, and General Manager) will verify that Blue Ridge Landfill does not violate any applicable air quality and/or LFG requirements (Refer to Part III, Attachment 14 – Landfill Gas Management Plan for more information). The Environmental Manager is responsible for verifying and documenting compliance with the site's operating permit and any other applicable regulations.

The site management team will maintain the required probe monitoring data and GCCS records as described in Attachment 14 – Landfill Gas Management Plan.

Odors shall be controlled at the site and will be reduced if they occur in accordance with this Odor Management Plan and the Odor Control Plan in Appendix IVH. Odors associated with the Citizen Collection Station(CCS) will be controlled by transporting the waste to the working face during each business day. If odors become an issue at the CCS, the containers will be transported to the working face on the same day the odor is noticed. No waste will be stored at the CCS on non-business days. Sources of landfill odor can vary considerably and may include the wastes being delivered to the landfill; the open MSW, Class 1, or RACM working face; surface emissions from the covered portion of the landfill; the landfill gas collection and control system (GCCS); the leachate collection system; the liquid waste bulking facility; or the wood grinding area. Many of the wastes received at a landfill are a source of odor upon receipt. Examples of these wastes include the following.

- Dead animals
- Sludges
- Waste material handled at the Liquid Waste Bulking Facility (e.g., grease trap waste, grit trap waste, and non-hazardous industrial wastes – refer to Appendix IVC for more information).
- Medical waste

Other wastes have the potential for becoming a source of odor by their biodegradable characteristics, generating gases as they advance through the decomposition process. The generation of LFG within the landfill is one of the primary sources of odor. To address potential LFG odors, the Blue Ridge Landfill has installed and operates a LFG collection and control system (GCCS). One of the primary objectives of this system is to remove the LFG from within the landfill before it can percolate to the landfill surface and enter the atmosphere. The LFG that is recovered from within the landfill is conveyed to a flare to be thermally destroyed. As landfill operations progress the GCCS has been, and will continue to be, expanded as necessary. At a minimum the GCCS will be expanded into all areas of the landfill where the waste is five years old or has been at final grade for two years. The GCCS will be evaluated each year following the procedures in Section 2.8 of the Odor Control Plan in Appendix IVH. The design of the GCCS is presented in Attachment 14 – Landfill Gas Management Plan.

Leachate may also be a source of odor if not properly handled or disposed of in a timely manner. Potential odors from the Leachate storage tanks will be handled as described in the Odor Control Plan in Appendix IVH

Among the measures that may be employed to reduce potential odors are the following.

- Minimize the size of the working face areas as noted in Section 4.2.
- Increase the thickness of daily cover applied to the working face.
- Prevent ponded water, consistent with the procedures outlined in Section 4.19.
- Place daily and intermediate cover to the specified thickness over the fill area. The Landfill Manager or his designee will visually inspect daily and intermediate cover areas to confirm that no trash is exposed and no significant erosion of cover material has occurred. Erosion rills located on daily cover, intermediate cover, or

final cover areas will be promptly repaired (refer to Section 4.18 of the SOP and Section 2.2 of the Odor Control Plan in Appendix IVH for more information).

- Assess the effectiveness of the existing LFG extraction system and make all necessary repairs to the system or expand the system, as needed, to control odors.
- Identify any waste stream that requires special attention to control odor as outlined below and in the Odor Control Plan in Appendix IVH. If the Scale House Staff notes a load with significant odors, they will notify the working face personnel. The load will be promptly covered with soil or a minimum 3-foot-thick layer of solid waste when it arrives at the working face. The site may also schedule the delivery of known odorous wastes. This will allow site personnel to be prepared for the prompt handling of this material. The site may also sequence the unloading of known odorous wastes at the working face. For example, covered trucks transporting sludge may be instructed to wait at a specified location within the site until there is minimal traffic or no other sludge trucks at the working face. The site will then sequence the unloading of the sludge truck so that the working face personnel can promptly handle (and cover) this material at the working face.
- Inspect the leachate collection and storage system following the procedures outlined in the Odor Control Plan in Appendix IVH to confirm that it is functioning as designed (e.g., inspect piping, including the leachate riser and related fittings, and storage tank system to verify no leaks have occurred). Vapor tight gaskets will be used on all leachate risers if odor issues are identified at the risers.
- Removal of leachate from the site should be performed under appropriate weather conditions.
- The site currently uses a mister system to aid in minimizing odors. Misters are strategically placed around the working area according to wind speed and direction and operates according to the Odor Control Plan in Appendix IVH. Examples of Material Safety Data Sheets (MSDS) for the mister material being dispensed are included in Appendix IVG. The actual MSDS for the material being used will be kept in the Site Operating Record.
- Inspect the Liquid Waste Bulking Facility to verify that odors are controlled from this waste treatment area. The site will follow the procedures in Section 2.5 of the Odor Control Plan in Appendix IVH to control potential offsite odors from this area.
- Inspect the Wood Grinding Area to verify that odors are controlled from this area. If odors become an issue in this area, the stored material will be systematically removed until the odors are eliminated.

The Landfill Manager or his designee will perform on-site and off-site odor surveys as outlined in the Odor Control Plan in Appendix IVH.

4.11 Disease Vector Control

Blue Ridge Landfill personnel will control on-site populations of disease vectors, which include rodents, excessive bird populations, flies, mosquitoes, and other insects or

4.17 Compaction of Solid Waste

Compaction of incoming waste facilitates efficient use of available space, minimizes settlement and consolidation, and promotes proper application of intermediate and final cover. A landfill compactor or similar equipment will be used to compact waste at Blue Ridge Landfill. Unless otherwise documented in the Site Operating Record, the Landfill Manager will instruct the Equipment Operators to spread waste in lifts that are approximately two-feet thick. The compactor will typically make two-passes to compact the waste. A pass is defined as one direction of travel. The Equipment Operators will be trained to determine whether the compaction equipment is functioning as designed to ensure that the waste lift is adequately compacted. Note that the number of passes required may be increased depending upon the nature of the waste that is being compacted.

4.18 Soil Management, Placement, and Compaction of Daily, Intermediate, and Final Cover

4.18.1 Soil Management

Management of soil (or earthen material) for use in and around the landfill area will be an ongoing process at the Blue Ridge Landfill. Soil will be obtained from onsite and offsite soil borrow sources as needed for facility operations. Soil for use as daily cover, intermediate cover, final cover, and other uses will be available adjacent to the unloading areas.

The stockpile will consist of soil that has not previously come in contact with waste and will be of sufficient volume to meet the fire protection requirements specified in Section 7.7. As this stockpile is used, it will be replenished as soon as practical but shall at all times be maintained to meet the fire protection requirements specified in Section 7.7. Both the volume of soil required to be maintained within 1,000 feet of each working face and the volume of the earthen material on-site to cover each working face with at least a 1 day application of 6-inches of well compacted daily cover will be documented on the Monthly Soil Stockpile Verification Inspection Checklist (refer to Section 4.18.5 and Section 7.7.4 for an example soil stockpile calculation).

4.18.2 Daily Cover

Daily cover of waste is used to control disease vectors, windblown waste, odors, fires, and scavenging and to promote runoff from the fill area. At least once every 24-hours or at the end of each operating day, the exposed solid waste fill area(s) or working face(s) will be covered by (1) at least 6 inches of well compacted soil cover material that has not been previously mixed with garbage, rubbish, or other solid waste, or (2) an approved Alternate Daily Cover (ADC) material. The site will forgo any use of alternate daily cover at the Class I waste working face and as described in the Odor Control Plan in Appendix IVH. Instead, the site will place a 6-inch lift of soil cover over the Class I waste working face at the end of each day. As discussed in Section 4.2, the working

The sequence of intermediate cover placement with respect to waste placement is included in detail in Part III, Attachment 1 - Site Layout Plans. The Landfill Manager will inspect intermediate cover at the site on a weekly basis. In addition, intermediate cover will be inspected at the Blue Ridge Landfill within 72 hours of any rainfall event of 0.5 inches or more. As noted, each inspection will be documented in the Site Operating Record. Erosion gullies or washed-out areas will be repaired within 5-days of detection by restoring the cover material, grading, compacting, and seeding unless the TCEQ Regional Office approves otherwise, based on the extent of the damage requiring more time to repair, or the repairs are delayed because of weather conditions. Refer to Section 2.2 of the Odor Control Plan in Appendix IVH for additional information on erosion gullies or washout areas. Runoff from damaged or eroded areas will be handled as contaminated water, if the stormwater has contacted waste, until repairs are completed. The Landfill Manager, or his designee, will inspect for seeps from intermediate cover. All seepage water from waste below the intermediate cover will be controlled by placement of soil berms and diverted to a contaminated water collection area. Contaminated water will be treated as outlined in the Leachate and Contaminated Water Plan (refer to Section 4.22).

4.18.4 Final Cover

Final cover placement will occur as areas of the site are filled to the design top-of-waste grades. See Section 2.3 of the Odor Control Plan in Appendix IVH for additional information on the placement of Final Cover. Final cover placement over individual areas will be in accordance with Part III, Attachment 12 - Final Closure Plan and will permit ongoing landfilling operations to continue until the time of final closure. Surface water will be managed throughout the active life of the site to minimize infiltration into the filled areas and to minimize contact with solid waste. Erosion of final or intermediate cover will be repaired within 5-days after the initial inspection by restoring the cover material, grading, compacting, and seeding unless the TCEQ Regional Office approves otherwise, based on the extent of the damage requiring more time to repair, or the repairs are delayed because of weather conditions. Refer to Section 2.2 of the Odor Control Plan in Appendix IVH for additional information on erosion gullies or washout areas. The date of detection of erosion and date of completion of repairs, including reasons for any delays, must be documented in the Cover Application Log (refer to Section 4.18.5). Such periodic inspections and restorations are required during the entire operational life and for the postclosure maintenance period. Refer to Section 4.23 of this SOP for a site inspection and maintenance list.

Final cover placement over completed portions of the site will consist of the following steps:

- Survey controls will be implemented to control the filling of solid waste to the bottom level of the final cover system.
- The final cover system layers will be constructed. Testing of the various components of the final cover system will be performed in accordance with Part III, Attachment 12 – Final Closure Plan.

4.23 Site Inspection and Maintenance List

Item	Task	Frequency	Inspector	Inspection Documentation
Fence/Gates[1]	Inspect perimeter fence and gates for damage. Make repairs if necessary.	Weekly	Landfill Manager or Designee	Document inspection in the Site Operating Record
Windblown Waste[1]	Police working face area, wind fences, access roads, entrance areas, and perimeter fence for loose trash. Clean up as necessary.	Daily as specified in Section 4.5.	Landfill Manager or Designee	Document inspection in the Site Operating Record
Waste Spilled on Route to the Site[1]	Police the entrance areas and all roads at least 2 miles from the site entrance for loose trash. Clean up as necessary.	Daily as specified in Section 4.8.	Landfill Manager or Designee	Document inspection in the Site Operating Record
Landfill Markers[1]	Inspect all landfill markers for damage, color-coding, and general location. Correct or replace damaged markers within 15 days of discovery.	Monthly	Landfill Manager or Designee	Document inspection in the Site Operating Record
Site Access Road[1]	Inspect site access road for damage from vehicle traffic, erosion, or excessive mud accumulation. Maintain as needed with crushed rock or stone. Grading equipment will be used to control or remove mud accumulations on roads as well as minimize depressions, ruts, and potholes. Tracked mud and associated debris at the entrance to the facility must be removed at least once per day on days when mud and associated debris are being tracked onto the public roadways to the extent that mud can be reasonably considered to be associated with landfill operations.	Tracked mud and associated debris will be removed daily. Grading equipment will be used at a minimum of once per week to minimize depressions, ruts, and potholes.	Landfill Manager or Designee	Document inspection and repairs in the Site Operating Record
Daily Cover[1]	Inspect for proper placement, thickness, and compaction. Correct problems as needed. Verify that vectors are not an issue.	Daily at the active face and all daily cover areas will be inspected within 24 hours of a rainfall event of 0.5 inches or more.	Landfill Manager or Designee	Document inspection in the Site Operating Record
Intermediate Cover[1]	Inspect for proper placement, thickness, erosion, compaction and for presence of waste or other contamination. Correct problems as needed.	Weekly and within 72 hours of a rainfall event of 0.5 inches or more.	Landfill Manager or Designee	Document in the Site Operating Record
Final Cover[1]	Inspect for proper placement, thickness, compaction, slope, settlement and erosion. Also, the trees and vegetation on the landscape bench located on the eastern sideslope will be inspected to verify they are functioning as designed. Maintenance will be ongoing throughout postclosure care period. Correct problems as needed.	Weekly and within 72 hours of a rainfall event of 0.5 inches or more.	Landfill Manager or Designee	Document in the Site Operating Record
Leachate[1]	Measure depth of leachate in sump, as required.	Weekly	Landfill Manager or Designee	Document in the Site Operating Record
Leachate Storage Tanks[1]	Measure leachate levels in storage tank and volume of leachate removed from the site.	Daily	Landfill Manager or Designee	Document in the Site Operating Record
Site Signs[1]	Inspect all site signs for damage, general location, and accuracy of posted information.	Weekly	Landfill Manager or Designee	Document in the Site Operating Record
Ponded Water[1]	Inspect site for unauthorized ponded water areas as described in Section 4.19. Correct problems as needed. Document any corrective action taken to remove ponded water.	Weekly and within 72 hours of a rainfall event of 0.5 inches or more.	Landfill Manager or Designee	Document in the Site Operating Record
Odor	Follow requirements outlined in the Odor Control Plan in Appendix IVH.	Refer to the Odor Control Plan in Appendix IVH for timeline requirements.	Landfill Manager or Designee	Document in accordance with the Odor Control Plan in Appendix IVH
Perimeter Channels/Ponds[1]	Inspect perimeter channels and detention ponds to verify that they are functioning as designed (e.g., excess sediment removed, outlet structures intact, erosion control measures intact).	Weekly and within 72 hours of a rainfall event of 0.5 inches or more.	Landfill Manager or Designee	Document in the Site Operating Record
GCCS[1]	Verify GCCS is operating and maintained in accordance with all applicable requirements.	Monthly	Environmental Manager or Designee	Document in the Site Operating Record
Landfill Gas Monitoring	The landfill gas monitoring system will be inspected to verify that it is functioning as designed.	Quarterly	Landfill Manager or Designee	Document in the Site Operating Record
Easements / Buffer Zones[1]	The buffer zones and easement areas will be inspected to verify that the applicable markers are in place and that access has not been obstructed.	Weekly.	Landfill Manager or Designee	Document in the Site Operating Record
Fire Protection Plan[1]	Consistent with Section 7, inspections will be completed to verify that the various components of the Fire Protection Plan are functioning as designed (e.g., fire extinguishers, stockpile requirements, water trucks or storage tanks).	Stockpile and water truck or tanks will be inspected daily, fire extinguishers will be inspected annually.	Landfill Manager or Designee	Document in the Site Operating Record
Groundwater Monitoring System[1]	The groundwater monitoring system will be inspected to verify the groundwater wells are functioning as designed.	Weekly.	Landfill Manager or Designee	Document in the Site Operating Record
Random Waste Inspections[1]	Consistent with Sections 6.2 and 6.3, random inspections will be completed on a daily basis. Record Keeping requirements are listed in Section 6.3.	Daily	Landfill Manager or Designee	Document in the Site Operating Record
Soil Stockpile Verification[1]	Consistent with Sections 4.18.1, 4.18.5, and 7.7.4, soil stockpile verification will be completed on a monthly basis.	Monthly	Landfill Manager or Designee	Document in the Site Operating Record

[1] Refer to Appendix IVE – Example Site Inspection Checklists for example inspection forms. The format and content of the form may be modified; however, the form used will be consistent with the requirements included in the SOP.

BLUE RIDGE LANDFILL
FORT BEND COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1505A

PART IV – SITE OPERATING PLAN
APPENDIX IVD
LIQUID WASTE BULKING FACILITY OPERATING PLAN

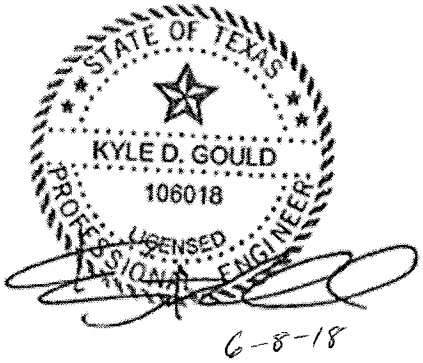
Prepared for

Blue Ridge Landfill TX, LP

Approved Site Operating Plan July 2, 2010

Revised October 2010

Revised June 2018



Prepared by

Weaver Consultants Group, LLC
TBPE Registration No. F-3727
6420 Southwest Blvd., Suite 206
Fort Worth, Texas 76109
817-735-9770

WCG Project No. 0120-405-11-91-01

- Protect the health and environment of employees, citizens, and surrounding communities by operating the facility in accordance with TCEQ, EPA, OSHA, and other applicable regulations.
- Facility personnel will be trained in the bulking procedure, acceptable testing method, recognition of waste streams and their compatibility, daily operations, recordkeeping and reporting, implementation of emergency procedures, and regulations pertaining to liquid waste disposal as set forth by the TCEQ.

2.6 Testing and Recordkeeping

The testing and recordkeeping requirements are listed below.

- The Paint Filter Liquid Test (EPA Method SW-846/9095) is required immediately prior to disposal of the waste in the landfill. Representative grab samples shall be obtained at a rate of one per batch of treated material.
- Records concerning the type, quantity, source, and test results of liquid wastes processed shall be maintained on a daily basis, and become part of the site operating record.

2.7 Training of Operational Personnel

Personnel involved in the bulking facility shall receive adequate training in the bulking procedure, acceptable testing method, recognition of waste streams and their compatibility, daily operations, recordkeeping and reporting, implementation of emergency procedures, and regulations pertaining to liquid waste disposal.

2.8 Odor Control

Procedures and additional information regarding odor control at the liquid waste bulking facility is described in Section 2.5 of the Odor Control Plan in Appendix IVH.

BLUE RIDGE LANDFILL
FORT BEND COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1505A

PART IV – SITE OPERATING PLAN
APPENDIX IVH
ODOR CONTROL PLAN

Prepared for

Blue Ridge Landfill TX, LP

Approved April 10, 2018

Prepared by

Weaver Consultants Group, LLC
TBPE Registration No. F-3727
6420 Southwest Blvd., Suite 206
Fort Worth, Texas 76109
817-735-9770

WCG Project No. 0120-405-11-91-01

ODOR CONTROL PLAN

TCEQ APPROVAL LETTER

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 10, 2018

Mr. Brandon Rogers, General Manager
Blue Ridge Landfill TX, LP
P.O. Box 879
Fresno, Texas 77545-0879

Re: Response to the Revised Odor Control Plan ("the Plan") Submitted for Compliance with Ordering Provisions of TCEQ Agreed Order Docket No. 2016-1923-AIR-E
Case No. 53555; Blue Ridge Landfill TX, LP; RN102610102
Agreed Order Effective Date: July 12, 2017

Dear Mr. Rogers:

The Executive Director of the Texas Commission on Environmental Quality ("Executive Director") received your letter dated April 5, 2018 containing the Plan required by the Ordering Provisions ("OP") of the above referenced Order. This submittal was a revision to Plans that were previously submitted on August 11, 2017, November 30, 2017, January 18, 2018, and March 8, 2018. These revisions were based on discussions and meetings between the Executive Director and Blue Ridge Landfill TX, LP.

The Executive Director has reviewed the Plan submitted on April 5, 2018 and has determined that Blue Ridge Landfill TX, LP has met the requirements of OP No. 3.b. and that the Plan is hereby **approved.** In addition, the Executive Director **approves** Attachment 1 ("Blue Ridge Landfill Odor Control Plan Implementation Schedule") of your April 5, 2018 letter. Blue Ridge Landfill TX, LP is now required to implement all provisions of the Plan in accordance with the approved schedule, as required by OP No. 3.e.

Additionally, Blue Ridge Landfill TX, LP must comply with all the OPs in Section IV. of the Order, within the timeframes specified therein.

If you have any questions or need further assistance, please contact Mr. Rajesh Acharya of my staff at (512) 239-0577.

Sincerely,

Bryan Sinclair, Director
Enforcement Division

cc: Mr. Duncan C. Norton, Principal, Lloyd Gosselink Rochelle & Townsend, P.C., 816 Congress Avenue, Suite 1900, Austin, Texas 78701-2478

APPROVED ODOR CONTROL PLAN

BLUE RIDGE LANDFILL

FORT BEND COUNTY, TEXAS

ODOR CONTROL PLAN

Prepared for

Blue Ridge Landfill TX, LP

April 2018

CONTENTS

CONTENTS (CONTINUED)

1 INTRODUCTION

The Blue Ridge Landfill (BRLF) is located at 2200 FM 521 Rd, Fresno, TX. The landfill is owned and operated by Blue Ridge Landfill TX, LP.

The Blue Ridge Landfill Odor Control Plan (Plan) has been established to provide guidance for facility personnel to address potential odor issues that may be of concern to BRLF's neighbors and the surrounding community. The plan incorporates BRLF's use of best management practices that are appropriate for this facility.

As required by the TCEQ Agreed Order in Docket No. 2016-1923-AIR-E this Odor Control Plan includes the following:

- Plans to minimize odors from on-site sources
- 24-hour sulfur monitoring system at the property boundary
- Activation of a 24-hour a day hotline/message-line and a website
- Procedures for receiving, documenting, and investigating odor complaints
- A surface emissions monitoring program
- Maintenance of Records
- Quality Assurance Project Plan

Each of the items above are discussed in the following sections.

For the purpose of this Plan the BRLF management team consists of the General Manager, Operations Manager, Operations Supervisor, Environmental Specialist, Environmental Manager, and the Area Environmental Manager.

2 MINIMIZE ODORS FROM ADDITIONAL ON-SITE SOURCES

The following subsections address the industry best management practices (BMP) and methods to control offsite odors.

2.1 Active Disposal Areas

One potential source of landfill odors is from the active disposal area of the landfill. To reduce the potential for odors from the active disposal areas, daily cover will be placed over the waste. The soil cover limits the amount of refuse exposed to the ambient air, and reduces the potential for migration of odors offsite. A minimum of six inches of soil cover will be placed over the working face at the end of each day. In addition, 2 feet of soil or 3 feet of other solid waste will be placed promptly over dead animals or slaughterhouse wastes. When needed, a portable odor neutralizing system will also be used in the active disposal area as described in Section 2.9.

BRLF will monitor the condition of the daily cover to ensure that it minimizes odor. Once it is determined that an area will not receive waste for longer than 180 days, BRLF will initiate intermediate cover placement within 90 days of that determination and will complete the cover placement within the 180 day timeframe.

Site personnel will monitor the incoming waste at each of the unloading areas. Scale house personnel will control site access and monitor incoming vehicles for unauthorized wastes by (1) receiving manifests and other shipping documents, (2) recording incoming waste loads, and (3) interviewing the driver, as necessary, (4) observe the waste stream and actively smell for unusual or excessive odors. If a significantly odiferous load is identified by scale house personnel, they will notify site personnel at the unloading area. Upon being deposited at the unloading area, the site will promptly cover the identified odiferous waste load with 3 feet of other solid waste. A significantly odiferous load is a load that has an odor stronger or more intense than typical of municipal solid waste.

Site personnel at each of the unloading areas will also monitor the waste as it is unloaded. If a significantly odiferous load, as described above, is identified by site personnel at the unloading area, the load will be promptly covered with 3 feet of other solid waste or Class I waste as appropriate.

In addition, the site may also schedule the delivery of a known significantly odiferous wastes. This will allow site personnel to be prepared for the prompt handling of this material and sequence the unloading. As stated above, the significantly odiferous wastes deposited at the unloading area will be promptly covered with 3 feet of other solid waste or Class I waste as appropriate.

2.2 Landfill Cover

The integrity of the landfill cover will be evaluated by the landfill operations manager or their designee, and the thickness of the cover soils will be adjusted accordingly. The landfill operations manager or their designee will visually inspect daily and intermediate cover areas to confirm that no trash is exposed and no significant erosion of cover material has occurred. Within 24 hours after each rainfall event of 0.5 inches or more, the landfill operations manager, or his designee, will inspect all daily cover areas for erosion, exposed waste or other damage, and repair as necessary. Erosion gullies or washed-out areas will be repaired within 24-hours after the area is accessible (i.e., after the cover soils and slopes dry out enough to allow access by earth-moving equipment without causing excessive rutting of cover soils.

Intermediate and final cover areas will be inspected by the landfill operations manager or their designee within 72 hours of a rainfall event in excess of 0.5 inches or more. Erosion gullies or washed out areas deep enough to jeopardize the final or intermediate cover will be repaired within five days of detection by restoring the cover material, grading, compacting, and seeding unless the TCEQ approves otherwise, based on the extent of the damage requiring more time to repair or the repairs are delayed because of weather conditions. An eroded area is considered deep enough to jeopardize the final or intermediate cover if it exceeds four inches in depth as measured from the vertical plane from the erosion feature and the 90-degree intersection of this plane with the horizontal slope face or surface.
In addition, the landfill operations manager or their designee will complete visible observations twice monthly to assess the integrity of all landfill cover. Repairs will be completed as stated above. All inspections and repairs will be noted on the cover log kept in the SOR. A copy of the Cover Application Log from the Site Operating Plan (SOP) has been included in Appendix 1. Locations and documentations of repairs will be made based on the site grid system. Extension requests for repairs beyond the specified time will be made by grid area to the TCEQ Houston Regional Office, not the entire facility. In addition, site personnel will undergo training on an annual basis to ensure personnel compliance with the above inspections and repairs

In addition, bimonthly (occurring once every two months), surface emissions monitoring (SEM) will be performed as outlined Section 5 and Appendix 10. Section 5 and Appendix 10 also outline the protocols, methods, and equipment to will be used to conduct the SEM. Any exceedance of surface emissions from the landfill cover will be remediated and rechecked as outline in Section 5 and Appendix 10.

2.3 Inactive Disposal Areas

If, after intermediate cover is placed, offsite odors are determined to be originating from an inactive disposal area as described in Section 2.10, BRLF will initiate an investigation and implement corrective measures. One or more of the following corrective measures will be used to address the odor from these areas:

- As described in Section 2.2, if during the visual observations the soil cover material thickness is not adequate, additional cover materials will be placed. The additional soil placement will be documented on the Cover Application Log from the Site Operating Plan (SOP). Once the additional soil has been placed the area will be investigated again by the landfill operations manager or their designee. The adequacy of the soil cover material thickness will be determined by visual inspection of erosion and exposed waste as described in the applicable bullet items below.
- As described in section 2.8 the landfill gas collection and control system (GCCS) will be expanded to reduce the potential of odors.
- The site will initiate final cover or TCEQ approved alternative cover construction within one year of 40 contiguous acres reaching its maximum permitted waste grade elevation. Elevations will be verified with survey equipment prior to construction.
- All hollow conduits penetrating the cap will either be sealed with bentonite, expandable foam, or suitable materials and methods or removed within 24 hours of being discovered during visible observations.
- Remove and transport any exposed mattresses, tires, etc., to the working face and reinstall the cover material in those areas within 24 hours of being discovered during visible observations.
- Repair any erosion rills, mower ruts, site vehicle ruts, cracks and leachate seeps, as described in Section 2.2.
- Adjust and/or install additional odor neutralizing systems (see Section 2.9).

All investigations and corrective measures taken to address offsite odors will be documented as described in Section 2.10.

2.4 Storage Tank Area

Leachate and landfill gas (LFG) condensate are stored in tanks prior to being transported off-site. To reduce the potential for offsite odors, no open top leachate or LFG condensate tanks will be used at the site. In addition, storage tank vents will be routed to an odor control system, such as carbon canisters, and the facility will use an odor neutralizing system (see Section 2.9). The leachate and condensate storage tank area will be surveyed by a member of the BRLF management team once per day when in operation, as described in Section 2.10. The area is defined as an approximate 100 foot circle around the storage tank facility. The daily surveys will be documented on the Daily Odor Survey Log or similar equivalent electronic form (Appendix 2). If odors are detected as described in Section 2.10, BRLF will document what actions are taken. This monitoring program will be conducted for a period of 5 years from the date of approval of the Plan. The current leachate tanks on site have carbon canisters connected to the tank vents and have an odor

neutralizing system. Following approval of this Plan a dual carbon canister system will be installed as outlined in Section 2.9. Any future leachate tanks will have a carbon canister system installed prior to being placed into operation.

2.5 Solidification Pit Area

All liquid waste accepted at the site is delivered to solidification pits. Absorbent material is then used to solidify the liquid waste. Types of absorbent materials include; lime, fly ash, kiln dust, foundry dust, saw dust, woodchips, auto fluff, soil, and other permitted materials as per the site's approve SOP. Air emissions from the absorbent material are quantified in the Standard Air Permit and the Annual Emissions Inventory Report. Once the waste is solidified, it is taken to the landfill for disposal. To control potential odor from the solidification area all solidification pits will be covered except when materials are being added, mixed, or removed from the units. When in operation, BRLF will use an odor neutralizing system to reduce potential odors from solidification area. More information on the deployment and use of odor neutralizing system is located in Section 2.9. Records of the odor neutralizing system location and any major repairs will be kept in the SOR.

In addition, once a day when in operation, the solidification area will be surveyed by a member of the BRLF management team as described in Section 2.10. The survey results will be documented on the Daily Odor Survey Log (or similar equivalent electronic form). The area is defined as an approximate 100 foot circle around the solidification facility. If odors are detected as described in Section 2.10, the site will adjust the odor neutralizing system. The surveyor will then complete the Field Odor Investigation Form (or similar equivalent electronic form) and place it in the SOR. All records of these monitoring events, the results, and corrective measures will be maintained in the SOR. This monitoring program will be conducted for a period of 5 years from the date of approval of the Plan.

2.6 Leachate and Condensate Collection and Management System

Leachate and LFG condensate from the landfill are collected in sumps. The collected leachate and LFG condensate are pumped from the sumps into a closed forcemain pipe and conveyed to covered storage tanks. The condensate collection system is part of the GCCS and as such is contained within enclosed piping system with no direct venting.

All permanent leachate sumps and cleanout risers are sealed to reduce the potential for odors. In addition, permanent leachate collection system structures (e.g., leachate risers, lift stations, etc.) are connected to the GCCS to maximize gas collection and minimize potential odors. Connecting these components to the GCCS, will apply a source of vacuum and thus create a means for collecting potential odors.

Each month the condensate sumps and the aboveground leachate collection components will be inspected by a member of the BRLF management team to verify that they are sealed and/or connected to the GCCS. If a component is found to not be connected or sealed it will be corrected within 10 business days or a notification to TCEQ will be submitted. This time is needed such that properly trained and experienced companies can make the needed repairs. The notification will describe when the repairs will be made and the reason for the needed additional time. A completion time will also be noted. Compliance with the Plan will continue to be maintained as long as the repairs are made within 10 days and/or a notification has been submitted.

In addition, each month an approximate 100-foot area around each of the leachate risers will be surveyed by a member of the BRLF management team as described in Section 2.10. The results will be documented on the Monthly Leachate Riser Survey Log in Appendix 2 or similar equivalent electronic form. If odors are detected as described in Section 2.10, the site will make repairs and/or adjust nearby gas extraction wells. The surveyor will then complete the Field Odor Investigation Form (or similar equivalent electronic form) and place it in the SOR. All repairs to the leachate and condensate collection and management system as a result of an odor investigation will be noted on the Field Odor Investigation Form. This monitoring program will be conducted for a period of 5 years from the date of approval of the Plan.

2.7 Citizen Collection Station

Potential odors associated with the Citizen Collection Station (CCS) will be minimized by transporting the waste to the working face during each business day. If offsite odors related to the CCS becomes an issue, the containers will be transported to the working face on the same day the odor is noticed. No waste will be stored at the CCS on non-business days. In addition, once a day when in operation, the CCS area will be surveyed by a member of the BRLF management team as described in Section 2.10 and documented on the Daily Odor Survey Log (or similar equivalent electronic form). The area is defined as an approximate 100-foot circle around the CCS facility. If odors are detected as described in Section 2.10 , the site will remove any waste at the CCS. The surveyor will then complete the Field Odor Investigation Form in (or similar equivalent electronic form) and place it in the SOR. This monitoring program will be conducted for a period of 5 years from the date of approval of the Plan.

2.8 Landfill Gas Collection and Control System

Landfill gas (LFG) is produced from micro-organisms breaking down waste which has the potential to create odiferous gases. As such, BRLF has installed a GCCS that

collects the LFG and sends it to the facility's flare(s) and/or to a LFG-to-Energy Plant.

A Site Plan depicting the current layout of the GCCS is included in Appendix 4. The current GCCS system consists of vertical LFG extraction wells, a piping network, condensate management system, flare facilities, and LFG-to-Energy Plant. Each LFG extraction well is equipped with an adjustment valve for regulating the applied vacuum and sample ports for monitoring well performance. The wells are connected to high-density polyethylene (HDPE) LFG header and lateral piping systems which convey the extracted LFG from the extraction wells to the control equipment.

Condensate forming in the GCCS piping drains into condensate collection sumps located at low points along the perimeter piping and to the leachate cleanout risers. The condensate gravity drains from the collection piping into the sumps and leachate cleanout risers. From the sumps, the liquid is pumped and the condensate disposed of along with the leachate from the landfill.

One of the primary objectives of the GCCS is to remove the LFG from within the landfill before it can percolate to the landfill surface and enter the atmosphere. As landfill operations progress the GCCS has been, and will continue to be, expanded as necessary. At a minimum the GCCS will be expanded into all areas of the landfill where the waste is five years old or has been at final grade for two years. The age of the waste placement will be based on the date of TCEQ approval for waste placement in the cell. The determination for if waste is at final grade will be based on the permitted final contour for the site. To address faster than expected landfill gas generation, in addition to following the 2year/5year timeline, the GCCS will be expanded more frequently as needed to reduce the potential for odors. To address the need for possible more frequent expansions to the GCCS and to check for vacuum zones, each well will be checked monthly for available vacuum by use of a handheld pressure gauge. Should a well have positive pressure, corrective actions will be taken within 5 days. If vacuum cannot be restored to the well within 15 days, BRLF will either expand the GCCS within 120 days of the initial exceedance or request an alternative time line from the TCEQ Regional Office. Similarly, SEM will be performed and the GCCS will be expanded, if needed to address exceedance, as outlined in Section 5.

In addition, once a year, including an initial evaluation once plan has been approved, the existing GCCS will be evaluated to determine the adequacy of the coverage compared to areas of potential odors. The annual evaluation will include the following:

- A review of the acreage of waste placement compared to GCCS coverage. If it is determined at an area of the landfill that is not with the 2year/5year timeline, but will not be receiving waste for more than 1 year, the GCCS will be expanded into that area.

- Updating the LandGEM using the most recent annual waste acceptance data.
- Using the landfill gas collection rate based on the LandGEM results, the collection capacity of the piping and the control equipment will be evaluated to ensure that adequate piping and control devices are in-place. Should it be determined that additional or larger pipes or control devices are needed, BRLF will ensure they are installed during the next GCCS expansion.

The following actions will be done as needed to minimize potential odors from the GCCS:

- LFG extraction wells will be checked twice a year for liquid levels and dewatered as needed.
- When new gas extraction wells are drilled, the piping will be installed and connected to the collection system as soon as practically possible to capture the landfill gas, but no longer than 1 month unless otherwise approved by the TCEQ. New gas extraction wells will be capped and sealed between installation and connection to the collection system.
- Gas extraction wells that are damaged will be repaired as soon as safely possible. The determination of safety is defined as no active filling or construction within 50 feet of the well and no other potential hazards are present as determined by the BRLF management team. In cases where gas extraction wells are damaged beyond repair or operating conditions exist where repairs are not possible, the wells will be re-drilled or capped, and adjacent well vacuums increased appropriately. A well is considered damaged beyond repair when vacuum and flow cannot be maintained in the well. Wells that cannot be repaired within 15 days will be addressed as discussed above.

The GCCS will be monitored at a minimum once a month. The monthly monitoring will consist of making needed valve adjustments to balance the gas composition with vacuum levels as per the New Source Performance Standards (NSPS) for MSW landfills. The monthly monitoring data will be reported to the TCEQ Region Office quarterly. The quarterly data will include the name of the person monitoring the GCCS, the method for recording the data, and readings of temperature, pressure, and oxygen.

2.9 Odor Control and Odor Neutralizing Systems

BRLF will use odor control systems and an odor neutralizing systems to minimize potential onsite sources of odors. The odor control and neutralizing systems may be portable or stationary. The odor neutralizing systems will use a series of perforated pipes or nozzles connected to a blower or pump to dispense odor neutralizing agents into the air. These systems will be installed at different locations at the site to reduce the potential for offsite odors coming from BRLF. The portable systems

will be moved around the site as needed. The odor neutralizing agent will be in a liquid or vapor form. SDS sheets of the currently used neutralizers at the site are included in Appendix 5. Air emissions from the odor neutralizing systems are accounted for in the Standard Air Permit.

Currently the site has a stationary perimeter odor neutralizing system that is installed to control potential for landfill odors from being detected in populated areas adjacent to the landfill permit boundary. The location and design of the existing odor neutralizing systems were done under the direction of a licensed professional engineer. The location of the current systems are shown on the Site Plan in Appendix 4. The location of the current and any future systems are based on several factors including the active working areas of the landfill, typical wind direction, and location of nearby offsite receptors.

The stationary odor neutralizing systems will operate continuously during landfill operations, excluding times of maintenance, repair, power outages, and rain events. As needed to address potential odors, the amount of neutralizing compound that is being dispersed can be adjusted by increasing the flow on the metering pump.

To augment this stationary system, BRLF also has portable odor neutralizing units that can be used at the working face and at other locations as needed at the site.

The odor control systems will be used at the leachate storage tanks and will consist of routing the tank vent pipes to a system of carbon canisters. The system will consist of a dual-canister system in series. The discharge between the two carbon canisters will be checked monthly using a VOC meter in addition to odor monitoring as described in Section 2.10. If odors are detected as described in Section 2.10, the upstream canister will be removed and disposed at an appropriated disposal or recycling facility. The downstream canister will be moved to the upstream position and a new canister will be placed in the downstream position . Documentation of the inspections and remedial actions will be noted in the SOR.

BRLF will retain records documenting the location of all odor control and odor neutralizing systems. In addition BRLF will keep records of the SDS. The effectiveness of the odor control and odor neutralizing systems will be determined as described in Section 2.10.

2.10 Nasal Ranger

BRLF will use The Nasal Ranger Field Olfactometer, or equivalent for a period of 5 years following the approval of this plan. The Nasal Ranger is a field olfactometer which will be used onsite and offsite to quantify the ambient odor strength in terms of "Dilution-to-Threshold" (D/T) ratios. Detected odors will be classified with the scale defined by the Nasal Ranger® Field Olfactometer Operations Manual (Appendix 6). The D/T approach utilizes a combination of carbon filtrated air and

unfiltered air passing through the instrument. The ratio of filtered to unfiltered air is determined by the selection dial on the front of the instrument. The methodology for determining the odor intensity using the Nasal Ranger is outlined in the Operations Manual. In addition to the Nasal Ranger®, odors will be classified using the list of odor descriptors provided in Appendix 6. The standard ratios of the Nasal Ranger® Field Olfactometer are 2, 4, 7, 15, 30, and 60. Odors found to be at or greater than 7, will be investigated and corrected as needed until a confirmation test shows that odor levels are below 7. The use of "7" has been described by the Nasal Ranger manufacturer as ambient odor level sometimes considered a nuisance. The next level up (stronger odor) would be 15. This is described as an ambient odor adjacent to aeration basin. The next level down from 7 is 4 and this is described as ambient odor level common in a city. As such, 7 was selected as the threshold as this most accurately described the lowest level odor that might be offensive. All investigations and corrective measures will be documented On the Field Odor Investigation Form or similar equivalent electronic form.

Training from the manufacturer will be provided to the BRLF management team in the proper operation and use of the Nasal Ranger. A training log will be maintained as shown in Appendix 6.

3 ODOR MONITORING PLAN

The BRLF will implement the following odor monitoring program to monitor, detect, and respond to potential offsite odors.

3.1 24-Hour Telephone Odor Complaint Hotline/Message-Line

BRLF will set up an odor complaint hotline/message-line as well as a website which will be available 24-hours a day. The hotline/message-line and website will be a resource where community members can call or enter an odor complaint. It will be requested that the community member provide the following items: describing the odor's smell, odor intensity, odor location (within 3 miles from the permit boundary of BRLF), time of day when detected, frequency, duration, and a phone number and/or email address. This information is needed to not only document the odor complaint but also will be needed for useful information to assist in identifying the source. All odor complaints will be addressed and documented to the extent possible based upon the information provided.

The BRLF management team will perform a complete field investigation and documentation to all complaints to the extent possible as outlined in Section 4. The 24-hour odor complaint hotline/message-line and online form will be communicated to the public via our website and will be posted on the front gate. The BRLF Odor complaint intake system is separate from the TCEQ's complaint process and that distinction will be made on BRLF's hotline/message line and website.

3.2 Odor Detection Monitoring/Survey

As described in the previous sections, a member of the BRLF management team will conduct odor detection surveys on-site as described in Section 2. In addition, BRLF will also conduct offsite odor detection surveys twice during each business day at the locations shown on the drawing in Appendix 7. At least one of the daily offsite odor surveys will be conducted between 10 pm and 7 am. The odor detection surveys will be performed by trained site personnel. The offsite survey will consist of slowly driving, with the windows down (weather permitting), along the road FM 521 between the landfill permit boundary and the adjacent residences (See Appendix 7 for the offsite driving route). In addition, as shown in Appendix 7, odor detection monitoring/survey will be performed at other potential odor sources in the area. At each of the locations shown on in Appendix 7, a member of the BRLF management team will turn off the vehicle and exit the vehicle (weather permitting) to perform the survey. Once the survey has been completed, the Survey Completion

Log (Appendix 2 or similar form, which may be maintained electronically) will be filled out and maintained as part of the SOR.

If during the twice daily offsite monitoring/survey, the BRLF personnel detects any odors, the inspecting party will stop (where safe and in compliance with all traffic laws), turn off the vehicle engine, exit the vehicle (weather permitting), and record any odor observations on the Field Odor Investigation Form (which may be maintained electronically). If an odor is detected an investigation of the odor will follow the protocol outlined in Section 4. The BRLF management team will evaluate the weather conditions, the odor descriptors, and landfill operations at that time, to see if these parameters correlate. The BRLF management team will then determine if the odor is properly attributable to the landfill and will log their determination on the Field Odor Investigation Form. If the source of the odor is attributed to BRLF, BRLF will take corrective actions as outlined in this Plan.

The investigative actions, findings, and corrective actions/conclusion will be logged on the Field Odor Investigation Form (or similar form which may be maintained electronically). If odors are determined to be from a source or sources other than BRLF, the findings will include the factors used to make such determination and, if possible, a description of where the odors likely originated.

3.3 Fence-Line Sulfur Monitoring

An ambient fence line air monitoring network will be installed and operated to analyze ambient air for Hydrogen Sulfide (H2S) for a period of 5 years from the approval date of the Plan. Fence line monitoring is not odor monitoring and as such it will produce a large volume of data that is not directly relatable to actual offsite odors. As noted above and in other Sections of the Plan requires BRLF will conduct both the daily on-site and twice daily off-site actual odor monitoring, which is much more accurate for odor monitoring than fence line monitoring for H2S.

To perform the fence-line monitoring, BRLF will utilize three stationary solar powered Cairpol - CairSens (See Appendix 8) H_2S USB monitors or the equivalent. BRLF will notify the TCEQ if and/or when different monitors are used at the site. The monitors will be deployed to provide real-time data near the east fence line of the Blue Ridge Landfill. Monitoring will begin within six weeks of this Plan being approved. All monitors will be monitored and calibrated according to the manufacturers specifications.

The currently proposed stationary monitors have an operating range between 0-1000 ppb with a limit of detection (LOD) of approximately 10 ppb. The sensors arrive from the manufacturer pre-calibrated and accompanied by a certification of the quality of measurement for 12 months. Prior to the 12 month expiration, new calibrated sensors will be ordered to replace the active sensors. The sensors will be set to record readings every 15 minutes and the data will be downloaded and reviewed weekly. A baseline for the stationary monitors will be established by

using a Jerome J605 Gold Film Hydrogen Sulfide meter or equivalent to take H_2S readings near the stationary monitors. A baseline monitoring event will occur once a month throughout the duration of the 24-hour H_2S monitoring process. Using the Sulfide meter at each monitor location, readings will be taken approximately every two minutes for a duration of 30 minutes. The sample readings will be compared to the stationary monitors' readings. The baseline monitoring will be used as a means for validating the data from the stationary monitors. The three Cairpol - CairSens H_2S USB monitors will be installed on BRLF property near the fence line in proximity to the nearby residential areas along Road FM 521 (See Appendix 4). The proposed locations were chosen based on their relation to the nearest offsite receptors. The placement of the sensors will in the approximate locations shown in Appendix 4 to provide monitoring of potential H_2S emission leaving the BRLF perimeter.

The presence of volatile reduced sulfur compounds could potentially bias readings high as much as 100%, whereas the presence of oxidant species could bias readings low as much as 30%. In addition, the sensors are sensitive to ambient temperature and humidity when operating near the LOD.

Concentration data will be stored in the internal memory of the unit and will then be exported to a computer. Data will be downloaded weekly.

The site will directly download the data from the sensors in the field weekly and if an odor complaint was received during the week, the fence line data corresponding to the time of the odor complaint will be evaluated to determine if any correlation exists. Weather data will be retrieved from the nearby Houston Southwest Airport (airport code KAXH) or an equivalent local source. Each quarter an Evaluation Report will be placed in the site operating record that presents: 1) the results of the monitoring (including the weekly downloaded concentration data (i.e., raw data) and weather data; 2) identifies any data gaps or errors; 3) includes, if applicable, an explanation as to why any of the monitoring results or data are not reliable or are biased; and 4) outlines any additional steps if needed. It will also include the results from any investigations.

4 ODOR COMPLAINT PLAN

4.1 Receiving and Documenting Odor Complaints

Citizens can make an odor complaint by calling the 24-hour odor complaint hotline/message-line and leaving a detailed message of the odor incident. In addition, citizens will be able to leave a complaint through BRLF's website. It will be requested that the community member provide the following items: describing the odors smell, odor intensity, odor location (within 3 miles from the permit boundary of BRLF), time of day when detected, frequency, duration, and a phone number and/or email address. All odor complaints will be addressed and documented (per Appendix 9) to the extent possible given the information provided.

Each business day (defined as hours of operation), the messages on the hotline/message-line and the on-line form will be reviewed by BRLF management team.

4.2 Responding to Odor Complaints and Corrective Actions

4.2.1 Response

To the extent possible, given the information provided, BRLF will respond as follows:

1. The complainant will be contacted within one business day of reviewing the complaints by a member of the BRLF management team to acknowledge the complaint and to notify the complainant that an investigation will be conducted.

2. Within one business day of reviewing the complaints a member of the BRLF management team will visit the location noted by the complainant to check for odors and follow the procedure outlined on the Field Odor Investigation Form or similar equivalent electronic form. The wind direction and wind speed will be compared to the description of the complaint to determine if they correlate and if they demonstrate that odors could be potentially moving from the landfill towards the locations of the complainant.

3. The findings and/or corrective actions will be documented on the Field Odor Investigation Form (Appendix 3 or similar form or electronically). As noted on the form, the date, times, location, corrective actions and findings will be provided.

4. BRLF will follow up with complainants within three business days of reviewing the complaints with the findings and any corrective actions that were taken to address the odor complaint.

To determine if a pattern exists and/or how meteorological data may be contributing to odor events, the information on the forms in Appendix 3 and 9 or from the electronic forms, will be reviewed quarterly by a member of the BRLF management team and included in the Quarterly Evaluation Report as mentioned in Section 3.3. Using a map and the addresses of the complainants a member of the BRLF management team will review the wind speed, direction, time of day and other relevant information at the time of the odor complaint to determine if any patterns exists. Using this information the BRLF management team will make any needed changes at the site.

4.2.2 Corrective Action

If offsite surveys and/or as a result of a documented odor complaint indicates the presence of offsite odors attributed to the BRLF, BRLF will perform an odor investigation and implement the corrective measures described throughout this plan, or other measures as appropriate. All corrective actions will be documented on Field Odor Investigation Form in Appendix 3 and the Odor Complaint Form in Appendix 9 or similar equivalent electronic form and maintained in the site operating record.

4.3 Maintaining Records

Records will be maintained for 3 years in the SOR for all activities relating to offsite odor impacts, including property line and offsite surveillance, odor reports received from the public, investigative activities to identify the odor source, and all corrective actions taken to mitigate the odor. After 3 years, records will be moved offsite to an alternate location consistent with Section 9 of the SOP.

5 SURFACE EMISSION MONITORING

The surface emissions monitoring (SEM) protocol was prepared to comply with the requirements of the New Source Performance Standards (NSPS) under 40 CFR §60.753(d). BRLF will be operating under the procedures and protocol established in the document titled *American Environmental Group – A Tetra Tech Company: NSPS Surface Emissions Summary* Review of Procedures and Protocols (Beginning 2017). This document was originally submitted to the TCEQ on March 15, 2017 and amended per the April 4, 2017 e-mail. A copy of the amended document is provided in Appendix 10. BRLF began operating under these conditions in April 2017.

These procedures include a description of how surface concentrations are measured along the perimeter and at 30 meter intervals along the landfill surface for the required areas noted in the NSPS. The monitoring will be done using an organic vapor analyzer, flame ionization detector, or other portable monitoring equipment. The protocols describe that the proper probe placement is within five to ten centimeters of the ground. The document also provides procedures for ensuring and documenting that 40 CFR Part 60, Appendix A Method 21 (as modified by Subpart WWW) is followed, which includes the proper calibration of monitoring equipment prior to commencing a surface monitoring activity and use of proper calibration gases.

5.1 Quality Assurance Project Plan

The intent of the SEM is to identify locations of methane readings from the landfill surface greater than 500ppm above background concentration. Each SEM event will be done by a qualified third-party Contractor selected by BRLF. In order to ensure BRLF projects are staffed with professional and experienced technicians, third-party contractors shall have demonstrated experience in SEM and have performed at a minimum five SEM events on similar systems in the last two years. Third-party contractors shall provide routine and periodic training of field and office personnel to ensure that services provided are in accordance with the most recent state of the practice and consistent with industry standards and best practices. The SEM lead technician assigned to the site shall have at least one year of applicable experience. Following each monitoring event the Contractor will prepare a report which will then be reviewed by a different qualified, BRLF-selected third-party environmental consultant. The environmental consultant will check the Contractor's report for proper Method 21 procedures for: instrument response times and reading accuracy. They will also confirm that any exceedances were handled following the SEM protocol. At the conclusion of environmental consultant's review, the environmental consultant will prepare a review report which will document any work that does not conform to the SEM protocol. The review report and the

finalized Contractor's SEM Reports will be submitted quarterly to the TCEQ Houston Regional Office Air Section Manager. The SEM reports will include the following documentation to ensure conformance with the Quality Assurance Project Plan:

- Instrument Calibration Certificate
- Calibration Precision Test Record
- Instrument Response Time Test Record
- Calibration Procedure & Background Determination Report
- Monitoring Path
- Corrective Actions

5.2 Frequency

SEM events will be performed bimonthly (occurring once every two months) for two years following approval of this Plan. Two years will allow the site to collect additional SEM data for two full seasonal cycles to determine the potential effect of seasonal fluctuations with surface emissions. At the conclusion of the two year period SEM will performed quarterly. The TCEQ Houston Regional Office will be notified via email and/or phone at least five business days prior to each monitoring event.

APPENDIX 1

COVER APPLICATION LOG

REPUBLIC SERVICES, INC.

COVER APPLICATION LOG

Blue Ridge Landfill, TCEQ Permit No. MSW-1505A

Month / Year: _____

	Daily Cover 6" Soil				Approved Alternate Daily Cover Spray-On or Tarps				Elevation MSL	Inspection Date of Daily Cover [4]	Erosion or Leachate Seep Detected	Date Erosion or Leachate Seep Corrected [5]	Corrective Action [6]	Soil Stockpile Required [7] (yd³)	Rain (inches)	Rain (inches) ≥ 0.5" [8]	Intermediate Cover 12" Soil				Final Cover Per Final Closure Plan				Inspection Date of Intermediate & Final Cover [4]	Erosion ≥ 4" Detected	Date Erosion Corrected [5]	Corrective Action [6]	Final Cover Certification Report Reference	Supervisor Signature [9]
	AMT [1]	Grid Area	T [2]	Method [3]	AMT [1]	Grid Area	T [2]	Method [3]		√ = Inspected	√ = Yes					√ = Yes	AMT [1]	Grid Area	T [2]	Method [3]	AMT [1]	Grid Area	T [2]	Method [3]	√ = Inspected	√ = Yes				
1																														
2																														
3																														
4																														
5																														
6																														
7																														
8																														
9																														
10																														
11																														
12																														
13																														
14																														
15																														
16																														
17																														
18																														
19																														
20																														
21																														
22																														
23																														
24																														
25																														
26																														
27																														
28																														
29																														
30																														
31																														

[1] AMT = Amount of cover (soil) in yd³ or alternate daily cover in bags or tarp area

[2] T = Thickness in inches

[3] Methods: A = Tarp Machine, B = Soil by Heavy Equipment, S = Spray-On

[4] Inspect areas with daily cover or alternate daily cover each day the site is in operation and areas with intermediate and final cover weekly or within 72 hours of a rainfall event of 0.5" or more. Inspect all areas in accordance with Site Operating Plan Section 4.10. Additional documentation area on back of form.

[5] Erosion of daily cover must be corrected within 24 hours after the area is accessible. Erosion of intermediate or final cover must be corrected within 5 days of detection unless approved by TCEQ Regional Office. If not corrected within 5 days, attach documentation stating reasons for delay.

[6] Corrective Action: R = Restoring cover material; G = Grading, M = Compacting; S = Seeding

[7] SOP Section 7.7.4 requires a soil stockpile to be maintained within 1,000 ft of the working face. The amount of soil required is dependent upon the maximum anticipated size of the working face. A 50 yd³ soil stockpile is required within 100 ft of the Regulated Asbestos-Containing Material (RACM) disposal area.

[8] Signature certifies work accomplished as stated in the Cover Application Log.

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	

APPENDIX 2

ONSITE DAILY ODOR SURVEY LOG

TWICE DAILY OFFSITE ODOR SURVEY LOG

MONTHLY LEACHATE RISER SURVEY LOG

Onsite Daily Odor Survey Log

Instructions to User: Fill out log after Onsite daily odor surveys of the Storage Tanks, Solidification Pit Area, and the Citizen Collection Station

Date	**Was the Odor Neutralizing System Operating? If no, explain why.**	**Survey Location**	**Survey Start Time**	**Survey End Time**	**Weather Condition**	**Completed By**	**Were any odors found ≥7 using the Nasal Ranger? If yes, fill out the *Field Odor Investigation Form***	
							Yes	No
		Storage Tanks						
		Solidification Pit Area						
		Citizen Collection Station						
		Storage Tanks						
		Solidification Pit Area						
		Citizen Collection Station						
		Storage Tanks						
		Solidification Pit Area						
		Citizen Collection Station						
		Storage Tanks						
		Solidification Pit Area						
		Citizen Collection Station						
		Storage Tanks						
		Solidification Pit Area						
		Citizen Collection Station						
		Storage Tanks						
		Solidification Pit Area						
		Citizen Collection Station						

Onsite Daily Odor Survey Log

Instructions to User: Fill out log after Onsite daily odor surveys of the Storage Tanks, Solidification Pit Area, and the Citizen Collection Station

Date	Was the Odor Neutralizing System Operating? If no, explain why.	Survey Location	Survey Start Time	Survey End Time	Weather Condition	Completed By	Were any odors found ≥7 using the Nasal Ranger? If yes, fill out the *Field Odor Investigation Form*	
							Yes	No
1/2/2018	Yes	Storage Tanks	10:30am	10:40am	Reporting Station: KAXH Wind Speed: 8.1 mph Wind Direction: NE Humidity: 93% Precipitation: 0.0 in Pressure: 30.38 mm Conditions: Overcast	John Smith		X
		Solidification Pit Area	10:52am	11:14am	Reporting Station: KAXH Wind Speed: 5.3 mph Wind Direction: NE Humidity: 93% Precipitation: 0.0 in Pressure: 30.38 mm Conditions: Overcast	John Smith		X
		Citizen Collection Station	11:30am	11:40am	Reporting Station: KAXH Wind Speed: 6.1 mph Wind Direction: NE Humidity: 92% Precipitation: 0.0 in Pressure: 30.38 mm Conditions: Overcast	John Smith		X
1/3/2018	No, down due to power outage. Will be restared once power is resumed	Storage Tanks	9:15am	9:25am	Reporting Station: KAXH Wind Speed: Calm Wind Direction: SE Humidity: 93% Precipitation: 0.0 in Pressure: 30.38 mm Conditions: Overcast	John Smith		X
		Solidification Pit Area	9:33am	9:42am	Reporting Station: KAXH Wind Speed: Calm Wind Direction: SE Humidity: 93% Precipitation: 0.0 in Pressure: 30.38 mm Conditions: Overcast	John Smith		X
		Citizen Collection Station	9:50am	9:58am	Reporting Station: KAXH Wind Speed: 1.1 mph Wind Direction: SE Humidity: 93% Precipitation: 0.0 in Pressure: 30.38 mm Conditions: Overcast	John Smith	X	
1/4/2018	Yes	Storage Tanks	2:15pm	2:26pm	Reporting Station: KAXH Wind Speed: 8.1 mph Wind Direction: NE Humidity: 93% Precipitation: 0.0 in Pressure: 30.38 mm Conditions: Overcast	John Smith		X
		Solidification Pit Area	2:32pm	2:40pm	Reporting Station: KAXH Wind Speed: 8.1 mph Wind Direction: NE Humidity: 93% Precipitation: 0.0 in Pressure: 30.38 mm Conditions: Overcast	John Smith		X
		Citizen Collection Station	2:45pm	2:53pm	Reporting Station: KAXH Wind Speed: 8.1 mph Wind Direction: NE Humidity: 93% Precipitation: 0.0 in Pressure: 30.38 mm Conditions: Overcast	John Smith		X

Twice Daily Offsite Odor Survey Log

Instructions to User: Fill out log during twice daily offsite odor surveys

Completed By:

Date:

Location	Time	Weather Condition	Were any odors found ≥7 using the Nasal Ranger? If yes, fill out the Field Odor Investigation Form	
			Yes	No
1. 2234 Sewage Treatment Plant				
2. School on Kingsley near FM 2234 (Shadow Creek)				
3. School on Kingsley near FM 518 (Shadow Creek)				
4. Trinity Bay and Biscayne Bay (Shadow Creek)				
5. Biscayne Bay Sewage Lift Station (Shadow Creek)				
6. Windward Bay and Arcadia Bay (Shadow Creek)				
7. Arcadia Bay Curve E of Mountain Sage Cul-De-Sac (Shadow Creek)				
8. Trinity Bay and Arcadia Bay (Shadow Creek)				
9. Trinity Bay and Biscayne Bay at Pool/Water Park Feature (Shadow Creek)				
10. Lonestar LF off Bluebonnet				
11. S. Ridgewalk Dr Cul-De-Sac off FM 2234				
12. FM 2234 and FM 521				
13. FM 521 Construction Entrance (BRLF)				
14. FM 521 Gas Pipeline Easement Gate (BRLF)				
15. BRLF Entrance FM 518 and FM 521				

Twice Daily Offsite Odor Survey Log

Instructions to User: Fill out log during twice daily offsite odor surveys

Completed By: John Smith

Date: 1/8/2018

Location	Time	Weather Condition	Were any odors found ≥7 using the Nasal Ranger? If yes, fill out the Field Odor Investigation Form	
			Yes	No
1. 2234 Sewage Treatment Plant	9:10am	Reporting Station: KAXH Wind Speed: 8.1 mph Wind Direction: NE Humidity: 93% Precipitation: 0.0 in Pressure: 30.38 mm Conditions: Overcast		X
	3:30pm	Reporting Station: KAXH Wind Speed: 9.1 mph Wind Direction: N Humidity: 93% Precipitation: 0.0 in Pressure: 30.44 mm Conditions: Overcast		X
2. School on Kingsley near FM 2234 (Shadow Creek)	9:14am	Reporting Station: KAXH Wind Speed: 8.1 mph Wind Direction: NE Humidity: 93% Precipitation: 0.0 in Pressure: 30.38 mm Conditions: Overcast		X
	3:33pm	Reporting Station: KAXH Wind Speed: 9.1 mph Wind Direction: N Humidity: 93% Precipitation: 0.0 in Pressure: 30.44 mm Conditions: Overcast		X
3. School on Kingsley near FM 518 (Shadow Creek)	9:17am	Reporting Station: KAXH Wind Speed: 8.1 mph Wind Direction: NE Humidity: 93% Precipitation: 0.0 in Pressure: 30.38 mm Conditions: Overcast		X
	3:35pm	Reporting Station: KAXH Wind Speed: 9.1 mph Wind Direction: N Humidity: 93% Precipitation: 0.0 in Pressure: 30.44 mm Conditions: Overcast		X
4. Trinity Bay and Biscayne Bay (Shadow Creek)	9:19am	Reporting Station: KAXH Wind Speed: 8.1 mph Wind Direction: NE Humidity: 93% Precipitation: 0.0 in Pressure: 30.38 mm Conditions: Overcast		X
	3:37pm	Reporting Station: KAXH Wind Speed: 9.1 mph Wind Direction: N Humidity: 93% Precipitation: 0.0 in Pressure: 30.44 mm Conditions: Overcast		X
5. Biscayne Bay Sewage Lift Station (Shadow Creek)	9:21am	Reporting Station: KAXH Wind Speed: 8.1 mph Wind Direction: NE Humidity: 93% Precipitation: 0.0 in Pressure: 30.38 mm Conditions: Overcast		X
	3:40pm	Reporting Station: KAXH Wind Speed: 9.1 mph Wind Direction: N Humidity: 93% Precipitation: 0.0 in Pressure: 30.44 mm Conditions: Overcast		X

6. Windward Bay and Arcadia Bay (Shadow Creek)	9:23am	Reporting Station: KAXH Wind Speed: 8.1 mph Wind Direction: NE Humidity: 93% Precipitation: 0.0 in Pressure: 30.38 mm Conditions: Overcast		X
	3:43pm	Reporting Station: KAXH Wind Speed: 9.1 mph Wind Direction: N Humidity: 93% Precipitation: 0.0 in Pressure: 30.44 mm Conditions: Overcast		X
7. Arcadia Bay Curve E of Mountain Sage Cul-De-Sac (Shadow Creek)	9:25am	Reporting Station: KAXH Wind Speed: 8.1 mph Wind Direction: NE Humidity: 93% Precipitation: 0.0 in Pressure: 30.38 mm Conditions: Overcast		X
	3:45pm	Reporting Station: KAXH Wind Speed: 9.1 mph Wind Direction: N Humidity: 93% Precipitation: 0.0 in Pressure: 30.44 mm Conditions: Overcast		X
8. Trinity Bay and Arcadia Bay (Shadow Creek)	9:28am	Reporting Station: KAXH Wind Speed: 8.1 mph Wind Direction: NE Humidity: 93% Precipitation: 0.0 in Pressure: 30.38 mm Conditions: Overcast		X
	3:47pm	Reporting Station: KAXH Wind Speed: 9.1 mph Wind Direction: N Humidity: 93% Precipitation: 0.0 in Pressure: 30.44 mm Conditions: Overcast		X
9. Trinity Bay and Biscayne Bay at Pool/Water Park Feature (Shadow Creek)	9:30am	Reporting Station: KAXH Wind Speed: 8.1 mph Wind Direction: NE Humidity: 93% Precipitation: 0.0 in Pressure: 30.38 mm Conditions: Overcast		X
	3:50pm	Reporting Station: KAXH Wind Speed: 9.1 mph Wind Direction: N Humidity: 93% Precipitation: 0.0 in Pressure: 30.44 mm Conditions: Overcast		X
10. Lonestar LF off Bluebonnet	9:34am	Reporting Station: KAXH Wind Speed: 8.1 mph Wind Direction: NE Humidity: 93% Precipitation: 0.0 in Pressure: 30.38 mm Conditions: Overcast	X	
	3:54pm	Reporting Station: KAXH Wind Speed: 9.1 mph Wind Direction: N Humidity: 93% Precipitation: 0.0 in Pressure: 30.44 mm Conditions: Overcast		X
11. S. Ridgewalk Dr Cul-De-Sac off FM 2234	9:38am	Reporting Station: KAXH Wind Speed: 8.1 mph Wind Direction: NE Humidity: 93% Precipitation: 0.0 in Pressure: 30.38 mm Conditions: Overcast		X
	3:58pm	Reporting Station: KAXH Wind Speed: 9.1 mph Wind Direction: N Humidity: 93% Precipitation: 0.0 in Pressure: 30.44 mm Conditions: Overcast		X

12. FM 2234 and FM 521	9:40am	Reporting Station: KAXH Wind Speed: 8.1 mph Wind Direction: NE Humidity: 93% Precipitation: 0.0 in Pressure: 30.38 mm Conditions: Overcast		X
	4:00pm	Reporting Station: KAXH Wind Speed: 9.1 mph Wind Direction: N Humidity: 93% Precipitation: 0.0 in Pressure: 30.44 mm Conditions: Overcast		X
13. FM 521 Construction Entrance (BRLF)	9:42am	Reporting Station: KAXH Wind Speed: 8.1 mph Wind Direction: NE Humidity: 93% Precipitation: 0.0 in Pressure: 30.38 mm Conditions: Overcast		X
	4:02pm	Reporting Station: KAXH Wind Speed: 9.1 mph Wind Direction: N Humidity: 93% Precipitation: 0.0 in Pressure: 30.44 mm Conditions: Overcast		X
14. FM 521 Gas Pipeline Easement Gate (BRLF)	9:45am	Reporting Station: KAXH Wind Speed: 8.1 mph Wind Direction: NE Humidity: 93% Precipitation: 0.0 in Pressure: 30.38 mm Conditions: Overcast		X
	4:04pm	Reporting Station: KAXH Wind Speed: 9.1 mph Wind Direction: N Humidity: 93% Precipitation: 0.0 in Pressure: 30.44 mm Conditions: Overcast	X	
15. BRLF Entrance FM 518 and FM 521	9:48am	Reporting Station: KAXH Wind Speed: 8.1 mph Wind Direction: NE Humidity: 93% Precipitation: 0.0 in Pressure: 30.38 mm Conditions: Overcast		X
	4:06pm	Reporting Station: KAXH Wind Speed: 9.1 mph Wind Direction: N Humidity: 93% Precipitation: 0.0 in Pressure: 30.44 mm Conditions: Overcast		X

Monthly Leachate Risers Survey Log

Instructions to User: Fill out log once a month after surveying a 100 foot area around each of the leachate risers using the Nasal Ranger.

Date	Survey Start Time	Survey End Time	Weather Condition	Completed By	Were any odors found ≥7 using the Nasal Ranger? If yes, fill out the *Field Odor Investigation Form*	
					Yes	No

Monthly Leachate Risers Survey Log

Instructions to User: Fill out log once a month after surveying a 100 foot area around each of the leachate risers using the Nasal Ranger.

Date	Survey Start Time	Survey End Time	Weather Condition	Completed By	Were any odors found ≥7 using the Nasal Ranger? If yes, fill out the *Field Odor Investigation Form*	
					Yes	No
11/7/2017	10:10AM	11:12AM	Reporting Station: KAXH Wind Speed: 8.1 mph Wind Direction: NE Humidity: 93% Precipitation: 0.0 in Pressure: 30.38 mm Conditions: Overcast	John Smith		X
12/7/2017	12:30PM	1:35AM	Reporting Station: KAXH Wind Speed: 8.1 mph Wind Direction: NE Humidity: 93% Precipitation: 0.0 in Pressure: 30.38 mm Conditions: Overcast	John Smith	X	
1/5/2018	8:25AM	9:30AM	Reporting Station: KAXH Wind Speed: 8.1 mph Wind Direction: NE Humidity: 93% Precipitation: 0.0 in Pressure: 30.38 mm Conditions: Overcast	John Smith		X

APPENDIX 3

FIELD ODOR INVESTIGATION FORM

Field Odor Investigations

Instructions to User: To be completed when an odor complaint is received and needs to be investigated or landfill odors are detected by site personnel

Date:

Time:

Investigator:

Location:

If Applicable
Name of Odor Complaintant:
Date of Odor Complaint:

Weather Conditions at Time of Investigation:	
Wind Direction and Speed:	Humidity:
Temperature:	Barometric Pressure:
Rain:	

	Date and Time	Odor Intensity [1] [2]	Odor Descriptors[3]
Initial Reading			
Follow-up Reading (if needed)			
Follow-up Reading (if needed)			
Follow-up Reading (if needed)			
Follow-up Reading (if needed)			
Follow-up Reading (if needed)			

[1] Use Nasal Ranger to determine Intensity ratio value

[2] If the Intensity is at 7 or greater using the Nasal Ranger, corrective action is initiated and the location is remonitored

[3] Use the standardized terminology outlined in Appendix 7

Corrective Action Taken as outlined in the BRLF Odor Control Plan:

Findings and Conclusion of the Odor Investigation:

Field Odor Investigations

Instructions to User: To be completed when an odor complaint is received and needs to be investigated or landfill odors are detected by site personnel

Date: 1/10/2018
Time: 11:30am
Investigator: John Smith
Location: FM 521 near the Shadow Creek Ranch Neighborhood

If Applicable
Name of Odor Complaintant: Sally Williams
Date of Odor Complaint: 1/10/2018

Weather Conditions at Time of Investigation:	
Wind Direction and Speed: 4.6mph East	Humidity: 97%
Temperature: 54°F	Barometric Pressure: 30.04in.
Rain: None	

	Date and Time	Odor Intensity [1] [2]	Odor Descriptors[3]
Initial Reading	1/10/2018 11:30am	15	506 Garbage
Follow-up Reading (if needed)	1/10/2018 2:33pm	<2	N/A
Follow-up Reading (if needed)			
Follow-up Reading (if needed)			
Follow-up Reading (if needed)			
Follow-up Reading (if needed)			

[1] Use Nasal Ranger to determine Intensity ratio value

[2] If the Intensity is at 7 or greater using the Nasal Ranger, corrective action is initiated and the location is remonitored

[3] Use the standardized terminology outlined in Appendix 7

Corrective Action Taken as outlined in the BRLF Odor Control Plan:

Based on the location of the complaint and the odor descriptor, the tech investigated the CCS and the Leachate tank area. The tech verified the odor neutralizing system was working around the leachate tanks. The tech had the trash in CCS removed and transported the active face.

Findings and Conclusion of the Odor Investigation:

The odor that was described in th complaint was similar to what the tech found at the CCS. The tech had the CCS emptied and then had reading of <2. The complainant was notified of the findings and actions taken.

APPENDIX 4

SITE PLAN

LEGEND

- PERMIT BOUNDARY
- LIMIT OF WASTE
- EXISTING FILL AREA
- CELL BOUNDARY
- EASEMENT BOUNDARY
- N 13771500 — STATE PLANE COORDINATE SYSTEM
- 80 — EXISTING CONTOUR
- GMP-1 — EXISTING LFG MONITORING PROBE
- W-90 — EXISTING LFG EXTRACTION WELL
- W-89 — EXISTING LFG EXTRACTION WELL (WITH PUMP)
- EXISTING REMOTE WELLHEAD
- PS-1 — EXISTING CONDENSATE PUMP STATION
- EXISTING LFG COLLECTION PIPING
- EXISTING LFG ISOLATION VALVE
- CS3-5 — EXISTING CONDENSATE SUMP
- LCR-1 — EXISTING LCR CONNECTION
- EXISTING HEADER ACCESS RISER
- EXISTING SOLAR FLARE LOCATION
- EXISTING PRESSURE TAP
- EXISTING BLIND FLANGE
- EXISTING HDPE CAP
- EXISTING ROAD CROSSING
- EXISTING AIR SUPPLY LINE
- EXISTING CONDENSATE FORCEMAIN
- EXISTING AIR/CONDENSATE VALVE
- EXISTING LFGTE PIPING
- PROPOSED H_2S MONITORS (APPROXIMATE LOCATIONS)
- EXISTING ODOR NEUTRALIZER SYSTEM

N

0 400 800

SCALE IN FEET

GMP-33 GMP-34 GMP-35 GMP-36 GMP-37 GMP-18A GMP-18B GMP-17A GMP-17B GMP-16 GMP-15 GMP-14 GMP-13 GMP-12 GMP-11 GMP-10A GMP-10B GMP-9 GMP-8 GMP-7 GMP-6 GMP-5 GMP-4A GMP-4B GMP-3 GMP-2 GMP-1

HOUSTON PIPELINE COMPANY 30 FOOT EASEMENT

KINDER-MORGAN 15 FOOT EASEMENT

EXISTING ENERGY FACILITY

EXISTING ENCLOSED FLARE

EXISTING LEACHATE TANKS

CARBON CANISTER

CITIZENS COLLECTION STATION

EXISTING SOLIDIFICATION PIT AREA

EXISTING UTILITY FLARE

EXISTING OFFICE AND SCALEHOUSE FACILITIES

SITE ENTRANCE

DETENTION BASIN II

DETENTION BASIN I

ALMEDA ROAD (FM 521)

N 13771500 N 13770500 N 13769500 N 13768500 N 13767500 N 13766500

E 3090000 E 3091000 E 3092000 E 3093000 E 3094000 E 3095000 E 3096000 E 3097000 E 3098000 E 3099000 E 3100000

P:\LFG\Projects\Allied-BFI\Blue Ridge\Agreed Order 2017\Revised Draft Plan\App. 4-EXISTING SITE PLAN.dwg, jslurell, 1:2

- [ ] DRAFT
- [X] FOR INFORMATION PURPOSES ONLY
- [ ] ISSUED FOR CONSTRUCTION

DATE: 08/2017
FILE: 0120-405-52
CAD: 1-SITE PLAN.DWG

DRAWN BY: CGM
DESIGN BY: CGM
REVIEWED BY: CGM

Weaver Consultants Group
TBPE REGISTRATION NO. F-3727

PREPARED FOR
BLUE RIDGE LANDFILL TX, LP

REVISIONS

NO.	DATE	DESCRIPTION

ODOR CONTROL PLAN SITE PLAN

BLUE RIDGE LANDFILL
FORT BEND COUNTY, TEXAS

WWW.WCGRP.COM

APPENDIX 4

APPENDIX 5

ODOR NUETRALIZING SYSTEM – SDS

MATERIAL SAFETY DATA SHEET

SECTION I CONTACT INFORMATION

Distributor's Name	Air Care Technology LLC
Address	20523 Whiteberry Court
	Humble TX 77346-1338
Emergency Telephone	800-424-9300
Information Telephone	281-812-0795

SECTION II MATERIAL IDENTIFICATION

Product	**Neutralene® 7030SF**
Reportable Ingredients	None
Proprietary Ingredients	Neutralene® Odor Counteractant
	Noxorb Gas & Odor Absorber
OSHA PEL	None
ACGIH TLV	Not Applicable
Other Limits	None

SECTION III PHYSICAL DATA

Vapor Density	Heavier than Air
pH	Neutral
Water Solubility	Soluble
Boiling Point	~ 212° F
Appearance	Clear almost Water White Liquid
Odor	Characteristic
Specific Gravity	~ 1.0
Evaporation Rate	Equal to Water
Percent Volatiles	Not Applicable

SECTION IV FIRE and EXPLOSION DATA HMIS 0

Flash Point	> 212° F
Extinguishing Media	Water Spray, Foam, Dry Chemical, or Carbon Dioxide
Special Procedures	Proper Personal Protection Clothing including SCBA
Unusual Hazards	None Known

SECTION V REACTIVITY DATA HMIS 0

Chemical Stability	Stable
Conditions to Avoid	None Known
Incompatibility	Avoid Contact with Strong Ozidizers
Polymerization	Will Not Occur
Decomposition	Oxides of Carbon and Nitrogen

SECTION VI HEALTH INFORMATION HMIS 1

Toxicity	Not Established
Carcinogenicity	No Components Listed by IARC, NTP, or OSHA
Exposure Limits	Not Established
Signs and Symptoms	
Inhalation	May Cause Irritation
Eye Contact	May Cause Irritation
Skin Contact	May Cause Irritation
Ingestion	May Cause Irritation
First Aid Procedures	
Inhalation	Remove to Fresh Air
	Contact Physician if Breathing is Difficult
Eye Contact	Flush with Water for 15 Minutes and Contact Physician
Skin Contact	Remove Contaminated Clothing & Footwear and Wash with Soap & Water
	If Rash Develops Get Medical Attention
Ingestion	Dilute with Water or Milk and Contact Physician
Acute Health Hazards	Considered a Possible Irritant Under 29 CFR 1910.C

SECTION VII CONTROL MEASURES HMIS B

Ventilation	Normal Ventilation is Generally Adequate
Respiratory Protection	None Required Under Normal Use Conditions
Eye Protection	Safety Glasses with Side Shields are Recommended
Skin Protection	Chemical Resistant Gloves are Recommended
Other PPE	None Required Under Normal Use Conditions
Hygienic Practices	Normal

SECTION VIII STORAGE, SPILL and DISPOSAL

Storage	Keep Closed Containers in Well Ventilated Area, Avoid Temperatures above 120° F and Keep from Freezing
Spill	Return Product to Container, Report Major Spills as Required
Disposal	Dispose of in Accordance with Federal, State, and Local Regulations

SECTION IX OTHER INFORMATION

Proper Shipping Name	Not DOT Regulated
TSCA Status	All Ingredients are in Public or Confidential Inventory

GOC Technologies

QuikAir® V Concentrate

Issued 24-03-2014 Latest modification 08-03-2016

1. Product and Company identification

QuikAir® V

Supplier:
GOC Technologies, 3910 W. Roll Avenue, Bloomington, IN 47403 USA
Phone: 1 812 334 2413 Fax: 1812 334 2415 E-Mail: info@goctech.com

2. Composition / Information on ingredients

* Chemical characterisation.
The formula contains:

Citric acid, cineole, amino hydroxyl groups, amino sucroates, cationic surfactants. Other information is proprietary.

* Hazardous components:

CAS-No.	Name	max.%	risk symbol	R risk sentences

This product contains no ingredients designated as "of concern", hazardous, or toxic on any Governmental list in the USA, Canada, the European Union, Australia, or New Zealand.

3. Possible risks

* Risk reference: None.

* Special risks to man and environment: None.

Note: May irritate eyes. Prolonged contact with liquid concentrate may cause redness, itching, and dryness of skin. See section 15.

4. First aid

*	General recommendation	N/A in normal operation.
*	In case of inhalation	N/A
*	After contact with skin	Wash with fresh water, remove contaminated clothing.
*	After contact with eyes	Flush open eyes thoroughly with fresh water. Get medical attention if irritation persists.
*	If swallowed	Drink plenty of milk or water. Induce vomiting. Get medical attention.
*	Information for physician	Product contains ketone of grapefruit .

5. Measures in case of fire

* Suitable fire extinguishing agents: Water spray jet, carbon dioxide, dry chemical, foam depending on the environment.
* Extinguishing agents not suitable for safety reasons: N/A.
* Special risks caused by the substance or its preparation, combustion or released gases: None
* Substances that may be released during a fire: VOC'S
* Special protection equipment: Use the protection equipment that is usual for fires.
* Additional information: None.

6. Measures on unexpected release

* Personal safety measures: Normal ventilation.
* Measures to protect the environment: None required.
* Cleaning measures: Flush small amounts to drain. Collect and return large amounts to container.
* Additional information: None.

7. Handling and storage

Handling the product.

* Information on safe use of the product: Ensure proper ventilation/extraction at the storage space and workplace. See 8 below.
  Always wear hand and arm protection when contact with concentrate is probable.
* Information on protection against fire and explosion: Not flammable.

Storage.

* Requirements for storage spaces and containers: Use containers of polyethylene (PE).
* Rules for storage together with other substances: None.
* Further information on storage conditions: Keep containers cool and properly sealed. Prevent freezing. Observe the prevailing legal and administrative regulations for storage.
* Storage class: N/A.
* VbF class: N/A.

8. Exposure controls and personal protection equipment

* Additional information on engineering measures: No additional information, also refer to section 7.
* Components with values relating to the workplace: N/A.
  Personal protection equipment.
* Respiratory protection: N/A.
* Hand protection: Gloves of PVC or rubber.
* Eye protection: Safety glasses.
* Body protection: None.
* General measures for safety and hygiene: Do not smoke, eat or drink when working with the product.

9. Physical and chemical properties

State		Liquid
Colour		Translucent clear to yellow
Odour		Mild detergent odour
pH value	at 20 °C	6.8 ± 0.5
Change of state		
Melting point		- 2 °C
Boiling point		100 °C
Flash point		N/A
Ignition temperature		N/A
Explosion risk		Not explosive
Explosion limits		Upper limit: N/A
		Lower limit: N/A
Density	at 20 °C	0,995 ± 0.005 g/cm^3
Solubility in/miscibility with water		100 %

10. Stability and reactivity

*	Conditions to avoid	None.
*	Substances to avoid	Strong oxidizers such as chlorides and peroxides
*	Dangerous decomposition products	None.
*	Additional information	None.

11. Toxicological information

*	Acute toxicity	None.
*	Primary irritation	May irritate eyes. Prolonged contact with liquid concentrate may cause dryness of skin.
*	Influence on sensitivity	No known influences.
*	Further toxicological information	None.

12. Information on environmental aspects

* Information on elimination (persistence and degradability):
  The product is non-hazardous and non-toxic, completely water soluble, and completely bio-degradable.
* Behaviour in the environment: Does not increase BOD or COD in waterways.
* Aquatic poisoning risk: None.
* Further information on environmental aspects: Does not create hazardous or toxic bi-products.

13. Disposal information

* Waste disposal / product disposal: Non-hazardous, non-toxic.
* Uncleaned containers:
  Recommendation: Empty the containers completely, wash with water and make available for re-use.
* Recommended cleaning agent: Water.

14. Information on transport

* Overland transport ADR/RID:

ADR/RID class	
Numeral/letter	
Warning sign	
Risk no.	
Substance no.	
Product description	Non-hazardous fluid

* Transport by sea IMDG/GGVSee:

IMDG/GGVSee class	
UN number	
Packaging group	
EmS number	
MFAG	
Marine pollutant	No
Correct technical reference	Non-hazardous fluid
Remarks	None

* Air transport ICAO-TI and ATA:

ICAO-TI/IATA class	
Subsidiary risk	
UN/ID number	
Packaging group	
Correct technical reference	Non-hazardous fluid
Remarks	None

* Further information None

15. Regulations

* Labelling as per EEC, AU, or US directives: N/A.

* Symbol/Symbols of the product: N/A.

* R sentences: (Concentrate)
  36/38 Irritative for the eyes and skin

* S sentences: (Concentrate)
  26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
  28 After contact with skin, wash immediately with plenty of water and soap.
  37/39 Wear suitable gloves and eye protection (concentrate).

* National regulations:

Remark on labour restrictions	N/A.
Emergency regulation (OSHA)	None
Classification under VbF	N/A.
Technical manual air (Ger.)	N/A.
WGK	N/A (In accordance with the mixing regulation of the administration directives for self-classification of the risk class of substances harmful to water VwVwS).
Additional information	None.

16. Further information

This Material Safety Data Sheet follows the requirements of the directive 93/112/EC. The information contained herein is correct to the best of our knowledge at the date of publication and no liability can be accepted for any loss, injury or damage resulting from its use. It is intended as a guide for the safe handling, storage and use under normal conditions, but it does not necessarily refer to the particular requirement of the customer when further advice should be obtained.

APPENDIX 6

NASAL RANGER FIELD OLFACTOMETER OPERATIONS MANAUAL

ODOR DESCRIPTORS

NASAL RANGER TRAINING LOG

THE NASAL RANGER® FIELD OLFACTOMETER

OPERATION MANUAL

Version 6.2

U.S. Patent No.: 6,595,037

St. Croix Sensory, Inc.

www.NasalRanger.com
info@NasalRanger.com
+651-439-0177 / 800-879-9231

TABLE OF CONTENTS

NASAL RANGER® FIELD OLFACTOMETER

INTRODUCTION TO FIELD OLFACTOMETRY

The Nasal Ranger® Field Olfactometer is the "state-of-the-art" in field olfactometry for confidently measuring and quantifying odor strength in the ambient air. The Nasal Ranger® Field Olfactometer, a portable odor detecting and measuring device, determines ambient odor "Dilution-to-Threshold" (D/T) values objectively.

Field olfactometry can be used as a proactive monitoring or enforcement tool for confident odor measurement at property lines and in the neighboring community. Quantifying ambient odor is often needed for the following purposes:

1. Monitoring daily operations (i.e. management performance evaluations),
2. Comparison of operating practices (i.e. evaluating alternatives),
3. Documenting specific events or episodes (i.e. defensible, credible evidence),
4. Monitoring compliance (i.e. compliance assurance for permits),
5. Determination of compliance (i.e. permit renewal),
6. Determination of status (i.e. baseline data for expansion planning),
7. Investigation of odor control effectiveness (i.e. scientific testing),
8. Verification of odor dispersion modeling (i.e. model calibration),
9. Determination of specific odor sources (i.e. investigation of complaints),
10. Verification of complaints (i.e. notice of violation).

The Nasal Ranger® Field Olfactometer, as a nasal organoleptic instrument, provides field olfactometry with a scientific method for dependable ambient odor quantification.

In 1958 the U.S. Public Health Service sponsored the development of an instrument and procedure for **field olfactometry** (ambient odor strength measurement) through Project Grants A-58-541, A-59-541, and A-60-541. The Barnebey-Cheney Company originally manufactured a field olfactometer instrument based on these grants, known as a "scentometer".

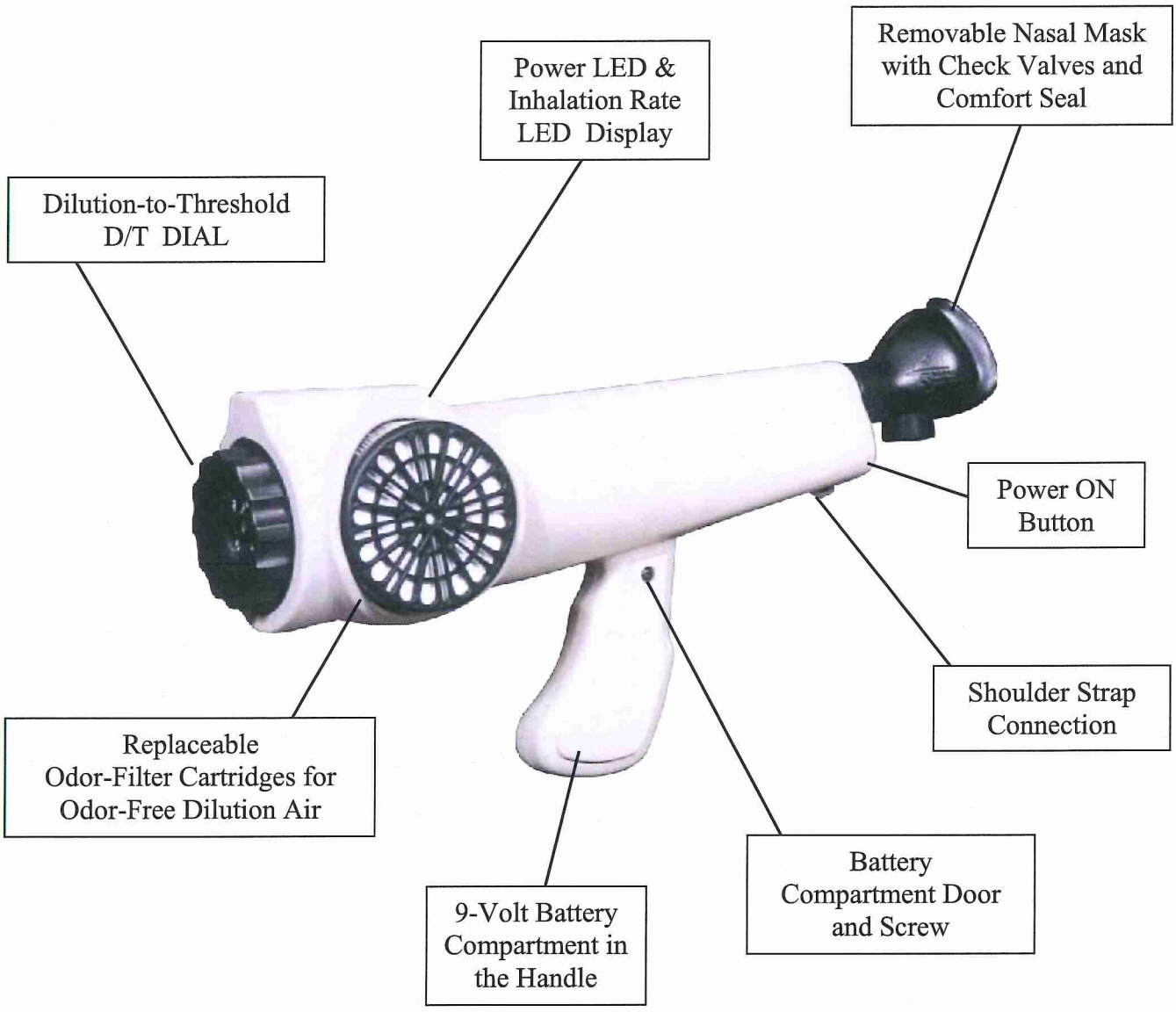
A Nasal Ranger® Field Olfactometer creates a calibrated series of discrete dilutions by mixing the odorous ambient air with odor-free (carbon) filtered air. Field olfactometry defines each discrete dilution level as a "Dilution-to-Threshold," **D/T**, ratio. The "Dilution-to-Threshold" ratio is a measure of the number of dilutions needed to make the odorous ambient air "non-detectable".

Field olfactometry calculates the **"Dilution-to-Threshold"** (D/T) ratio as:

$$D/T = \frac{\text{Volume of Carbon-Filtered Air}}{\text{Volume of Odorous Air}}$$

NASAL RANGER® FIELD OLFACTOMETER

COMPONENT DIAGRAM



NASAL RANGER® FIELD OLFACTOMETER

SAFETY AND MAINTENANCE

The Nasal Ranger® Field Olfactometer is a safe and effective means to quantify odor strength in terms of "Dilution-to-Threshold" (D/T) ratios. Facility operators, community inspectors, and neighborhood citizens can use this instrument to monitor ambient odor strength at specific locations within or around a facility's property line and within the community.

Please refer to pages 4-7 of this manual for proper operating procedures.

Safety precautions:

- Be familiar with your surroundings before using the Nasal Ranger® Field Olfactometer.
- Obtain proper permission to use the Nasal Ranger® Field Olfactometer at the desired locations.
- The Nasal Ranger® Field Olfactometer and its related products should not be used for purposes other than its intended purpose.
- The Nasal Ranger® Field Olfactometer is not to be used as a respirator for the reduction or elimination of hazardous chemicals in the air.
- You should not use the Nasal Ranger® Field Olfactometer in atmospheres where contaminant concentrations are unknown, immediately dangerous to life/health, or exceed applicable local standards.
- You should not use the Nasal Ranger® Field Olfactometer in atmospheres that contain less than 19.5% oxygen.
- The Nasal Ranger® Field Olfactometer should not be misused, altered, disassembled, neglected or handled carelessly.
- Use the Nasal Ranger® Field Olfactometer in a stationary position, do not walk or move around with the unit held up to your nose. Remove the unit from your nose before moving to the next measurement location.
- The Nasal Mask is fragile and can break if dropped onto a hard surface. If the Nasal Mask was to become cracked or broken, do not use. Usage of a broken mask could cause injury to face. Discard the broken mask and replace with a new mask.

If a defect with the Nasal Ranger® Field Olfactometer should appear during the warranty period, please refer to the *Warranty Service Procedure* section of the *Sales Terms and Conditions* (pg.13).

Maintenance:

- Comfort Seals should be changed frequently.
- Cartridges (see pg.10).
- Mask should be cleaned with Isopropyl alcohol wipes (also see pg.10).
- Mask o-rings should be changed when necessary.
- Barrel should be cleaned with barrel brush when visible debris is present.
  To clean barrel, follow these simple steps:
  1. Turn dial to blank position.
  2. Take mask off.
  3. Lightly insert brush through barrel at the mask end until it reaches the D/T dial.
  4. Pull brush out giving slight twist.

Be sure to register your Nasal Ranger® Field Olfactometer on-line at www.NasalRanger.com or by completing the Registration Form (pg.22) and faxing or mailing the form as instructed. Your registration will allow us to better serve you with product updates and important information regarding your Nasal Ranger® Field Olfactometer.

If you have any questions about proper usage and safety regarding the Nasal Ranger® Field Olfactometer, please send an e-mail to info@nasalranger.com or call St. Croix Sensory, Inc. at 1-800-879-9231 (+651-439-0177).

Nasal Ranger® Field Olfactometer

QUICK START GUIDE

The Nasal Ranger® Field Olfactometer, a portable odor detecting and measuring device developed by St. Croix Sensory, Inc., is the "state-of-the-art" in field olfactometry for confidently measuring and quantifying odor strength in the ambient air using the Operating Principle of mixing odorous ambient air with odor-free filtered air in discrete volume ratios called "Dilution-to-Threshold" ratios (D/T ratios).

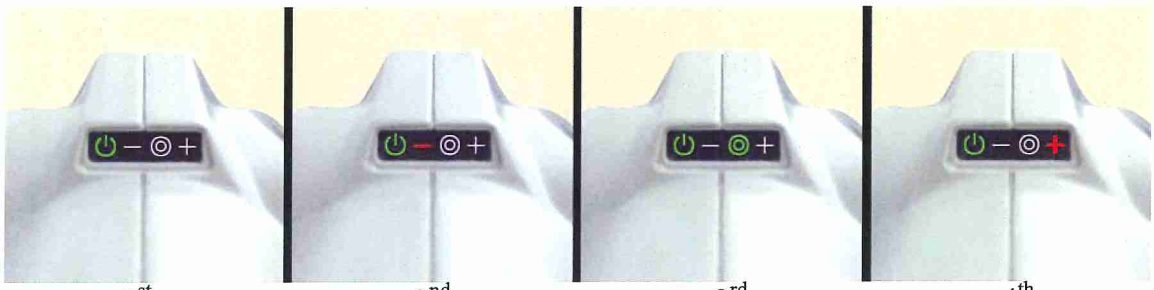
Field olfactometry with the Nasal Ranger® Field Olfactometer is a cost effective means to quantify odor strength. Facility operators, community inspectors, and neighborhood citizens can confidently monitor odor strength at specific locations around a facility's property line and within the community.

The following information allows an informed user to quickly understand the operation of the Nasal Ranger Field Olfactometer. It assumes the user has some familiarity with field olfactometry and odor monitoring concepts. [See also "Operation Principles" and "Application Guide"]

1. Hold the Nasal Ranger Field Olfactometer parallel to the ground and press the power button which is located below the nasal mask. All four LED lights should illuminate for one second, and then the 1st (left) Power LED will stay illuminated.

2. Follow the Test Procedure Flow Chart for the sequenced testing procedure.

3. The LED's on the Nasal Ranger Field Olfactometer provide feedback for the user to inhale at the "factory calibration flow rate". The LED's are labeled as follows:



1st	2nd	3rd	4th
Power ON	Inhalation Rate too low Need to increase Inhalation Rate	Correct Inhalation Rate 16-20 LPM	Inhalation Rate too high Need to decrease Inhalation Rate

4. After 45 seconds of non-use, the 1st LED will blink slowly in a "Power Save" mode.

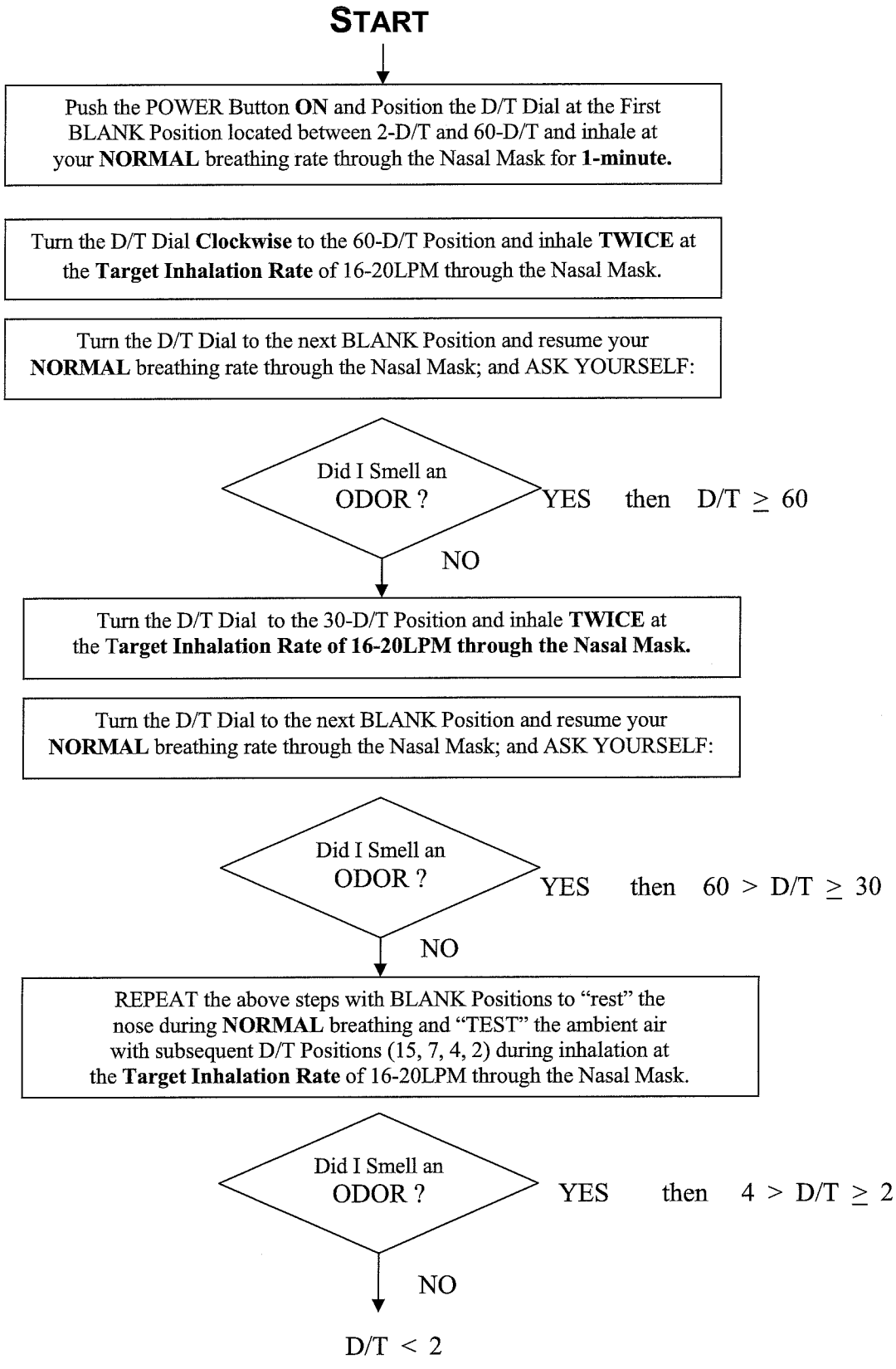
5. After five minutes of non-use, the Power will automatically turn OFF.

6. To turn off the Nasal Ranger Field Olfactometer manually, press and hold the power button for 3 seconds. All four LEDS will illuminate and then power off. The Nasal Ranger Field Olfactometer is now OFF.

Thank you for joining the ranks of Nasal Ranger® owners. The Nasal Ranger® Field Olfactometer is a precision calibrated tool and will yield reliable odor strength results for your monitoring and measurement needs.

NASAL RANGER® FIELD OLFACTOMETER

TEST PROCEDURE FLOW CHART



NASAL RANGER® FIELD OLFACTOMETER

OPERATING PRINCIPLE

The Nasal Ranger® Field Olfactometer, a nasal organoleptic instrument, directly measures and quantifies odor strength in the ambient air using the Operating Principle of mixing odorous ambient air with odor-free filtered air in discrete volume ratios. The discrete volume ratios are called "Dilution-to-Threshold" ratios (D/T ratios).

The user's nose is placed firmly inside the nasal mask against the replaceable "comfort seal". The user inhales through the nasal mask at a comfortable breathing rate while standing at rest. The nasal mask has an outlet for exhaled air to exhaust downward. Therefore, the user inhales through the Nasal Ranger and exhales downward through the outlet check valve. The user can stand at rest and continue comfortable breathing exclusively through the Nasal Ranger Field Olfactometer.

A Power Button located on the Nasal Ranger Housing, directly below the nasal mask, is pushed once by the user to turn the Power ON. To turn the Power OFF manually the Power Button must be pressed for 3-seconds. After 5-minutes of non-use the Power will automatically turn OFF.

A set of LED lights that are recessed on top of the Nasal Ranger housing indicate when the inhalation flow rate is within the "factory calibration flow rate" of 16-20 liters per minute. The four (4) LED lights have the following functions:

> **1st LED** (on Left): Indicates POWER ON. After 45-seconds of non-use this first LED blinks slowly in a "Power Save Mode". When the user inhales and initiates flow the LED will "wake" from the Power Save Mode and remain ON. After 5-minutes of non-use the Power will turn OFF. The Power Button must be pushed once by the user to restart the Power.
>
> **2nd LED**: ON when the user is inhaling at a flow rate of less than 16-lpm.
>
> **3rd LED**: ON when the user inhales at a flow rate of greater that 16-lpm and less than 20-lpm.
>
> **4th LED**: ON when the user inhales at a rate greater than 20-lpm.

Therefore, the user of the Nasal Ranger Field Olfactometer learns to inhale at a rate sufficient to ONLY light up the third LED and be assured that the inhalation is within the factory calibrated flow rate range of 16-20lpm.

The Nasal Ranger's Operating Principle of mixing odorous ambient air with odor-free filtered air in discrete volume ratios is achieved using two airflow paths:

1. Flow through the odor-filter cartridge and
2. Flow through one of the orifices in the D/T (Dilution-to-Threshold) Dial.

The first airflow path is the "filtered air" path through both odor-filter cartridges that are attached to each side of the Nasal Ranger housing. Ambient air, that may be odorous, enters through the outside of both odor-filter cartridges and travels through the multi-media odor-filter cartridges to remove odors.

The filtered odor-free air then flows forward inside the Nasal Ranger® and mixes with the second flow path, which is the odorous air that has entered through one of the orifices on the D/T Dial. The mixture of filtered air and odorous air then travels down the PTFE Barrel to the users nose that is in place inside the Nasal Ranger® mask.

NASAL RANGER® FIELD OLFACTOMETER

OPERATING PRINCIPLE (CONTINUED)

A precision electronic flow meter that is built in to the Nasal Ranger® Barrel measures the "total volume" of mixed airflow that is traveling down the PTFE Barrel on the way to the nasal mask. The LED lights recessed on top of the Nasal Ranger housing indicate to the user when the inhalation flow rate is within the "factory calibration flow rate" of 16-20 liters per minute.

The rotational position of the Nasal Ranger D/T Dial determines the orifice size and, therefore, the volume of odorous air that enters through the selected orifice. A large orifice allows more odorous air through the D/T Dial to mix with odor-free filtered air. A small orifice allows less odorous air through the D/T Dial to mix with odor-free filtered air. The volume ratio of the filtered odor-free air and odorous air is called the Dilution-to-Threshold (D/T) ratio. The principle of field olfactometry calculates the "Dilution to Threshold" (D/T) ratio as:

$$D/T = \frac{\text{Volume of Carbon-Filtered Air}}{\text{Volume of Odorous Air}}$$

The D/T Dial contains twelve (12) orifice positions. Six (6) positions are "BLANK" positions for the user to inhale only odor-free filtered air. Alternating on the D/T Dial with the six "BLANK" positions are six "D/T" positions with discrete "Dilution-to-Threshold" (D/T) orifices with traceable calibration.

The following table summarizes the "Dilution-to-Threshold" (D/T) ratios on the standard Nasal Ranger® D/T Dial.

Position Number	D/T
1	Blank
2	60
3	Blank
4	30
5	Blank
6	15
7	Blank
8	7
9	Blank
10	4
11	Blank
12	2

A raised arrow is on the rim of the D/T Dial adjacent to the Blank "Starting Position", Position No. 1.
A Braille raised DOT is on the rim of the D/T Dial adjacent to each of the D/T Positions.

Please contact St. Croix Sensory, Inc. at 1-800-879-9231 (+651-439-0177), or visit www.NasalRanger.com with inquiries regarding Nasal Ranger D/T Dials with other "Dilution-to-Threshold" (D/T) ratios.

NASAL RANGER® FIELD OLFACTOMETER

APPLICATION GUIDE FOR FIELD OLFACTOMETRY

ODOR MONITORING

Field olfactometry with the Nasal Ranger® Field Olfactometer is a cost effective means to quantify odor strength in terms of "Dilution-to-Threshold" (D/T) ratios. Facility operators, community inspectors, and neighborhood citizens can confidently monitor odor strength at specific locations around a facility's property line and within the community.

The following **"protocols"** are presented in brief form as an application guide:

(1) **On-Site Monitoring** – Operators have the unique ability to monitor odors throughout the day with field olfactometry. Operator monitoring can include odor observations of arriving materials, outdoor process activities, and fugitive air emissions. Monitoring with a Nasal Ranger® Field Olfactometer on-site may include odor observations at predetermined locations, i.e. open doorways, driveways, storage areas, and fence lines.

(2) **Random Monitoring** – A frequently used method for ambient odor monitoring is the "random inspection" approach. Random monitoring leads to a compilation of data that can be correlated with meteorological information and on-site activities. Managers and regulators alike find that random odor monitoring with a Nasal Ranger® Field Olfactometer is a cost effective protocol.

(3) **Scheduled Monitoring** – Well-planned scheduled monitoring can be limited to a daily "walk-about" or "drive around", or structured with several visits to predetermined monitoring locations. Data from a Nasal Ranger® Field Olfactometer can be used to correlate the many parameters that influence odor episodes, including meteorological conditions and on-site operating activities.

(4) **Intensive Odor Survey** – An in-depth evaluation of on-site odor generation and off-site odor impact may be needed for permit renewal or facility expansion. Extensive data collection with the Nasal Ranger® Field Olfactometer will identify which sources or operations cause odor and which ones do not cause odor off-site. All potential odor sources and operations could be ranked and their relative contributions determined. Short term trials or tests of odor mitigation measures, e.g. odor counteractants, would also require an intensive period of data collection using a Nasal Ranger® Field Olfactometer.

(5) **Citizen Monitoring** – The implementation of citizen odor monitoring with Nasal Ranger® Field Olfactometers can be part of an interactive community outreach program. The primary function of citizen odor monitoring is to collect information, through accurate record keeping, which represents real conditions in the community. Citizens recruited and trained to measure odors using Nasal Ranger® Field Olfactometers would also report odor descriptors. Citizen odor monitoring will assist in determining prevalent times and prevalent weather conditions of odor episodes. Citizen odor monitoring with Nasal Ranger® Field Olfactometer will also help in understanding the odor strength at which an odor first becomes a nuisance.

(6) **Complaint Response** – The use of "Odor Compliant Hot Lines" is a common method used by facilities and communities to respond to odor episodes. A complaint response plan, with designated "on-call" responders, creates opportunities for verifying odor episodes, tracking odor sources, and quantifying odor strength with a Nasal Ranger® Field Olfactometer.

(7) **Plume Profiling** – Standard and specialized air dispersion modeling predicts the transport and dilution of odors by the wind. A protocol, known as plume profiling, supplements and "calibrates" air dispersion modeling. Several inspectors with Nasal Ranger® Field Olfactometers, spaced cross wind and down wind from an odor source, would measure and record the odor strength as "D/T" values. The odor plume profile would then be documented and overlaid on the local terrain map. Therefore, the air dispersion modeling and the local topography would be integrated with actual odor measurements from the Nasal Ranger® Field Olfactometer.

NASAL RANGER® FIELD OLFACTOMETER

APPLICATION GUIDE FOR FIELD OLFACTOMETRY

(CONTINUED)

ODOR REGULATIONS

A field olfactometer device ("scentometer") is referenced in a number of existing state odor regulations. The "Dilution to Threshold" (D/T) terminology and the method of calculating the D/T are also referenced.

The criteria of an odor regulation often defines compliance as

"...ambient air that is less than 7 D/T" (7 used for exemplary purpose only).

The exact wording in a regulation is important and may be stated in two ways:

Compliance criteria: "...compliance if...less than 7 D/T."

Nuisance criteria: "nuisance if...equal to or greater than 7 D/T."

In these two examples, **if** an air pollution inspector observed "odor" with the field olfactometer set at a 7 D/T

The "odor" would meet the criteria for nuisance or

The ambient air would be "non-compliant".

Odor regulations that utilize field olfactometry and a calibrated field olfactometer, e.g. Nasal Ranger Field Olfactometer, also define the number of observations needed and the time frame of the observations.

For example, a regulation may read:

"...Two field olfactometer observations in a one-hour period separated by 15 minutes each..." OR

"...Two field olfactometer observations not less than 15 minutes apart within a 1-hour period..."

The "protocols" in this Application Guide for Field Olfactometry are presented in brief example form and are not mutually exclusive, often being integrated into a comprehensive odor management program. Likewise, the "odor regulation" criteria for compliance and nuisance are presented as examples only and are taken from actual odor regulations.

Please contact St. Croix Sensory, Inc. at 1-800-879-9231 (+651-439-0177), or visit www.NasalRanger.com, if you have any questions about the use and application of the Nasal Ranger® Field Olfactometer or if you need additional information or referral to industry or regulatory specialists.

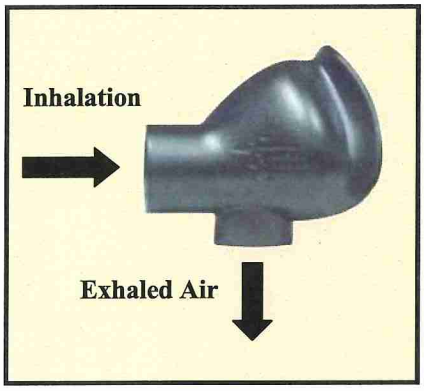
Nasal Ranger® Nasal Mask

INSTRUCTIONS OF USE AND MAINTENANCE

The Nasal Ranger® Nasal Mask is made of a carbon-fiber/epoxy polymer with a fluoropolymer coating. The Nasal Mask was specifically designed for use with the Nasal Ranger® Field Olfactometer. The Nasal Mask has three openings:

1) **Nasal Port** – ergonomically designed to match the geometry of the human nose and face,
2) **Inhalation Inlet** – opposite the nasal port, this port allows air into the mask from the Field Olfactometer, and
3) **Exhalation Outlet** – when the nose is placed in the nasal port, the exhalation outlet is the opening above the upper lip, which allows air exhaled through the nose to exit the mask.

A check valve is placed in both the inhalation inlet and the exhalation outlet in order to control the direction of air flow while using the Nasal Ranger® Field Olfactometer. The check valve placed inside the inhalation inlet allows air to pass from the Nasal Ranger® Field Olfactometer into the Nasal Mask during inhalation and prevents air from passing back into the Nasal Ranger® Field Olfactometer during exhalation. The check valve in the exhalation outlet allows air exhaled through the nose to pass out of the Nasal Mask and prevents ambient air from getting into the mask through this port during inhalation.



The check valves are replaceable if they become dirty or damaged. The valves are pressed into the respective ports and can be removed by applying pressure to the outer rim of the valve from inside the Nasal Mask. The inhalation and exhalation check valves are supplied by St. Croix Sensory as Part Numbers NR0041 and NR0042.

Attachment: To ensure long lasting o-rings give mask a half turn clockwise when mounting to Nasal Ranger.

Cleaning: St. Croix Sensory recommends cleaning the Nasal Mask using disposable wipes wetted with isopropyl alcohol. St. Croix Sensory provides specified wipes as Part Number NR0063. Moist towelettes and other wipes purchased in stores usually contain a fragrance that may leave a background odor on the Nasal Mask. Store purchased wipes should be avoided.

CAUTION: The Nasal Mask is fragile. The mask could break if dropped onto a hard surface.

WARNING: Cleaning the Nasal Mask in a dishwasher or autoclave or otherwise exposing the Nasal Mask to extreme heat (e.g. >120°F) will damage the Nasal Mask.

The Comfort Seal

The Comfort Seal is a disposable accessory designed to improve the mask sealing and comfort during use with the Nasal Ranger® Nasal Mask and Nasal Ranger® Field Olfactometer. The Comfort Seal is manufactured of unique super-soft foam that has been used for years in skin contact applications in the medical industry. The seal is shaped to match the geometry of the Nasal Ranger® Nasal Mask used for the Nasal Ranger® Field Olfactometer. The seals are easy to apply with a pressure sensitive adhesive on one side that attaches to the mask.

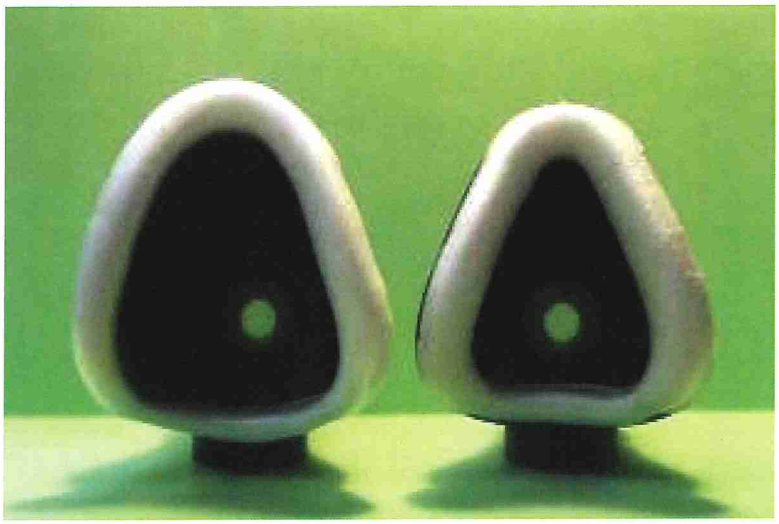
To install the Comfort Seal, follow these simple steps:
1. GRIP the pull-tab on the paper backing.
2. PEEL off the paper backing.
3. ALIGN the seal with the mask rim.
4. PRESS the seal onto the mask firmly.

Nasal Ranger® Nasal Mask

Instructions of Use and Maintenance

(Continued)

The Comfort Seal "installed" to accommodate noses of all sizes.



WIDE **NARROW**

The Comfort Seal is designed for use by one person ONLY. The Comfort Seal needs to be wiped at least daily and changed weekly or more frequently in order to be odor-free. Remove and dispose of the seal when it becomes dirty or if another person will be using the mask. Remove the comfort seal; rub off the gummy glue residual; and wipe the face of the mask with an isopropyl wipe.

Mask Fit Test (LEAK TEST) for Best Results:

With the stopper in place (LEAK TEST), you should not be able to inhale through your nose.

NASAL RANGER® REPLACEABLE ODOR-FILTER CARTRIDGES

INSTRUCTIONS OF USE AND MAINTENANCE

NOTICE: The replaceable odor-filter cartridges are ONLY for use with the Nasal Ranger® Field Olfactometer manufactured by St. Croix Sensory, Inc.

The replaceable odor-filter cartridges contain a proprietary blend of granular activated carbon multi-media, which is designed to remove odors from the ambient air.

These cartridges are NOT to be used under the following conditions or scenarios:

1. As respirator cartridges for the reduction or elimination of hazardous chemicals in the air.
2. In atmospheres where contaminant concentrations are unknown, immediately dangerous to life/health, or exceed applicable local standards or U.S. Occupational Safety and Health Administration (OSHA) standards.
3. In atmospheres that contain less than 19.5% oxygen.

Replacement Instructions

The replaceable cartridges are attached to the Nasal Ranger® Field Olfactometer with a right hand thread. The following instructions are used to replace a set of cartridges:

1. Remove the used cartridges by loosening the right hand thread (**Turn Counterclockwise**)
2. Dispose of the used cartridges.
3. Remove the new cartridges from the plastic packaging.
4. Install the new cartridges by inserting the threaded end into the cartridge holder on the Nasal Ranger® Field Olfactometer and turning the cartridge in the direction of the arrow on the label (**Turn Clockwise**).
5. Tighten the cartridge **HAND TIGHT ONLY**. The cartridge will tighten against the o-ring inside the cartridge holder on the Nasal Ranger® Field Olfactometer.

Replace both cartridges in accordance with an established "cartridge change schedule". The user may decide to replace the cartridges before each use of the Nasal Ranger® Field Olfactometer, or may chose a convenient time frame for replacement. Cartridges should be changed immediately if the user detects a smell when inhaling through the Nasal Ranger® Field Olfactometer set on a blank position (odor-filtered air only).

Leave the odor-filter cartridges in factory packaging before they are used. Once the cartridge packages are opened, store the cartridges away from odorous areas when not in use.

Do not alter, misuse or abuse these replaceable odor-filter cartridges.

Please contact St. Croix Sensory, Inc. if you have any questions about the use, application, or maintenance of the Nasal Ranger® Replaceable Odor-Filter Cartridges at 1-800-879-9231 (+651-439-0177), or visit **www.NasalRanger.com**.

NASAL RANGER® FIELD OLFACTOMETER

TROUBLESHOOTING GUIDE

If any problem is not resolved with these suggested solutions, contact St. Croix Sensory for technical support at 1-800-879-9231 (+651-439-0177) or info@nasalranger.com.

Problem	Possible Solutions
Nasal Ranger has no power (Power LED doesn't light up)	Press the power button again to confirm the unit will not restore power.
	Check to be sure the battery is properly connected. Open the battery compartment and check the battery connection.
	The battery may be low on power. Install a new battery.
Power LED is blinking	This is normal. The Nasal Ranger will go into a "Power Save" mode if the unit is not used for 45 seconds.
Power only stays on for a short time	The Nasal Ranger does have an Auto Shut-Off mode if the unit does not sense inhalation over a five-minute period.
	The battery may be low on power. Install a new battery.
Flow Sensor LED's not responding to inhalation by the user.	The battery may be low on power. Install a new battery.
	The nasal mask may not be properly sealing to the user's face. Try to reposition the unit against the face. Try different positions to see if the LED's respond to inhalation.
	The nasal mask check valve(s) may be loose or leaking air. Inspect the check valves to be sure they are properly positioned inside the mask ports. Inspect the check valves for any damage or loose debris (i.e. dust). Check valves may need replacing.
Flow Sensor LED's responding erratically to inhalation.	The battery may be low on power. Install a new battery.
	The nasal mask may not be properly sealing to the user's face. Try to reposition the unit against the face. Try different positions to see if the LED's respond to inhalation.
	The nasal mask check valve(s) may be loose or leaking air. Inspect the check valves to be sure they are properly positioned inside the mask ports. Inspect the check valves for any damage or loose debris (i.e. dust).

Problem	Possible Solution
An odor is detected while the dial is set at a "blank" position	The nasal mask may not be properly sealing to the user's face allowing ambient air to leak around the mask diameter. Try to reposition the unit against the face. Try different positions to see if the LED's respond to the inhalation.
	The nasal mask check valve(s) may be loose or leaking air. Inspect the check valves to be sure they are properly positioned inside the mask ports. Inspect the check valves for any damage or loose debris (i.e. dust). Check valves may need replacing.
	The replaceable odor-filter cartridges may not be properly seated in the Nasal Ranger housing. Inspect the position of cartridges. Be sure they are threaded into the housing correctly. Be sure they are threaded tight (Hand Tight ONLY) against the housing O-rings.
	The odor-filter cartridges may need replacing. The odor-filter cartridges have a limited life span, which is dependent on amount and frequency of use. Replace the odor-filter cartridges (Part Number: NR8).
	The ambient odor may be to strong or of the type that exceeds the design of the odor-filter cartridges. Contact St. Croix Sensory for assistance.
	The internal seals may be leaking. Contact St. Croix sensory for assistance.
The D/T Dial does not turn	The dial mounting screw may be too tight. Loosen the dial mounting screw.
	Debris may be impeding movement of the dial. Inspect the dial for loose debris. The dial may need to be removed in order to inspect and clean the dial turning area. Contact St. Croix Sensory for assistance.
The D/T Dial does not stop at a specific position (dial spins freely).	The dial mounting screw may be too loose. Tighten the dial mounting screw.

NASAL RANGER® FIELD OLFACTOMETER

Sales Terms & Conditions
St. Croix Sensory

Offer and Acceptance.
This document is an offer to enter into an agreement. For an effective agreement to be reached a duly authorized agent of Purchaser must accept all of the terms and conditions set forth below, none of which can be altered or amended without St. Croix Sensory's prior written agreement.

Quotations and Prices.
The price stated on a St. Croix Sensory quotation form is firm for the initial order for a Nasal Ranger® Field Olfactometer or related product only. Prices are subject to change without notice and orders calling for future delivery will be billed according to the price in effect at the time of delivery. Oral quotations will not be honored by St. Croix Sensory and written quotations will automatically expire sixty (60) calendar days from the date issued and are subject to earlier termination by written notice. All prices are FOB, St. Croix Sensory's manufacturing facility.

Payment Terms.
The net amount of each invoice is due in full with the order, by credit card payment or other method acceptable to St. Croix Sensory.

Taxes.
All present or future sales, use, revenue, excise or other taxes applicable to the Nasal Ranger® Field Olfactometer or related products which are the subject of this Agreement shall be added to the purchase price and shall be paid by Purchaser, unless Purchaser provides St. Croix Sensory with a tax exemption certificate acceptable to the relevant taxing authorities.

Shipment.
Both the method and the route of shipment are at the discretion of St. Croix Sensory, unless Purchaser supplies explicit instructions to the contrary. All insured shipments will be made at Purchaser's expense. Identification of the particular Nasal Ranger® Field Olfactometer or related products to this agreement and the risk of loss will pass to Purchaser at the time of delivery to the carrier.

Governing Law and Venue.
This agreement shall be governed by and construed under and in accordance with the laws of the State of Minnesota, United States of America (without regard to conflicts of laws principles). The venue of any legal action arising out of this agreement shall be the Federal or State Courts located in Hennepin or Ramsey County in Minnesota, U.S.A., and the parties consent to the jurisdiction of these courts.

Nasal Ranger® Field Olfactometer Limited Warranty.
St. Croix Sensory warrants to Purchaser that in normal and contemplated use and service, the Nasal Ranger® Field Olfactometer purchased from St. Croix Sensory will be free from defects in material or workmanship for a period ending 365 days from the date of original shipment by St. Croix Sensory. Subject to the conditions and exclusions contained in this document, St. Croix Sensory will, at its option, either repair or replace any defective Nasal Ranger® Field Olfactometer or part thereof, or refund the purchase price of the defective Nasal Ranger® Field Olfactometer. Parts, devices or equipment that are supplied by vendors other than St. Croix Sensory, shall carry only the applicable warranties and limitations provided by the relevant vendor. Expendable and/or consumable items or parts included or used in connection with the Nasal Ranger® Field Olfactometer are not covered under this limited warranty. This limited warranty does not cover a Nasal Ranger® Field Olfactometer that has been misused, altered, disassembled, neglected, handled carelessly, or used for purposes other than its intended purpose. This limited warranty also does not cover loss or damage resulting from any casualty loss or from unauthorized use or service. Under no circumstances shall St. Croix Sensory be liable for consequential or other damages, losses, or expenses in connection with or by reason of the use or inability to use the Nasal Ranger® Field Olfactometer for any purpose. **WARNING:** Unscrewing and disassembling the Nasal Ranger® Field Olfactometer housing will break and alter the pressure seal of the instrument (6 screws visible on the left-housing and 2 under the battery door). Doing so will void the limited warranty and require the instrument to be shipped back to St. Croix Sensory to be re-sealed and re-calibrated at Purchaser's expense.

Warranty Service Procedures.
If a defect should appear during the warranty period, Purchaser should return the defective Nasal Ranger® Field Olfactometer, freight and insurance prepaid, if possible in the original shipping container, to such address as shall be specified from time to time by St. Croix Sensory. The appropriate warranty service address may be determined by calling 1-800-879-9231 (+651-439-0177) or by consulting www.nasalranger.com. Any returned Nasal Ranger® Field Olfactometer must be accompanied by a written statement including: the name of Purchaser; a description of the problem(s); and the action desired. St. Croix Sensory shall not be responsible for any loss or damage incurred in shipping. Any warranty work to be performed by St. Croix Sensory shall be subject to St. Croix Sensory's confirmation that the returned Nasal Ranger® Field Olfactometer meets St. Croix Sensory's warranty requirements. If a defect is covered by this limited warranty, the repaired or replaced Nasal Ranger® Field Olfactometer will be returned to Purchaser at St. Croix Sensory's cost. Following a warranty repair or replacement, this limited warranty shall continue in effect until the end of the original warranty period or for sixty (60) days after the repair or replacement, whichever is later.

NASAL RANGER® FIELD OLFACTOMETER

Sales Terms & Conditions
St. Croix Sensory

(Continued)

Related Product Limited Warranty.
St. Croix Sensory warrants to Purchaser that in normal and contemplated use and service any product related to the Nasal Ranger® Field Olfactometer purchased by Purchaser ("related products" includes components, consumables and similar items such as odor-filter cartridges, nasal masks, check valves, carrying straps, and carrying case) shall be free from defects in material or workmanship for a period ending (i) 90 days from the date of original shipment by St. Croix Sensory, or (ii) upon expiration of the time specified with respect to a particular product, as applicable. Subject to the conditions and exclusions in this document, St. Croix Sensory will, at its option, repair or replace any related product that is defective, or refund the purchase price. Under no circumstances shall St. Croix Sensory be liable for consequential or other damages, losses, or expenses in connection with or by reason of the use or inability to use a related product purchased for any purpose.

Exclusion of Warranty of Fitness for any Purpose.
St. Croix Sensory makes no warranty as to the suitability or fitness of any of its equipment or products, including specifically the Nasal Ranger® Field Olfactometer, for any particular purpose specific to the Purchaser. The Purchaser is solely responsible for the selection, use, efficiency, fitness and suitability of St. Croix Sensory's equipment and products. The Purchaser assumes all risks and liabilities in connection with the use of St. Croix Sensory's equipment and products, including specifically the Nasal Ranger® Field Olfactometer.

Exclusion of Liability for Consequential and Similar Damages.
In no event shall St. Croix Sensory be liable to Purchaser for any indirect, special or consequential damages or lost profits arising out of or relating to the Nasal Ranger® Field Olfactometer or related products, or their performance or non-performance, even if St. Croix Sensory has been advised of this possibility.

Limitation to Amounts Paid. St. Croix Sensory's liability, if any, to Purchaser or to the customers of Purchaser or any other person under this limited warranty shall in no event exceed the total amount paid to St. Croix Sensory by the Purchaser for a defective or non-conforming Nasal Ranger® Field Olfactometer or related product.

THE LIMITED WARRANTY AND REMEDIES SET FORTH IN THIS DOCUMENT ARE THE SOLE AND EXCLUSIVE REMEDIES AVAILABLE TO ANY PERSON FOR ANY DAMAGES OF ANY KIND AND NATURE, INCLUDING INCIDENTAL, CONSEQUENTIAL OR SPECIAL, RELATED TO THE NASAL RANGER® FIELD OLFACTOMETER OR RELATED PRODUCTS, WHETHER ARISING FROM WARRANTY, CONTRACT, NEGLIGENCE, TORT OR OTHERWISE. ST. CROIX SENSORY SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER IMPLIED WARRANTY. NO WAIVER, ALTERATION, OR MODIFICATION OF THE FOREGOING CONDITIONS SHALL BE VALID UNLESS MADE IN WRITING AND SIGNED BY AN EXECUTIVE OFFICER OF ST. CROIX SENSORY.

In the event any implied warranties (including, but not limited to the implied warranties of merchantability or fitness for a particular purpose) are found to exist, such warranties are limited (i) in duration to the period of the limited warranties set forth in this document, and (ii) in amount to the total amount paid to St. Croix Sensory by the Purchaser for the Nasal Ranger® Field Olfactometer or related product in question. (Some States do not permit the exclusion of incidental or consequential damages, and in those States the foregoing limitation may not apply. The limited warranties as set forth in this document give the Purchaser specific legal rights, and the Purchaser may have other legal rights which vary from State to State.)

NASAL RANGER® FIELD OLFACTOMETER

PARTS AND ACCESSORIES

Part Number	*Description*
NR0009	9-Volt Battery
NR0010	Carry Bag
NR0011	Odor Sensitivity Test Kit
NR0020	O-Ring, Mask Connection (2-pair)
NR0021	O-Ring, Odor-Filter Cartridge (pair)
NR0023	Battery Cover
NR0024	Screw, Battery Cover
NR0031	Barrel Brush
NR0032	Shoulder Strap
NR0041	Check Valve Kit, Inhalation
NR0042	Check Valve Kit, Exhalation
NR0046	Nasal Ranger Mask Package
NR0049	Stopper
NR0050	Standard D/T Dial Assembly
NR0051	Torx Driver for Obsolete Dial Screw
NR0052	Dial Screw-Springs-Washer Set
NR0053	T-Handle Hex Key (Allen Wrench) for Dial Assembly
NR0054	High D/T Dial Assembly
NR0062	Comfort Seal Package (10)
NR0063	Isopropyl Alcohol Mask Cleaning Wipes Package (10)
NR0081	Type I Universal Odor-Filter Cartridge (pair)
NR0082	Type II Organic Vapor Odor-Filter Cartridges (pair)
NR0083	Type III Hydrogen Sulfide Odor-Filter Cartridges (pair)
NR0084	Type IV Ammonia Odor-Filter Cartridge (pair)
NR0091	Type I Universal Odor-Filter Cartridge (case of 6 pairs)
NR0092	Type II Organic Vapor Odor-Filter Cartridge (case of 6 pairs)
NR0093	Type III Hydrogen Sulfide Odor-Filter Cartridge (case of 6 pairs)
NR0094	Type IV Ammonia Odor-Filter Cartridge (case of 6 pairs)

For pricing and availability, send email request to info@nasalranger.com

Nasal Ranger® Field Olfactometer
Technical Specifications

Detection Technique:	Human Nose
Discrete Dilution Ratios:	2, 4, 7, 15, 30, 60 D/T's (Standard Dilution-to-Threshold Ratios)
Response Time:	As fast as 3-seconds (2 inhalations)
Accuracy:	+/- 10% of D/T
Repeatability:	+/- 2%
Inhalation Rate:	16-20 liters per minute
Operating Temperature Range:	32° to 104°F, 0° to 40°C
Power Requirements:	Standard 9-Volt Alkaline Battery
Dimensions:	14"(L) x 7.5"(H) x 4"(W) (35.5 x 19 x 10 cm)
Weight:	2.0 lbs (0.91 kg)
Materials of Construction:	PTFE and Polymer Alloys
Odor Filter Cartridge:	3.5" diameter x 1.5" (H) (8.9 cm diameter x 7 cm)
Nasal Mask:	2.75" (H) x 2.25" (W) (7 cm x 5.7 cm)
Patent:	U.S. Patent No.: 6,595,037
Calibration Verification:	Recommended Annually
EMC Verification:	Emissions: EN 61326: 1997, Class B Immunity: EN 61326:1997, Industrial Location
Markings:	89/336/EEC (EMC) 92/59/EEC (General Product Safety) CE

ODOR MONITORING DATA SHEET

DATE:_____

TIME	LOCATION	60	30	15	7	4	2	<2	ND	DESCRIPTORS	COMMENTS

Weather Conditions

- ☐ Mostly Sunny
- ☐ Partly Cloudy
- ☐ Mostly Cloudy
- ☐ Overcast
- ☐ Hazy

Precipitation

- ☐ None
- ☐ Fog
- ☐ Rain
- ☐ Sleet
- ☐ Snow

Wind Direction (Blowing From)

N
NW NE
W ---------- E
SW SE
S

Wind Speed

- ☐ Calm
- ☐ Light Breeze (1- 5 mph)
- ☐ Moderate Wind (5 – 15 mph)
- ☐ Strong Winds (15 mph or higher)

Temperature: _____ F Relative Humidity: _____ % Barometric Pressure _____

Notes: _____

_____

_____

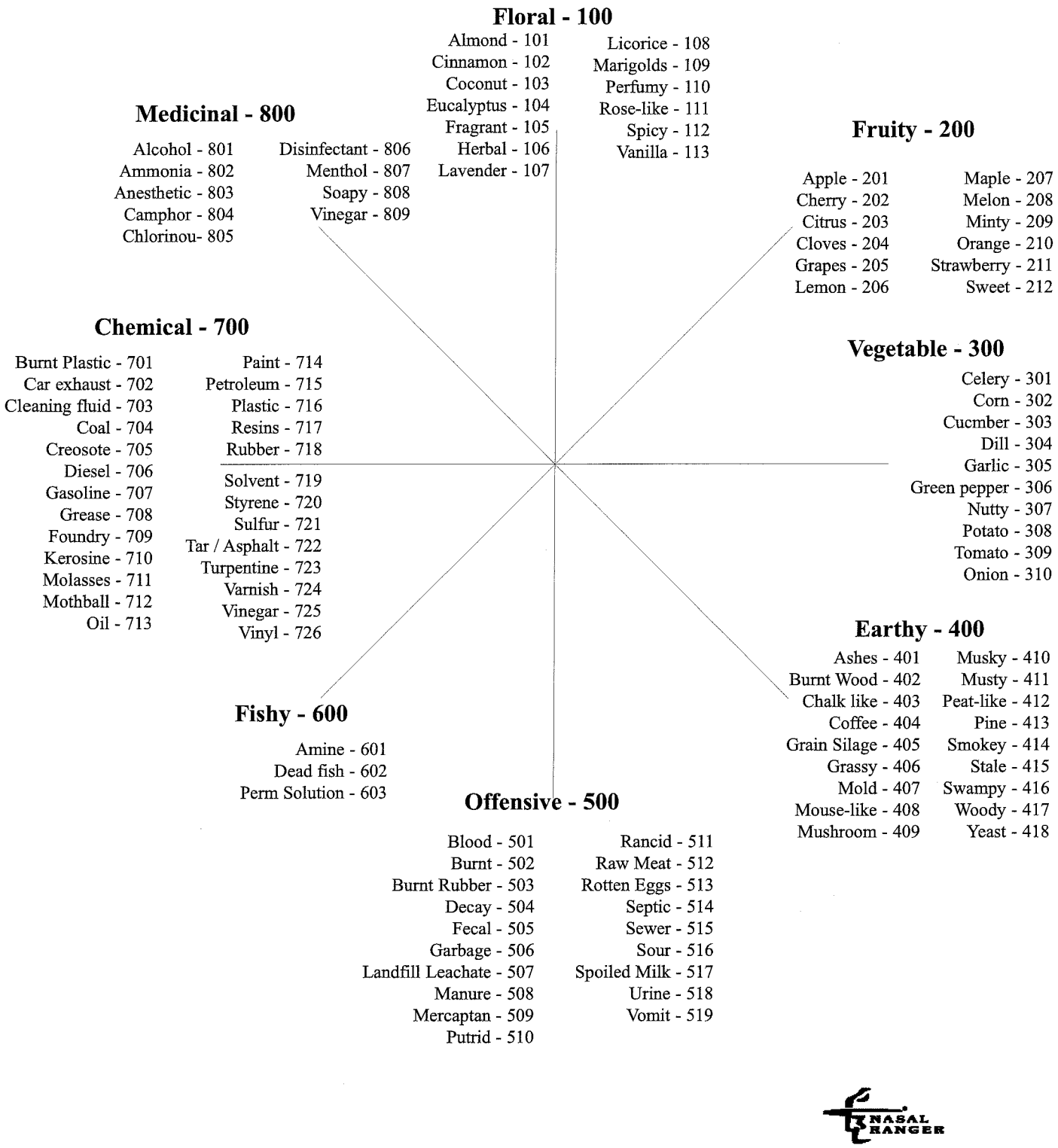
_____

_____

_____ _____ _____

Date Name Signature

Odor Descriptors



County Environmental Dept.

Date: 1/4/08

Time	Location	D/T 60	30	15	7	4	2	<2	Descriptors	Comments
7:05 AM	1 - Industrial Park							X		
7:10 AM	2 - " "						X		718	FACTORY
7:15 AM	3 - " "							X		
7:20 AM	4 - " "				X				718, 723	FACTORY
7:25 AM	5 - Intersection					X			705	FACTORY
7:30 AM	6 - Intersection							X		
7:35 AM	7 - Co. RD. 20		X						718, 723, 515	FACTORY & WWTP
7:40 AM	8 - Intersection			X					718, 723, 515	FACTORY
7:45 AM	9 - Junction Rd.				X				718, 723	FACTORY & WWTP
7:50 AM	10 - Co. Rd. 28			X					718, 515, 601	FACTORY & WWTP
7:55 AM	11 - Division Ave.					X			718, 601	FACTORY & WWTP
8:00 AM	12 - Intersection							X		
8:05 AM	13 - Parking Lot					X			104, 304	VEGETATION
8:10 AM	14 - Intersection						X		707	HIGHWAY
8:15 AM	15 - Intersection							X		
8:20 AM	16 - Intersection							X		
8:25 AM	17 - Housing Devel.						X		201	APPLE TREES
8:30 AM	18 - 3rd & Oak					X			706, 404	COFFEE SHOP

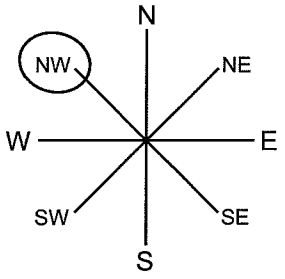
Weather Conditions

- [ ] Sunny
- [ ] Partly Cloudy
- [ ] Mostly Cloudy
- [x] Overcast
- [ ] Hazy

Precipitation:

- [ ] None
- [x] Fog
- [ ] Rain
- [ ] Sleet
- [ ] Snow

Wind Direction Blowing From: (circel one)



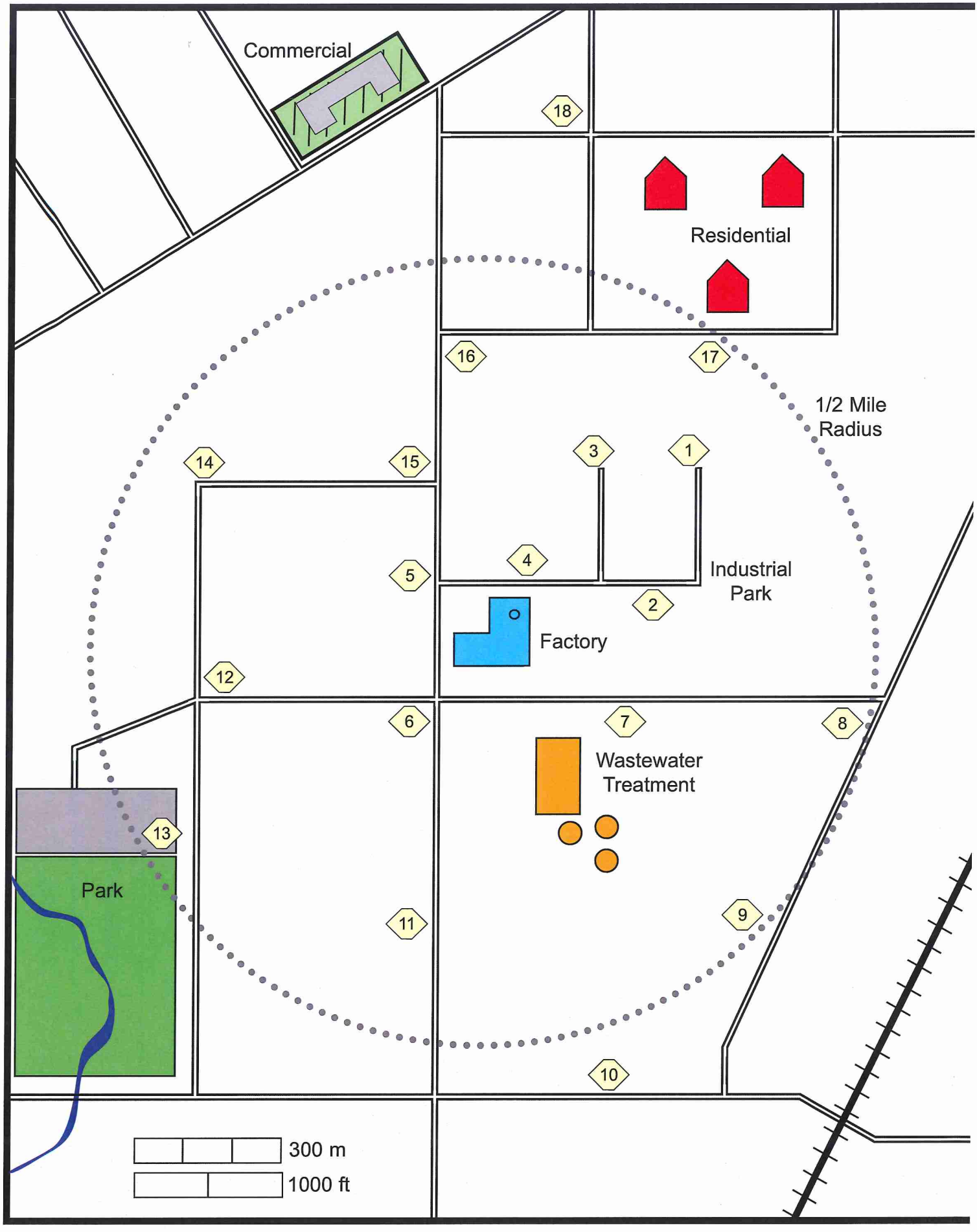
Wind Speed:

- [ ] Calm
- [x] Light Breeze (1-5 mph)
- [ ] Moderate Wind (5-15 mph)
- [ ] Strong Winds (15 or higher mph)

Temperature: 55 °F/°C Relative Humidity: 60 % Barometric Pressure: 30.1

Comments: _____

008	Nigel Mackenzie	Nigel MacKenzie
Code	Name	Signature

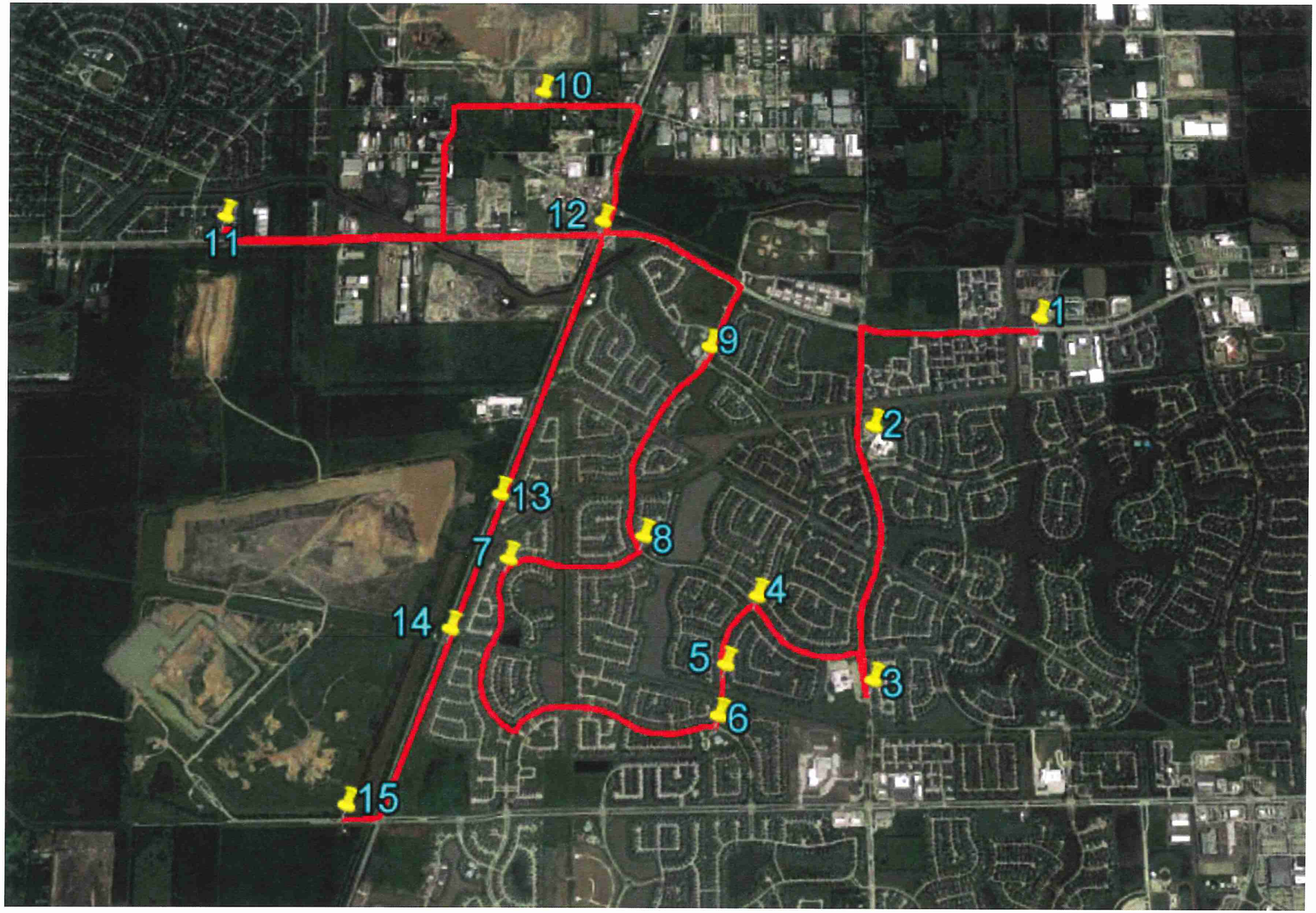

Commercial
18
Residential
16
17
1/2 Mile
Radius
14
15
3
1
4
5
Industrial
Park
2
Factory
12
6
7
8
Wastewater
Treatment
13
Park
11
9
10
300 m
1000 ft

Nasal Ranger Training Completion Log

Site Personnel Name	Job Title	Date of Training	Nasal Ranger Trainer Name

APPENDIX 7

DRIVING ROUTE AND OFFSITE MONITORING LOCATIONS



N

DRIVING ROUTE

1 OFFSITE MONITORING LOCATION

☐ DRAFT
☒ FOR INFORMATIONAL PURPOSES ONLY
☐ ISSUED FOR CONSTRUCTION

DATE: 10/2017
FILE: 0120-405-50
CAD: 2-DRIVING ROUTE/OFFSITE MON.DWG

DRAWN BY: VRS
DESIGN BY: SR
REVIEWED BY: MKS

Weaver Consultants Group
TBPE REGISTRATION NO. F-3727

PREPARED FOR
BLUE RIDGE LANDFILL TX, LP

REVISIONS		
NO.	DATE	DESCRIPTION

ODOR CONTROL PLAN
DRIVING ROUTE AND OFFSITE MONITORING LOCATIONS

BLUE RIDGE LANDFILL
FORT BEND COUNTY, TEXAS

WWW.WCGRP.COM

APPENDIX 7

APPENDIX 8

TECHNICAL DATA SHEETS

Technical datasheet Cairsens H2S/CH4S

(Document prone to modifications)

Range	0-1000 ppb (0-960 ppb analog)
Limit of detection [1, 2]	10 ppb
Repeatability at zero [1, 2]	+/- 5 ppb
Repeatability at 80% of range [1, 2]	+/- 10%
Linearity [1, 2]	< 10%
Uncertainty	< 30 % [2, 3]
Short term zero drift [1, 2, 4]	< 4 ppb/24 H
Short term span drift [1, 2, 4]	<1% FS [5]/24 H
Long term zero drift [1, 2, 4]	< 8 ppb/1 month
Long term span drift [1, 2, 4]	< 2% FS [5]/1 month
Rise time (T10-90) [1, 2]	< 90s (180s if large variation RH)
Fall time (T10-90) [1, 2]	< 90s (180s if large variation RH)
Effect of interfering species [1]	Other VRSC [6] (SO2, OCS, C_2H_6S, $C_2H_6S_2$, ,...): < 100% Oxidant species negative interference (O_3, NO_2) : ~ 30 %
Temperature effect on sensitivity [2]	< 0.5 % / °C
Temperature effect on zero [2]	+/- 50 ppb maximum under operating conditions
Maximum exposure	50 ppm
Annual exposure limit (1 hour average)	9 000 ppm
Operating conditions	- 20°C to 40°C / 15 to 90% RH non-condensing 1013 mbar +/- 200 mbar
Recommended storage conditions	Temperature: between 5°C and 20°C Air relative humidity: > 15% non-condensing
Power supply [7]	5 VDC/500mA (rechargeable by USB via PC or 100V-240V/5V 0.8A-1.0A with adapter)
Communication interface	USB, UART Analog (UART & 4-20 mA / 0-5 V converter)
Dimensions	Diameter: 32mm - Length: 62mm
Weight	55g
Protection	IP42 (according IEC60529)
Electrical certification	Intertek 4003892 Conform to UL Std. 61010-1 Certified to CSA Std. C22.2 N°. 61010-1 CE
Parameters Set up / Downloading	Software: Cairsoft (for USB versions), Cairmap or Caircloud (for UART versions)

[1] *According to our operating conditions during tests in laboratory: 20°C +/- 2°C / 50% RH +/- 10% / 1013 mbar +/- 5%*
[2] *Values possibly affected by exposures to high gradients of concentration*
[3] *On the basis of recommendations of the Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe for and its enlargement to other gases*
[4] *Full scale continuous exposure*
[5] *FS = Full Scale*
[6] *VRSC = Volatile Reduced Sulfur Compounds*
[7] *The complete discharge of a device (screen turned off) can lead to a deterioration of its performances*

Any use of the sensor not complying with the conditions specified in herein, including exposures, even short ones ,to environments other than ambient air, to dry and / or devoid of oxygen air or other atmosphere not composed in majority of air, even during calibration, will invalidate the warranty.

Main options	Cairtub: protection for outdoor use and power for 21 days. Cairnet: protection for outdoor use, autonomous power (solar panel) and wireless communication for distant access to data

APPENDIX 9

ODOR COMPLAINT FORM

Odor Complaint Form

(To be completed when a complaint is received from the community through the 24-hr hotline/message-line)

DATE: _____

TIME: _____

RECEIVED BY: _____

Contact Information of the Caller

Name: _____

Date and Time Detected: _____

Street Address: _____

City, State, ZIP: _____

Location: _____

Email Address: _____

Description of Complaint:

Type of Odor: _____

_____

Intensity of Odor: _____

_____

Duration of the Odor: _____

_____

Weather Conditions when odor was detected: _____

_____

Were odors noticed at this location in the past: _____

_____

Other notes: _____

_____

Weather Conditions at the time odors were detected (based on weather data)

Wind Direction and Speed:_____Humidity:_____Temperature:_____

Barometric Pressure: _____Rain: _____

Follow-up Contact with Caller

If a follow-up email was requested, was contact made with the caller? _____

When was the follow-up contact made? Date:_____ Time:_____

Who made the contact? _____

What issues were discussed in the email? _____

Corrective Measures: _____

_____

_____

APPENDIX 10

SURFACE EMISSIONS MONITORING PROCEDURES AND PROTOCOLS

TETRA TECH

American Environmental Group - A Tetra Tech Company: NSPS Surface Emissions Monitoring Guidance (April 2017)

American Environmental Group - A Tetra Tech Company (AEG) is providing this document as a summary review of procedures and protocols used for support and guidance in conducting landfill surface emissions monitoring (SEM) and reporting for Blue Ridge Landfill TX LP. (BRLF).

I. Introduction

AEG provides labor, equipment, tools, and materials required to perform SEM monitoring and reporting at the Blue Ridge Landfill, located in Pearland, TX. AEG conducts surface emissions monitoring at Blue Ridge on a quarterly basis, in accordance with the site's GCCS Design Plan, 40 CFR 60.755(c) and (d), and Method 21. This monitoring is performed for the facility to demonstrate compliance with Title 40: Protection of Environment, Part 60—Standards of Performance for New Stationary Sources, Subpart WWW—Standards of Performance for Municipal Solid Waste Landfills, §60.755(c), which states that each owner or operator seeking to demonstrate compliance with §60.755(c), shall monitor surface concentrations of methane according to the instrument specifications and procedures provided in §60.755(d).

The SEM is conducted in areas where initial waste has been in place for 5 years if active or 2 years if closed or at final grade. The instrument is calibrated to a methane standard in accordance with 40 CFR 60 Appendix A, Method 21. The instrument's probe inlet is placed within 5 to 10 centimeters above the ground during sampling along the 30 meter traverse pattern.

The established SEM action level set forth in the NSPS surface monitoring regulation for methane is 500 parts per million (ppm) methane above background levels. AEG monitors the landfill surface along a site-specific traverse pattern as provided by BRLF, penetrations (see definition below) and at areas where visual observations indicate potential for elevated concentrations of landfill gas. Areas presenting a safety constraint such as active areas, construction zones, and other dangerous areas are not monitored and are documented as such. Any locations that exceed 500 parts-per-million, above the background concentration, are flagged in the field, recorded, and the facility management is notified of all flagged locations and the noted concentrations at each location upon completion of the monitoring.

AEG submits a letter report within 2 weeks of completion of the initial monitoring and re-monitoring events that typically includes the following:

1. Letter report identifying the work performed and certification that it was conducted in accordance with the applicable regulations.
2. Notation of areas not monitored due to unsafe conditions.
3. Calibration documentation
4. Monitoring results for all readings
5. Relevant maps

II. SEM Field Procedures / Guidance

AEG Employees routinely conduct surface emissions monitoring on NSPS and EG, MSW landfills. The following procedures and guidance's are used to assist our clients in maintaining compliance with Title 40: Protection of Environment, Part 60—Standards of Performance for New Stationary Sources, Subpart WWW—Standards of Performance for Municipal Solid Waste Landfills, § 60.753(d) - Operational standards for collection and control systems.

1. These monitoring events are performed during typical meteorological conditions.
2. Monitoring is conducted utilizing an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications noted in below:
    a. Definitions provided in Section 3.0 of Method 21 and Section 6.0 Equipment and Supplies except that "methane" replaces VOC
    b. Calibration gas is methane, diluted to a nominal concentration of 500 parts per million in air.
    c. Flow rate for the flame ionization detector is 600mL/min +/- 10%, flow rate for the organic vaper analyzer is 1L/min.
3. Calibrations are conducted and documented prior to each day's event. The field calibrations are performed by the technicians per the instruments manufacture's specifications.
4. Manufacture's certifications of calibration cylinder accuracy are collected and documented on the field calibration form and a copy is included as an attachment to the final letter report. Additionally, photo documentation of the expiration of the specified shelf life and serial number of each canister is recorded and detailed in the final letter report.
5. Monitoring is conducted by placing the probe inlet 5 to 10 cm from the surface of the ground and moving the probe along the prescribed serpentine pattern, which traverses the landfill, at a 30 meter interval. The technician observes the instrument readings and in areas of elevated readings (typically 250 ppm methane above background) the technician further investigates the location. At the location of the maximum reading the probe is left for approximately two times the instrument response time. If the maximum observed meter reading is > 500 ppm methane above background concentrations, the location is recorded, and reported as an exceedance for remediation and re-monitoring.
6. All monitoring is conducted by walking rather than traveling by motorized vehicle (e.g. utility vehicle) or using other transport. The technicians will walk with the probe inlet 5 to 10 cm from the surface of the ground while observing the instrument readout. If an increased meter reading is observed, the technician will slow further sampling the area where the increased meter reading was detected until the maximum meter reading is obtained. The technician will then leave the probe inlet at the location of the maximum reading for approximately two times the instrument response time. If the maximum observed meter reading is >500 ppm methane above background concentrations, the location is recorded, and reported as an exceedance for remediation and re-monitoring. Background concentrations are determined by monitoring upwind and downwind locations, outside the boundary of the landfill at a distance of at least 30 meters from the perimeter wells. Monitoring is conducted along the entire perimeter of the collection area. Monitoring is also conducted along a prescribed serpentine pattern that traverses the landfill at a 30 meter interval. Attention is given to monitoring unusual cover conditions and penetrations of landfill surface (e.g. stressed vegetation, cracks, seeps, well casings, lateral risers, air supply lines, pump force mains, etc.)
7. Penetrations and where visual observations indicate elevated concentrations of landfill gas such as unusual cover conditions and penetrations of landfill surface (e.g. stressed vegetation, cracks,

seeps, well casings, lateral risers, air supply lines, pump force mains, etc.) that do not fall along the serpentine path will be monitored by either:

a. Deviating from the path, monitoring the penetrations and where visual observations indicate elevated concentrations of landfill gas such as unusual cover conditions and penetrations of landfill surface (e.g. stressed vegetation, cracks, seeps, well casings, lateral risers, air supply lines, pump force mains, etc.), and then returning to the path; or
b. Walking to each penetration and where visual observations indicate elevated concentrations of landfill gas such as unusual cover conditions and penetrations of landfill surface (e.g. stressed vegetation, cracks, seeps, well casings, lateral risers, air supply lines, pump force mains, etc.) conducting monitoring after the serpentine path is completed.

8. If there are multiple pipes or penetrations of the cover at a single location (e.g. a well casing, lateral riser, air supply line, pump force main), the area will be monitored at the prescribed 5 to 10 cm from the ground surface around each pipe. If there are exceedances detected within this area they will be documented as a single exceedance for reporting purposes. Similarly, if there are multiple exceedances detected within an area where visual observations indicate elevated concentrations of landfill gas such as unusual cover conditions (e.g. stressed vegetation, cracks, seeps) the boundary of these areas will be delineated with pin flags documented as a single exceedance for reporting purposes.
9. Dangerous areas (e.g. steep slopes, active working areas) are excluded from the surface testing and noted as such on a map and within the letter report.
10. Surface emission monitoring is performed in accordance with section 8.3.1 of Method 21, with the exception that the probe inlet is placed within 5 to 10 centimeters of the ground.
11. Readings of 500 parts per million or more above background at any location is recorded as a monitored exceedance.
12. The location of each monitored exceedance is marked, typically with a pin flag and the location recorded in the technician's notes. Monitored exceedances are detailed in the technician's field notebook. For each exceedance the technician records a brief description of the exceedance area. Each exceedance area is identified with a sequential number and are noted on the pin flag used to identify the exceedance in the field, in the technician's notes, and on a corresponding field map. The technician's description of each exceedance references the unique numerical identifier, and typically references the exceedance location in relationship (e.g. distance and direction) from a named landfill structure (e.g. well, sump, isolation valve).
13. These exceedance locations are noted on a map and reported for processing.
14. It is typical that the site then performs cover maintenance and/or adjustments are made to landfill gas extraction wells in the area that may positively impact the exceedance area.
15. The technicians and project managers then schedule for re-monitoring to be conducted within 10 calendar days of detecting the initial exceedance.
16. If the re-monitoring of the location shows a second exceedance, additional corrective action is taken and the location is monitored again within 10 days of the second exceedance.
17. If that re-monitoring shows a third exceedance for the same location the facility is notified and documentation is provided in the final report.
18. Any location that initially showed an exceedance of the 500 parts per million methane or more above background but has a methane concentration less than 500 ppm methane above background at the 10- day re-monitoring is re-monitored 1 month from the initial exceedance. The results of this monitoring are also reported to and documented in the final report.

Note that "penetration" is not defined in the Rule, however, the definition below was proposed by BRLF Services Inc., and other members of our industry during the rule-making process, and AEG concurs with

this definition since EPA has not provided an alternate one. AEG will adjust monitoring procedures once the definition is agreed upon.

- *A penetration is any landfill gas collection well or landfill gas collection device included in the GCCS Design Plan that completely passes through the landfill cover into waste or other indicators of concern with cover integrity or potential landfill gas emissions pathways, such as stressed vegetation, cracks, and seeps, and is located within an area of the landfill where waste has been placed and a gas collection system is required. Examples of what is not a penetration for purposes of this subpart include, but are not limited to: Survey stakes, fencing including litter fences; flags; signage, utility posts, manholes, barriers, trees, grass, and weeds.*

ATTACHMENT 2

PART III – SDP REVISION PAGES
PART IV – SOP REVISION PAGES
(REDLINE/STRIKEOUT FORMAT)

BLUE RIDGE LANDFILL
FORT BEND COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1505A

PART III – SITE DEVELOPMENT PLAN
ATTACHMENT 14
LANDFILL GAS MANAGEMENT PLAN

Prepared for

Blue Ridge Landfill TX, LP

Approved Site Development Plan July 2, 2010

Revised April 2011
Revised October 2017
Revised February 2018

Revised June 2018

Prepared by

Weaver Consultants Group, LLC
TBPE Registration No. F-3727
6420 Southwest Blvd., Suite 206
Fort Worth, Texas 76109
817-735-9770

WCG Project No. 0120-405-11-91-01

1 INTRODUCTION

1.1 Scope

This Landfill Gas Management Plan (LGMP) has been developed for Blue Ridge Landfill TX, LP consistent with the requirements set forth in the Texas Commission on Environmental Quality (TCEQ) Municipal Solid Waste regulations 30 Texas Administrative Code (TAC) §330.56(n), §330.130, and RCRA Subtitle D regulations in 40 CFR §258.23. This LGMP will replace the previously approved LGMP (August 1994).

This attachment addresses §330.56(n).

In accordance with TCEQ "Guidelines for Preparing a Landfill Gas Management Plan," this LGMP describes the existing landfill gas (LFG) monitoring network and proposed upgrades to the monitoring network. It also discusses the operation and monitoring of this network, procedures for verification of monitoring data, notification procedures, and outlines possible remediation activities, if required. In addition, this LGMP includes a description of the existing and proposed expansions to the Landfill Gas Collection and Control System (GCCS). Additional information and procedures regarding potential offsite odors from the site are described in the Odor Control Plan in Appendix IVH.

1.2 Purpose

30 TAC §330.130 requires landfills to develop a LGMP in accordance with §330.56(n). Compliance with §330.56(n) requires landfills to implement a routine monitoring program for methane to verify that (1) the concentration of methane does not exceed 25 percent of the lower explosive limit (LEL) for methane in facility structures (excluding LFG control or recovery system components) within the facility property boundary, and (2) the concentration of methane does not exceed the LEL for methane at the facility property boundary which is 5% methane by volume in air.

The purpose of the LGMP is to provide guidelines for management of LFG at the site. These guidelines cover the evaluation of the LFG migration at the points of compliance (facility property boundary) and in structures on the permitted site. This will be verified by monitoring LFG concentrations at the facility's property boundary and within on-site occupied structures. LFG migration may be controlled by various options which are discussed in Section 5.

6.3 Future LFG Control Capacity

Using the EPA Landfill Gas Emissions Model, it is estimated that the site will generate a maximum of approximately 36,800 standard cubic feet per minute (scfm) of LFG (Appendix 14G). As such, as needed in the future, additional collection and control equipment will be installed to provide the vacuum and capacity needed to handle the predicted maximum design flow rate of the GCCS. The Blue Ridge Landfill is operating under Standard Air Permit No. 55939 issued by the TCEQ in November 2003 and a Title V Operating Permit #0-01472 issued on December 4, 2000. Two utility flares have recently been installed using permit by rule registration under 30 TAC §106.492. The registration numbers are 77271 and 77703. As additional waste is received and LFG generation increases, the site will continue to add additional flares and/or develop landfill gas-to-energy projects. Future expansions of the control equipment by Blue Ridge Landfill, which may increase site emissions, will be performed following TCEQ approval of the appropriate air authorization.

6.4 GCCS Operation and Maintenance

The operation and maintenance of the GCCS is regulated under the NSPS regulation which is part of the sites Title V permit. The NSPS requires routine wellhead monitoring, surface emissions monitoring, and a variety of record keeping and reporting requirements. In addition, the site is required to follow a start-up, shutdown, and malfunction plan under the National Emission Standards of Hazardous Air Pollutants regulation. Semi-annual reports documenting compliance with these regulations are submitted to the TCEQ and maintained in the Site Operating Record. The Blue Ridge Landfill will continue to follow the operating and maintenance procedures described within these regulations as well as all other applicable regulations for GCCS operation. In addition, the GCCS will be expanded, operated, and maintained as outlined in the Odor Control Plan in Appendix IVH of the SOP.

6.5 LFG Treatment Facility Installation

A LFG treatment and processing facility will be installed at the Blue Ridge Landfill for the voluntary recovery for beneficial use of LFG. The LFG treatment and processing facility location is shown in Attachment 14F-3. The planned facility will utilize the site's gas system to recover methane generated by the landfill to process gas for sale and distribution as a fuel to the customers. Any LFG not used by the new facility will be directed to the flare facility for combustion. The new planned facility will be operated by a third party energy developer under a separate registration. In addition, the site also has existing energy facility which treats collected gas and processes it for sale off-site under registration by rule No. 48035.

BLUE RIDGE LANDFILL
FORT BEND COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1505A

PART III – SITE DEVELOPMENT PLAN
ATTACHMENT 15
LEACHATE AND CONTAMINATED WATER PLAN

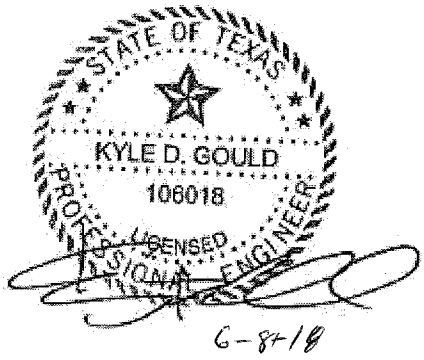
Prepared for

Blue Ridge Landfill TX, LP

Approved Site Development Plan July 2, 2010

Revised October 2010
Revised May 2011

Revised June 2018



Prepared by

Weaver Consultants Group, LLC
TBPE Registration No. F-3727
6420 Southwest Blvd., Suite 206
Fort Worth, Texas 76109
817-735-9770

WCG Project No. 0120-405-11-91-01

Refer to Appendix 15E for more information regarding temporary leachate collection sumps for Sector 4B/5B and Sector 6A. Refer to Appendix 15F for information regarding future temporary leachate collection sumps that may be used for partial sector development in the future, given that the area draining to the temporary sump is less than 15 acres. Additional information and procedures regarding potential odors at leachate sumps cleanout risers is provided in Section 2.6 of the Odor Control Plan in Appendix IVH.

3.5 Drainage Material (Rock or Pulverized Glass)

Drainage material (rock or pulverized glass) around the leachate collection pipes and in the LCS sumps will consist of durable particles of crushed material (rock or pulverized glass) free of silt, clay, or other unsuitable materials. The drainage material (rock or pulverized glass) shall have a loss of mass due to calcium carbonate of less than 15 percent (in accordance with JLT-S-105-89 or ASTM D 304 both modified to use a solution of hydrochloric acid having a pH of 5). The drainage material (rock or pulverized glass) will meet the following gradation in accordance with ASTM D 448, size number 467:

Sieve Size Square Opening	Percent Passing
2 inches	100
1½ inches	95 - 100
¾ inch	35 - 70
3/8 inch	10 - 30
No. 4 (3/16 inch)	0 - 5

Drainage materials (rock or pulverized glass) not complying with the above gradations may also be approved if demonstrated to have a hydraulic conductivity of at least 1 cm/s and meet the gradation requirements of the filter and leachate collection pipe. At a minimum, the drainage ~~stone~~ material (rock or pulverized glass) will meet the following criteria:

For circular holes:

$$\frac{\text{85 Percent Size of Filter Material}}{\text{Hole Diameter}} > 1.7$$

For slots:

$$\frac{\text{85 Percent Size of Filter Material}}{\text{Slot Width}} > 2.0$$

The drainage material (rock or pulverized glass) will be covered by a geotextile to maintain separation of drainage material (rock or pulverized glass) from the overlying operations layers. The geotextile will be inert to commonly encountered chemicals, hydrocarbons and mildew, and will be rot resistant. Geotextile design calculations are presented in Appendix 15B.

gallon storage tanks will be decommissioned. The northern most 10,000 gallon leachate tank located south of existing Sector 2A will be decommissioned prior to the development of Sector 9. The southern most 10,000 gallon leachate tanks located west of existing Sector I-6 will be decommissioned prior to the development of Sector 27.

The leachate storage tanks consist of double-walled tanks with leak detection sumps. Leachate storage capacity calculations are provided in Appendix 15D. The tank will be equipped with liquid-level sensors and high-level alarms to prevent overfill. The storage tanks will be emptied consistent with the leachate storage system operation plan detailed in Section 5. Disposal of leachate is also discussed in Section 5. The existing leachate storage tanks provide enough storage capacity for the leachate currently generated at the site. The storage tanks are emptied, as required, to maintain capacity for the leachate currently generated at the site.

The existing 100,000 gallon leachate tanks are double-walled steel tanks that contains an inner tank ("storage vessel") consisting of a geomembrane liner. The tanks are placed over a concrete foundation to provide stability for the tanks. The secondary geomembrane liner, attached to the inner surface of the steel tank, collects any leachate that may infiltrate through the primary geomembrane liner. Any leachate that migrates through the primary liner drains to a collection sump which is equipped with a witness riser pipe. The witness riser pipe extends under the tank and through the concrete foundation. As shown on Sheet 15D-5, a clear visual inspection pipe is provided so that the integrity of the tank's primary HDPE geomembrane liner can be visually monitored by site personnel on a weekly basis. Leachate in the visual inspection tube indicates a leak of the primary HDPE geomembrane liner. If this occurs, the tank will be drained and repaired.

A concrete truck loading pad is located adjacent to the 100,000 gallon storage tanks. Trucks will park on the load out pad when leachate is transferred from the tanks to the trucks. The load out pad is constructed of concrete and the pad is sloped to drain to a concrete collection sump (note that this is not the same sump as the leachate storage tank sump discussed above). In the event of a spill while the truck is loading, leachate will be contained within the loadout pad and will drain to the sump. Collected leachate in the sump will be pumped back to the leachate storage tank.

Leachate storage capacity calculations and sequencing plans are provided in Appendix 15D. The onsite leachate storage tanks will be emptied consistent with the leachate storage system operation plan detailed in Section 5. Disposal of leachate is also discussed in Section 5.

Refer to Section 2.4 of the Odor Control Plan in Appendix IVH in the SOP for the use of carbon canisters and the odor neutralizing systems at the leachate storage tank area.

BLUE RIDGE LANDFILL
FORT BEND COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1505A

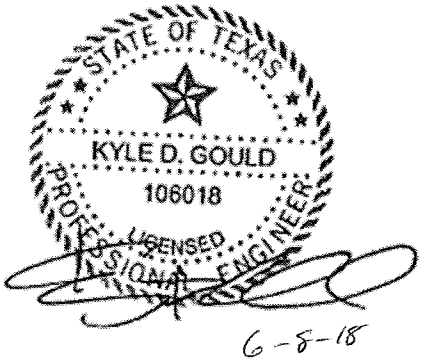
PART IV – SITE OPERATING PLAN

Prepared for

Blue Ridge Landfill TX, LP

Approved Site Operating Plan July 2, 2010
Revised April 2011
Revised September 2011
Revised 2014

Revised June 2018

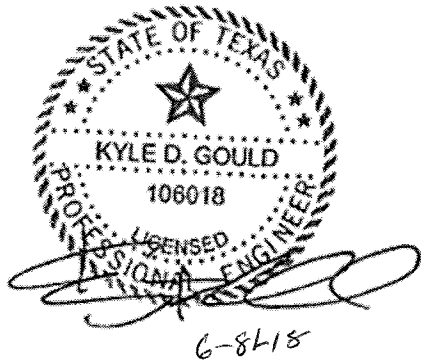


Prepared by

Weaver Consultants Group, LLC
TBPE Registration No. F-3727
6420 Southwest Blvd., Suite 206
Fort Worth, Texas 76109
817-735-9770

WCG Project No. 0120-405-11-91-01

CONTENTS (Continued)



Wherever this SOP provides that responsibility or authority is assigned to the Landfill Manager, this responsibility or authority is automatically transferred to the individual so designated by the Landfill Manager for this duty when the Landfill Manager is not present. The Scale House Staff, Equipment Operators, Mechanics, Spotters, and Laborers are under the supervision of the Landfill Manager or his designee. The Landfill Manager is responsible for hiring and terminating personnel in these positions.

The minimum qualifications for being the Landfill Manager include 5 years of landfill operations experience, the ability to fulfill the duties described for the Landfill Manager in this SOP, and the Landfill Manager must hold a Class A Letter of Competency. The Landfill Manager must be familiar with the specific operating procedures set forth in this plan and will participate in training with other employees. The Landfill Manager, or his designee, is also responsible for routine site inspections as described herein.

The Landfill Manager's responsibilities include the following:

1. Directing site personnel including Laborers, Spotters, Equipment Operators, Scale House Personnel, and Mechanics in the performance of tasks necessary for daily site operations.

2. Identifying any additional equipment or personnel necessary for normal operations in the event of equipment breakdowns, changes in waste volumes accepted, or other circumstances.

3. Performing inspections and completing inspection forms and checklists. The Landfill Manager may delegate this responsibility to other staff.

4. Monitoring and evaluating the performance of employees with respect to assigned duties and compliance with regulatory requirements.

5. Anticipating changes to the operating practices necessary due to changes in the weather, disposal location, or other conditions affecting site operations.

6. Ensuring that inspections and monitoring (e.g., leachate collection system, GCCS, perimeter LFG monitoring, and groundwater monitoring) are completed on schedule and in accordance with all requirements.

7. Monitoring for and abating any nuisance conditions, such as litter, odor, dust, and mud tracking.

8. Perform duties as outlined in the Odor Control Plan provided in Appendix IVH.

2.1.3 Scale House Staff

The primary job of the Scale House Staff, stationed near the site entrance, is to maintain complete and accurate records of vehicles and solid waste entering the facility. The Scale Attendant will be trained in site safety procedures, to visually check for unauthorized wastes, to weigh vehicles, collect waste disposal fees, and direct vehicles to the working face. The Scale Attendant reports to the Landfill Manager. Specifically, Scale House Staff are required to: (1) monitor the incoming vehicles for type of waste and exclude prohibited waste; (2) inspect waste loads to confirm that they are

authorized for disposal; (3) review manifests and other shipping documents: (4) record incoming waste loads; (5) review and confirm special waste documents; and (6) accept tipping fees. Refer to Section 2.1 of the Odor Control Plan in Appendix IVH for procedures for odiferous loads. Scale House Staff shall direct visitors to their destination within the facility.

Scale House Staff are supervised by the Landfill Manager and receive training from the Special Waste Department or the Special Waste Liaison with respect to special waste evaluation and acceptance. Any questions regarding acceptance of special waste are to be addressed to the Landfill Manager, the Special Waste Department, or the Special Waste Liaison.

The minimum qualifications for the Scale House Staff personnel include being able to fulfill the duties described in this section. In addition, the lead person on the Scale House Staff for each shift must have a minimum of 2 years experience performing the duties listed in this section.

2.1.3 Equipment Operators

Equipment Operators are responsible for the safe operation of the equipment. As the personnel most closely involved with the actual landfill operation, these employees are responsible for being alert for potentially dangerous conditions, or careless and improper actions on the part of nonemployees and other persons while on the premises. Equipment Operators monitor and direct unloading vehicles and are also responsible for maintenance, construction, litter abatement, and general site cleanup. Equipment Operators are also responsible for identifying prohibited wastes as discussed in Section 4.2. The Equipment Operators will intervene as necessary to prevent accidents and report any observed unsafe conditions immediately to the Landfill Manager or his designee. Equipment Operators will also report any operational problems to the Landfill Manager. The Equipment Operators report to the Landfill Manager. Equipment Operators that are hired on the basis of previous heavy equipment experience may be assigned to operate specific types of equipment without additional training. Upon their employment, all Equipment Operators without experience in the equipment assigned will receive on-the-job training and oversight from an experienced operator until the new operator becomes proficient on the particular piece(s) of equipment to which he has been assigned, or until he is reassigned to a different piece of equipment for which his previous training or experience is adequate. Equipment Operators may also be required to assist in bird control activities under the supervision of the Landfill Manager or his designee.

All Equipment Operators are required to wear safety equipment, which may include gloves, hardhats, boots, safety glasses, and high visibility clothing, as appropriate, for their work assignments.

Compactors will be used for spreading and compacting the refuse. An excavator and hauling trucks will be used for various purposes at the Blue Ridge Landfill, including excavating the cover material used in site operations. The dozer is mainly used to spread waste at the active face and assist with waste compaction. The motorgrader will be used for activities such as road maintenance, ditch construction, surface water control, and final grading of the completed fill areas. The water truck(s) will be used for dust control and moisture conditioning of soil materials, as necessary, and will be utilized, if necessary, in the event of a fire at the facility. The water trucks will be equipped with a water cannon (or equivalent) to facilitate fire fighting. The windscreens and temporary litter fencing will be used to control windblown waste and litter as discussed in Section 4.5. The maintenance truck is used to provide service to the other site operating vehicles. In addition to the above, miscellaneous pick-ups, vans, and other light utility vehicles as well as instruments and safety and training equipment will be on-site as necessary to assist with site operations.

For information relating to methane monitoring at the Blue Ridge Landfill, see Part III, Attachment 14 – Landfill Gas Management Plan. For information relating to leachate monitoring, and the control of contaminated water, see Part III, Attachment 15 – Leachate and Contaminated Water Plan. Equipment needed for the application of ADC is discussed in Appendix IVB. Other miscellaneous equipment will be required for the maintenance of the machinery and other duties. This miscellaneous equipment will be kept in a maintenance building at or near the Blue Ridge Landfill and will include a compressor, power equipment, and tools. Information on the equipment used for odor management is provided in the Odor Control Plan in Appendix IVH.

containers will be provided for the CCS consistent with the amount of incoming waste/recyclables. The size of the drop-off containers will range in capacity between 20 and 40 cubic yards. Additional capacity information is included in Table 4.2.2.

Table 4.2.2
Citizen Collection Station Capacity Information

Item	Quantity
Amount of waste or recyclable material to be received daily	Incoming waste or recyclable material to be directed to the CCS area is estimated to be between 0 tons/day and 300 tons/day.
Maximum amount of waste or recyclable material to be stored at any one point in time	240 cubic yards
The ~~maximum and average~~ length of time the waste or recyclable material will remain in the CCS area	~~Average~~ 1 Day ~~Maximum 3 Days~~
The maximum and average processing time	The CCS area will not be used as a processing area. This area is only used for temporary storage of waste and recyclable materials. Therefore, maximum and average processing times are not applicable.

4.2.4 Prohibited Wastes

Prohibited waste that is not discovered until after it is unloaded shall be immediately returned to the vehicle that delivered the waste. That party shall be responsible for the proper disposal of this rejected waste at a permitted facility. In the event the unauthorized waste is not discovered until after the vehicle that delivered it is gone, the waste shall be segregated and controlled to the extent possible. The unauthorized waste will be covered with soil and no additional filling will occur over that area until the unauthorized waste is removed and disposed of properly. Survey stakes or similar markings will be placed around the perimeter of the area that contains the unauthorized waste so that it is clear where the unauthorized waste is located. Alternatively, the unauthorized waste may be segregated by placing the unauthorized waste in a roll-off or similar container.

An effort shall first be made to identify the entity that deposited the prohibited waste and have them return to the site and properly dispose of the waste. In the event that identification is not possible, Blue Ridge Landfill TX, LP will notify the TCEQ within 24-hours to seek guidance on how properly to dispose of the waste as soon as practical. A record of each unauthorized material removal event will be maintained in the Site Operating Record.

Signs with directional arrows and/or portable traffic barricades will help to restrict traffic to designated unloading areas. Signs will be placed along the access route to the current unloading areas. In addition, rules for waste disposal and prohibited waste will be prominently displayed on signs at the site entrance. Refer to Section 6 of this SOP for additional waste handling procedures.

Solid rubber tires may be accepted for disposal. Non-solid rubber tires will only be accepted for disposal if they are split, quartered, shredded, or filled with concrete.

4.10 Air Quality and Odor Management Plan

The site will comply with all the applicable air quality rules and regulations. The site is currently required to operate and maintain the landfill gas collection and control system (GCCS) in accordance with the New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) for MSW landfills.

The TCEQ issued ~~a~~ the initial General Operating Permit authorization to operate (GOP No. O-01472) on December 4, 2000. ~~A~~ The GOP ~~renewal application~~ was renewed ~~submitted~~ on March 3, 2016 and revised on April 24, 2018 ~~15, 2005~~. ~~Other~~ Emission sources at the site are authorized by Standard Permit No. 81004 ~~55939~~ that was approved by the TCEQ on ~~November 13, 2003~~ September 22, 2017. The site also operates under the Odor Control Plan that was approved by the TCEQ on April 10, 2018. The TCEQ approved plan is included in Appendix IVH.

Steps will be taken to limit the impact of the facility's operation on air quality. Among the measures to be employed are the following:

- Accidental fires will be controlled as outlined in Section 7 of this SOP.
- Open burning of waste will not be permitted at this facility.
- Incoming waste will be promptly compacted into the active face area. Daily cover will be placed consistent with the procedures specified in Section 4.18.2 and Section 2.1 of the Odor Control Plan in Appendix IVH.
- Ponded water at the site will be controlled as detailed in Section 4.19 of this SOP.
- The Gas Collection and Control System (GCCS) will be expanded and operated in accordance with all applicable requirements and as described in the Odor Control Plan in Appendix IVH.
- As discussed in Section 4.12, the landfill haul roads and access roads will be maintained in a reasonable dust-free condition by periodic spraying from a water truck. During dry weather conditions, the Landfill Manager or his designee will routinely inspect the site and establish a frequency, if necessary, to spray the access roads with water to prevent nuisance conditions from developing.

The site management team (e.g., Landfill Manager, Environmental Manager, and General Manager) will verify that Blue Ridge Landfill does not violate any applicable air quality and/or LFG requirements (Refer to Part III, Attachment 14 – Landfill Gas Management Plan for more information). The Environmental Manager is responsible for verifying and documenting compliance with the site's operating permit and any other applicable regulations.

The site management team will maintain the required probe monitoring data and GCCS records as described in Attachment 14 – Landfill Gas Management Plan.

Odors shall be controlled at the site and will be reduced if they occur in accordance with this Odor Management Plan and the Odor Control Plan in Appendix IVH. Odors associated with the Citizen Collection Station(CCS) will be controlled by transporting the waste to the working face during ~~at least once every 3~~ each business days. If odors become an issue at the CCS, the containers will be transported to the working face on the same day the odor is noticed. No waste will be stored at the CCS on non-business days. Sources of landfill odor can vary considerably and may include the wastes being delivered to the landfill; the open MSW, Class 1, or RACM working face; surface emissions from the covered portion of the landfill; the landfill gas collection and control system (GCCS); the leachate collection system; the liquid waste bulking facility; or the wood grinding area. Many of the wastes received at a landfill are a source of odor upon receipt. Examples of these wastes include the following.

- Dead animals
- Sludges
- Waste material handled at the Liquid Waste Bulking Facility (e.g., grease trap waste, grit trap waste, and non-hazardous industrial wastes – refer to Appendix IVC for more information).
- Medical waste

Other wastes have the potential for becoming a source of odor by their biodegradable characteristics, generating gases as they advance through the decomposition process. The generation of LFG within the landfill is one of the primary sources of odor. To address potential LFG odors, the Blue Ridge Landfill has installed and operates a LFG collection and control system (GCCS). One of the primary objectives of this system is to remove the LFG from within the landfill before it can percolate to the landfill surface and enter the atmosphere. The LFG that is recovered from within the landfill is conveyed to a flare to be thermally destroyed. As landfill operations progress the GCCS has been, and will continue to be, expanded as necessary. At a minimum the GCCS will be expanded into all areas of the landfill where the waste is five years old or has been at final grade for two years. The GCCS will be evaluated each year following the procedures in Section 2.8 of the Odor Control Plan in Appendix IVH. The design of the GCCS is presented in Attachment 14 – Landfill Gas Management Plan.

Leachate may also be a source of odor if not properly handled or disposed of in a timely manner. Potential odors from the Leachate storage tanks will be handled as described in the Odor Control Plan in Appendix IVH

Among the measures that may be employed to reduce potential odors are the following.

- Minimize the size of the working face areas as noted in Section 4.2.
- Increase the thickness of daily cover applied to the working face.
- Prevent ponded water, consistent with the procedures outlined in Section 4.19.
- Place daily and intermediate cover to the specified thickness over the fill area. The Landfill Manager or his designee will visually inspect daily and intermediate cover areas to confirm that no trash is exposed and no significant erosion of cover material has occurred. Erosion rills located on daily cover, intermediate cover, or

final cover areas will be promptly repaired (refer to Section 4.18 of the SOP and Section 2.2 of the Odor Control Plan in Appendix IVH for more information).

- Assess the effectiveness of the existing LFG extraction system and make all necessary repairs to the system or expand the system, as needed, to control odors.
- Identify any waste stream that requires special attention to control odor as outlined below and in the Odor Control Plan in Appendix IVH. If the Scale House Staff notes a load with significant odors, they will notify the working face personnel. The load will be promptly covered with soil or a minimum 3-foot-thick layer of solid waste when it arrives at the working face. The site may also schedule the delivery of known odorous wastes. This will allow site personnel to be prepared for the prompt handling of this material. The site may also sequence the unloading of known odorous wastes at the working face. For example, covered trucks transporting sludge may be instructed to wait at a specified location within the site until there is minimal traffic or no other sludge trucks at the working face. The site will then sequence the unloading of the sludge truck so that the working face personnel can promptly handle (and cover) this material at the working face.
- Inspect the leachate collection and storage system following the procedures outlined in the Odor Control Plan in Appendix IVH to confirm that it is functioning as designed (e.g., inspect piping, including the leachate riser and related fittings, and storage tank system to verify no leaks have occurred). Vapor tight gaskets will be used on all leachate risers if odor issues are identified at the risers.
- Removal of leachate from the site should be performed under appropriate weather conditions.
- The site currently uses a mister system to aid in minimizing odors. Misters are strategically placed around the working area according to wind speed and direction and operates according to the Odor Control Plan in Appendix IVH. Examples of Material Safety Data Sheets (MSDS) for the mister material being dispensed are included in Appendix IVG. The actual MSDS for the material being used will be kept in the Site Operating Record.
- Inspect the Liquid Waste Bulking Facility to verify that odors are controlled from this waste treatment area. ~~If odors become an issue in this area, the stored material will be systematically removed until the odors are eliminated.~~ The site will follow the procedures in Section 2.5 of the Odor Control Plan in Appendix IVH to control potential offsite odors from this area.
- Inspect the Wood Grinding Area to verify that odors are controlled from this area. If odors become an issue in this area, the stored material will be systematically removed until the odors are eliminated.

The Landfill Manager or his designee will perform on-site and off-site odor surveys as outlined in the Odor Control Plan in Appendix IVH. ~~evaluate the perimeter of the site on a daily basis to assess the performance of site operations to control odors~~.

4.11 Disease Vector Control

Blue Ridge Landfill personnel will control on-site populations of disease vectors, which include rodents, excessive bird populations, flies, mosquitoes, and other insects or

4.17 Compaction of Solid Waste

Compaction of incoming waste facilitates efficient use of available space, minimizes settlement and consolidation, and promotes proper application of intermediate and final cover. A landfill compactor or similar equipment will be used to compact waste at Blue Ridge Landfill. Unless otherwise documented in the Site Operating Record, the Landfill Manager will instruct the Equipment Operators to spread waste in lifts that are approximately two-feet thick. The compactor will typically make two-passes to compact the waste. A pass is defined as one direction of travel. The Equipment Operators will be trained to determine whether the compaction equipment is functioning as designed to ensure that the waste lift is adequately compacted. Note that the number of passes required may be increased depending upon the nature of the waste that is being compacted.

4.18 Soil Management, Placement, and Compaction of Daily, Intermediate, and Final Cover

4.18.1 Soil Management

Management of soil (or earthen material) for use in and around the landfill area will be an ongoing process at the Blue Ridge Landfill. Soil will be obtained from onsite and offsite soil borrow sources as needed for facility operations. Soil for use as daily cover, intermediate cover, final cover, and other uses will be available adjacent to the unloading areas.

The stockpile will consist of soil that has not previously come in contact with waste and will be of sufficient volume to meet the fire protection requirements specified in Section 7.7. As this stockpile is used, it will be replenished as soon as practical but shall at all times be maintained to meet the fire protection requirements specified in Section 7.7. Both the volume of soil required to be maintained within 1,000 feet of each working face and the volume of the earthen material on-site to cover each working face with at least a 1 day application of 6-inches of well compacted daily cover will be documented on the Monthly Soil Stockpile Verification Inspection Checklist (refer to Section 4.18.5 and Section 7.7.4 for an example soil stockpile calculation).

4.18.2 Daily Cover

Daily cover of waste is used to control disease vectors, windblown waste, odors, fires, and scavenging and to promote runoff from the fill area. At least once every 24-hours or at the end of each operating day, the exposed solid waste fill area(s) or working face(s) will be covered by (1) at least 6 inches of well compacted soil cover material that has not been previously mixed with garbage, rubbish, or other solid waste, or (2) an approved Alternate Daily Cover (ADC) material. The site will forgo any use of alternate daily cover at the Class I waste working face and as described in the Odor Control Plan in Appendix IVH. Instead, the site will place a 6-inch lift of soil cover over the Class I waste working face at the end of each day. As discussed in Section 4.2, the working

The sequence of intermediate cover placement with respect to waste placement is included in detail in Part III, Attachment 1 - Site Layout Plans. The Landfill Manager will inspect intermediate cover at the site on a weekly basis. In addition, intermediate cover will be inspected at the Blue Ridge Landfill within 72 hours of any rainfall event of 0.5 inches or more. As noted, each inspection will be documented in the Site Operating Record. Erosion gullies or washed-out areas will be repaired within 5-days of detection by restoring the cover material, grading, compacting, and seeding unless the TCEQ Regional Office approves otherwise, based on the extent of the damage requiring more time to repair, or the repairs are delayed because of weather conditions. Refer to Section 2.2 of the Odor Control Plan in Appendix IVH for additional information on erosion gullies or washout areas. Runoff from damaged or eroded areas will be handled as contaminated water, if the stormwater has contacted waste, until repairs are completed. The Landfill Manager, or his designee, will inspect for seeps from intermediate cover. All seepage water from waste below the intermediate cover will be controlled by placement of soil berms and diverted to a contaminated water collection area. Contaminated water will be treated as outlined in the Leachate and Contaminated Water Plan (refer to Section 4.22).

4.18.4 Final Cover

Final cover placement will occur as areas of the site are filled to the design top-of-waste grades. See Section 2.3 of the Odor Control Plan in Appendix IVH for additional information on the placement of Final Cover. Final cover placement over individual areas will be in accordance with Part III, Attachment 12 - Final Closure Plan and will permit ongoing landfilling operations to continue until the time of final closure. Surface water will be managed throughout the active life of the site to minimize infiltration into the filled areas and to minimize contact with solid waste. Erosion of final or intermediate cover will be repaired within 5-days after the initial inspection by restoring the cover material, grading, compacting, and seeding unless the TCEQ Regional Office approves otherwise, based on the extent of the damage requiring more time to repair, or the repairs are delayed because of weather conditions. Refer to Section 2.2 of the Odor Control Plan in Appendix IVH for additional information on erosion gullies or washout areas. The date of detection of erosion and date of completion of repairs, including reasons for any delays, must be documented in the Cover Application Log (refer to Section 4.18.5). Such periodic inspections and restorations are required during the entire operational life and for the postclosure maintenance period. Refer to Section 4.23 of this SOP for a site inspection and maintenance list.

Final cover placement over completed portions of the site will consist of the following steps:

- Survey controls will be implemented to control the filling of solid waste to the bottom level of the final cover system.
- The final cover system layers will be constructed. Testing of the various components of the final cover system will be performed in accordance with Part III, Attachment 12 – Final Closure Plan.

4.23 Site Inspection and Maintenance List

Item	Task	Frequency	Inspector	Inspection Documentation
Fence/Gates[1]	Inspect perimeter fence and gates for damage. Make repairs if necessary.	Weekly	Landfill Manager or Designee	Document inspection in the Site Operating Record
Windblown Waste[1]	Police working face area, wind fences, access roads, entrance areas, and perimeter fence for loose trash. Clean up as necessary.	Daily as specified in Section 4.5.	Landfill Manager or Designee	Document inspection in the Site Operating Record
Waste Spilled on Route to the Site[11]	Police the entrance areas and all roads at least 2 miles from the site entrance for loose trash. Clean up as necessary.	Daily as specified in Section 4.8.	Landfill Manager or Designee	Document inspection in the Site Operating Record
Landfill Markers[1]	Inspect all landfill markers for damage, color-coding, and general location. Correct or replace damaged markers within 15 days of discovery.	Monthly	Landfill Manager or Designee	Document inspection in the Site Operating Record
Site Access Road[1]	Inspect site access road for damage from vehicle traffic, erosion, or excessive mud accumulation. Maintain as needed with crushed rock or stone. Grading equipment will be used to control or remove mud accumulations on roads as well as minimize depressions, ruts, and potholes. Tracked mud and associated debris at the entrance to the facility must be removed at least once per day on days when mud and associated debris are being tracked onto the public roadways to the extent that mud can be reasonably considered to be associated with landfill operations.	Tracked mud and associated debris will be removed daily. Grading equipment will be used at a minimum of once per week to minimize depressions, ruts, and potholes.	Landfill Manager or Designee	Document inspection and repairs in the Site Operating Record
Daily Cover[1]	Inspect for proper placement, thickness, and compaction. Correct problems as needed. Verify that vectors are not an issue.	Daily at the active face and all daily cover areas will be inspected within 24 hours of a rainfall event of 0.5 inches or more.	Landfill Manager or Designee	Document inspection in the Site Operating Record
Intermediate Cover[1]	Inspect for proper placement, thickness, erosion, compaction and for presence of waste or other contamination. Correct problems as needed.	Weekly and within 72 hours of a rainfall event of 0.5 inches or more.	Landfill Manager or Designee	Document in the Site Operating Record
Final Cover[1]	Inspect for proper placement, thickness, compaction, slope, settlement and erosion. Also, the trees and vegetation on the landscape bench located on the eastern sideslope will be inspected to verify they are functioning as designed. Maintenance will be ongoing throughout postclosure care period. Correct problems as needed.	Weekly and within 72 hours of a rainfall event of 0.5 inches or more.	Landfill Manager or Designee	Document in the Site Operating Record
Leachate[1]	Measure depth of leachate in sump, as required.	Weekly	Landfill Manager or Designee	Document in the Site Operating Record
Leachate Storage Tanks[1]	Measure leachate levels in storage tank and volume of leachate removed from the site.	Daily	Landfill Manager or Designee	Document in the Site Operating Record
Site Signs[1]	Inspect all site signs for damage, general location, and accuracy of posted information.	Weekly	Landfill Manager or Designee	Document in the Site Operating Record
Ponded Water[1]	Inspect site for unauthorized ponded water areas as described in Section 4.19. Correct problems as needed. Document any corrective action taken to remove ponded water.	Weekly and within 72 hours of a rainfall event of 0.5 inches or more.	Landfill Manager or Designee	Document in the Site Operating Record
Odor[1]	~~Inspect the perimeter of the site to assess the performance of site operations to control odor.~~ Follow requirements outlined in the Odor Control Plan in Appendix IVH.	Refer to the Odor Control Plan in Appendix IVH for timeline requirements.	Landfill Manager or Designee	Document in ~~the Site Operating Record~~ accordance with the Odor Control Plan in Appendix IVH
Perimeter Channels/Ponds[1]	Inspect perimeter channels and detention ponds to verify that they are functioning as designed (e.g., excess sediment removed, outlet structures intact, erosion control measures intact).	Weekly and within 72 hours of a rainfall event of 0.5 inches or more.	Landfill Manager or Designee	Document in the Site Operating Record
GCCS[1]	Verify GCCS is operating and maintained in accordance with all applicable requirements.	Monthly	Environmental Manager or Designee	Document in the Site Operating Record
Landfill Gas Monitoring	The landfill gas monitoring system will be inspected to verify that it is functioning as designed.	Quarterly	Landfill Manager or Designee	Document in the Site Operating Record
Easements / Buffer Zones[1]	The buffer zones and easement areas will be inspected to verify that the applicable markers are in place and that access has not been obstructed.	Weekly.	Landfill Manager or Designee	Document in the Site Operating Record
Fire Protection Plan[1]	Consistent with Section 7, inspections will be completed to verify that the various components of the Fire Protection Plan are functioning as designed (e.g., fire extinguishers, stockpile requirements, water trucks or storage tanks).	Stockpile and water truck or tanks will be inspected daily, fire extinguishers will be inspected annually.	Landfill Manager or Designee	Document in the Site Operating Record
Groundwater Monitoring System[1]	The groundwater monitoring system will be inspected to verify the groundwater wells are functioning as designed.	Weekly.	Landfill Manager or Designee	Document in the Site Operating Record
Random Waste Inspections[1]	Consistent with Sections 6.2 and 6.3, random inspections will be completed on a daily basis. Record Keeping requirements are listed in Section 6.3.	Daily	Landfill Manager or Designee	Document in the Site Operating Record
Soil Stockpile Verification[1]	Consistent with Sections 4.18.1, 4.18.5, and 7.7.4, soil stockpile verification will be completed on a monthly basis.	Monthly	Landfill Manager or Designee	Document in the Site Operating Record

[1] Refer to Appendix IVE – Example Site Inspection Checklists for example inspection forms. The format and content of the form may be modified; however, the form used will be consistent with the requirements included in the SOP.

BLUE RIDGE LANDFILL
FORT BEND COUNTY, TEXAS
TCEQ PERMIT NO. MSW-1505A

PART IV – SITE OPERATING PLAN
APPENDIX IVD
LIQUID WASTE BULKING FACILITY OPERATING PLAN

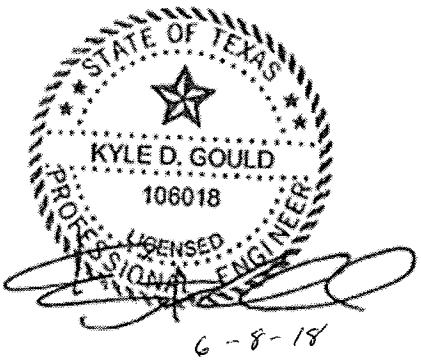
Prepared for

Blue Ridge Landfill TX, LP

Approved Site Operating Plan July 2, 2010

Revised October 2010

Revised June 2018



Prepared by

Weaver Consultants Group, LLC
TBPE Registration No. F-3727
6420 Southwest Blvd., Suite 206
Fort Worth, Texas 76109
817-735-9770

WCG Project No. 0120-405-11-91-01

- Protect the health and environment of employees, citizens, and surrounding communities by operating the facility in accordance with TCEQ, EPA, OSHA, and other applicable regulations.
- Facility personnel will be trained in the bulking procedure, acceptable testing method, recognition of waste streams and their compatibility, daily operations, recordkeeping and reporting, implementation of emergency procedures, and regulations pertaining to liquid waste disposal as set forth by the TCEQ.

2.6 Testing and Recordkeeping

The testing and recordkeeping requirements are listed below.

- The Paint Filter Liquid Test (EPA Method SW-846/9095) is required immediately prior to disposal of the waste in the landfill. Representative grab samples shall be obtained at a rate of one per batch of treated material.
- Records concerning the type, quantity, source, and test results of liquid wastes processed shall be maintained on a daily basis, and become part of the site operating record.

2.7 Training of Operational Personnel

Personnel involved in the bulking facility shall receive adequate training in the bulking procedure, acceptable testing method, recognition of waste streams and their compatibility, daily operations, recordkeeping and reporting, implementation of emergency procedures, and regulations pertaining to liquid waste disposal.

2.8 Odor Control

Procedures and additional information regarding odor control at the liquid waste bulking facility is described in Section 2.5 of the Odor Control Plan in Appendix IVH.

ATTACHMENT 3

TCEQ-20650 FORM

Facility Name: Blue Ridge Landfill
Permittee/Registrant Name: Blue Ridge Landfill TX, LP
MSW Authorization #: 1505A
Initial Submittal Date: 06/08/2018
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: **582EA000305845**

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."

7. General Facility Information

Facility Name: **Blue Ridge Landfill**

MSW Authorization No.: **1505A**

Regulated Entity Reference No.: **102610102**

Physical or Street Address (if available): **2200 FM 521**

City: **Fresno** County: **Fort Bend** State: **Texas** Zip Code: **77545**

(Area code) Telephone Number: **(281) 835-6142**

Latitude: **29° 33′ 16″ N** Longitude: **95° 26′ 37″ W**

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: **The purpose of this permit modification is to revise the site's existing Part III-Site Development Plan (SDP) and Part IV-Site Operating Plan (SOP) to include the Odor Control Plan into the site's permit.**

This section is intentionally left blank; please continue to the next page.

10. Facility Contact Information

Site Operator (Permittee/Registrant) Name: Blue Ridge Landfill TX, LP

Customer Reference No. (if issued)*: CN**602820599**

Mailing Address: **P. O. Box 879**

City: **Fresno** County: **Fort Bend** State: **Texas** Zip Code: **77545**

(Area Code) Telephone Number: **(713) 676-7669**

Email Address: **BStengl@republicservices.com**

TX Secretary of State (SOS) Filing Number: **00014867611**

*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 Name[1]: Same as Site Operator (Permittee/Registrant)

Customer Reference No. (if issued)*:

Mailing Address:

City: County: State: Zip Code:

(Area Code) Telephone Number:

Email Address:

Charter Number:

[1]If 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): Weaver Consultants Group , LLC

Texas Board of Professional Engineers Firm Registration Number: **F-3727**

Mailing Address: **6420 Southwest Boulevard, Suite 206**

City: **Fort Worth** County: **Tarrant** State: **Texas** Zip Code: **76109**

(Area Code) Telephone Number: **817-735-9770**

E-Mail Address: **mstutz@wcgrp.com**

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

Mailing Address:

City: County: State: Zip Code:

(Area Code) Telephone Number:

E-Mail Address:

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, Burgess Stengl, Environmental Manager
(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: Burgess Stengl Date: 6/8/18

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 Burgess Stengl
On this 8th day of June, 2018.
My commission expires on the 17th day of May, 2021.

Helen Marie Hanson
Notary Public in and for
Tarrant County, Texas
(Note: Application Must Bear Signature & Seal of Notary Public)

HELEN MARIE HANSON
Notary Public, State of Texas
Comm. Expires 05-17-2021
Notary ID 10180332

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

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	**2**
Unmarked Revised Pages	**1**

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

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

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