217/785-1710

CONSTRUCTION PERMIT
NSPS/NESHAP SOURCE

PERMITTEE

Winnebago Reclamation Services
Attn: Thomas Hilbert, Vice President
5450 Wansford Way, Suite 201B
Rockford, Illinois 61109

Application No.: 13090005 I.D. No.: 201801AAF
Applicant's Designation: W EXPANSION Date Received: September 6, 2013
Subject: West Expansion Unit
Date Issued:
Location: Winnebago Landfill, 8403 Lindenwood Road, Rockford

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of the West Expansion Unit as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special conditions:

Part 1: Conditions for the Project

1.1 Introduction

a. i. This permit authorizes construction of the West Expansion Unit, a new waste disposal area and associated gas collection and control system at the Winnebago Landfill. The Winnebago Landfill is a municipal solid waste (MSW) landfill. The West Expansion Unit would have a waste disposal capacity of approximately 8.3 million cubic yards, as addressed by Development Permit No. 2010-133-LF, issued by the Illinois EPA, Bureau of Land.

ii. The landfill gas (LFG) generated by the West Expansion Unit will be controlled with a new Gas Collection and Control System that includes a new open flare. Additional measures, which are not needed to meet requirements of applicable rules, such as temporary horizontal collectors and early installation of final gas collection wells, will be used to collect LFG. The thresholds for the levels of methane at the surface of the West Expansion Unit, which are a measure of the effectiveness of collection of LFG, will be more stringent than those in applicable rules.

b. The permit also authorizes installation of:

i. A. A SulfaTreat™ absorption system, which would remove hydrogen sulfide (H_2S) from the collected LFG before it is flared.

ii. A diesel fuel-fired engine generator set, which would provide emergency electrical power for the Gas Collection and Control System.

iii. A second new open flare, which would provide additional capacity for flaring collected LFG.

c. For the purpose of this construction permit, the West Expansion Unit addressed by this permit is referred to as the "affected facility". The Gas Collection Control System, the SulfaTreat system and the new flares at the West Expansion Unit are referred to as the "affected GCC System", the "affected sulfur removal system" and the "affected flares", respectively. The emergency diesel engine associated with the West Expansion Unit is referred to as the "affected engine".

1.2. Other Requirements

a. This permit does not affect applicable requirements for the existing Winnebago Landfill, including applicable emission standards, emission limits and requirements for testing, monitoring, recordkeeping and reporting in the current Clean Air Act Permit Program (CAAPP) permit for the Winnebago Landfill, Permit 99020102, and in construction permits for projects at this source that are not yet addressed in this CAAPP permit.

b. i. This permit does not relieve the Permittee of the responsibility to comply with all Local, State and Federal Regulations which are part of the applicable Illinois State Implementation Plan, as well as all other applicable Federal, State and Local requirements.

ii. In particular, this permit does not excuse the Permittee from the obligation to undertake further actions for the affected facility as may be needed to eliminate air pollution, such as enhancements to the gas collection system.

1.3. Generally Applicable State Emission Standards

a. The emission units at the affected facility are subject to 35 IAC 212.301 and 212.314, which provide that no person shall cause or allow the emission of "fugitive particulate matter" from any process, including any material handling or storage activity, that is visible by an observer looking generally overhead at a point beyond the property line of the source unless the wind speed is greater than 40.2 kilometers per hour (25 miles per hour). For this purpose, as defined by 35 IAC 211.2490, "fugitive particulate matter" means any particulate matter emitted into the atmosphere other than through a stack.

b. The emission units at the affected facility are subject to 35 IAC 212.123(a), which provides that no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from an emission unit except as allowed by 35 IAC 212.123(b) and 212.124.

c. The process emission units at the affected facility and the affected engine are subject to 35 IAC 214.301, which provides that no person shall cause or allow the sulfur dioxide (SO_2) emissions from any process emission unit to exceed 2000 ppm.

1.4. Non-Applicability Provisions

a. This permit is issued based on this project not being a major project for purposes of the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21.

i. For emissions of pollutants other than greenhouse gases (GHG), this is because the project's potential emissions not including fugitive emissions are not significant. For example, SO_2 emissions are less than 40 tons/year. (See Condition 1.6(a).)

ii. For emissions of GHG, this is because this project does not have significant emissions of regulated NSR pollutants other than GHG.

b. For this purpose, this permit is issued based on emissions of H_2S, total reduced sulfur (TRC), reduced sulfur compounds (RSC), volatile organic material (VOM) and municipal solid waste emissions (MSWE), as nonmethane organic compounds (NMOC), from LFG that is not collected that does not qualify as "fugitive emissions" each being minimal. For purposes of this condition and other conditions of this permit, unless otherwise specified by a particular condition, "fugitive emissions" mean "those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening," as provided by 40 CFR 52.21(b)(20), as determined considering the techniques, methods and practices to control LFG from MSW landfills that are available at the time that the Permittee commences construction on the affected facility.

1.5. Operational Limits

a. The design capacity of the West Expansion Unit, i.e., the affected facility, shall not exceed 8.3 million cubic yards of waste.

1.6. Emission Limits

a. The emissions of the affected flares and the affected engine shall not exceed the following limits.

Pollutant	Limits				
	Affected Flares		Emergency Engine		Total
	Lbs/Hr	Tons/Yr	Lbs/Hr	Tons/Yr	Tons/Yr
NO_x	5.2	22.9	8.0	2.0	24.9
CO	6.2	27.2	9.9	2.5	29.7
SO_2	8.3*	36.0	---	---	36.0
PM	3.0	12.0	0.5	0.46	12.46
PM_{10}	3.0	12.0	0.5	0.46	12.46
$PM_{2.5}$	2.1	9.2	0.5	0.46	9.66
VOM	2.2	10.0	---	---	10.0
MSWE, as NMOC	2.2	10.0	---	---	10.0
Total HAPS	0.65	2.9	---	---	2.9
Hydrogen Sulfide (H_2S)	0.09	0.40	---	---	0.40
Reduced Sulfur Compounds (RSC)**	0.09	0.40	---	---	0.40
Total Reduced Sulfur (TRS)***	0.10	0.44	---	---	0.44

* Based on a running average of seven days, considering monitored data collected pursuant to Condition 2.7-2(b) and (c).

** Reduced sulfur compounds means hydrogen sulfide, carbonyl sulfide and carbon disulfide, as defined by 40 CFR 60.101.

*** Total reduced sulfur (TRS) means the sum of the sulfur compounds hydrogen sulfide, methyl mercaptan, dimethyl sulfide and dimethyl disulfide, as defined by 40 CFR 60.281.

b. This permit is issued based on the source, i.e., the combination of the existing Winnebago Landfill and the affected facility addressed by this permit, not being a major source of emissions of hazardous air pollutants (HAPs). For this purpose, HAP emissions of the source, including both non-fugitive and fugitive emissions of HAPs, shall not exceed 8 tons per year for any individual HAP and 20 tons per year of any combination of HAPs.

Note: This condition is intended to ensure that the source continues to not be a major source of HAP emissions for purposes of the National Emission Standards for Hazardous Air Pollutants (NESHAP) adopted by USEPA pursuant to Section 112(b) of the Clean Air Act.

c. i. Compliance with the annual limits shall be determined from a running total of 12 months of data.

ii. Compliance with the emission limits in Conditions 1.6(a) and (b) for the landfill shall be determined using site-

specific data for the generation and composition of LFG and appropriate emission factors, which in order of preference shall be factors from on-site emission testing, manufacturer's emission data, and emission factors from USEPA's *Compilation of Air Pollutant Emission Factors* (AP-42), with appropriate adjustments to this data and these emission factors to reflect source-specific conditions and the actual operation of the gas collection and control systems.

iii. Compliance with the emissions limits in Conditions 1.6(a) and (b) for engines shall be determined using appropriate emission factors, which in order of preference shall be factors from on-site emission testing, manufacturer's emission data, and emission factors from USEPA's *Compilation of Air Pollutant Emission Factors* (AP-42), with appropriate adjustments to this data and these emission factors to reflect source-specific conditions and the actual operation of engines.

1.7. Records For Monitoring Systems and Instrumentation

a. The Permittee shall keep records of the data measured by required monitoring systems and instrumentation. Unless otherwise provided in a particular condition of this permit, the following requirements shall apply to such recordkeeping:

i. For required monitoring systems, data shall be automatically recorded by a central data system, dedicated data logging system, chart recorder or other data recording device. If an electronic data logging system is used, the recorded data shall be the hourly average value of the particular parameter for each hour. During periods when the automatic recording device is out of service, data shall be recorded at least once per shift for periods when the associated emission unit(s) is in service.

ii. For required instrumentation, the measured data shall be recorded manually at least once per day, unless otherwise specified, with data and time both recorded, for periods when the associated emission unit(s) are in service, provided however that if data from an instrument is recorded automatically, the above provisions for recording of data from monitoring systems shall apply and manual recording of data is not required.

b. The Permittee shall keep records for the operation, calibration, maintenance and repair of required monitoring systems and instrumentation. These operating records shall, at a minimum, identify the date and duration of any time when a required monitoring instrument or device was not in operation, with explanation; the performance of manual quality control and

quality assurance procedures for the system; and maintenance and repair activities performed for the system.

c. The Permittee shall maintain a file containing a copy of the specifications for each required monitoring device or instrument and the recommended operating and maintenance procedures for the device as provided by its manufacturer.

1.8. General Recordkeeping Requirements

a. The Permittee shall maintain records as necessary to verify compliance with the limits in Condition 1.6(b) for the HAP emissions of the source, including:

i. Records for the operation and emissions of the existing Winnebago Landfill.

ii. Records for the HAP emissions of the existing Winnebago Landfill, with supporting documentation and calculations.

iii. Records for the HAP emissions of the source, including records for emissions of individual HAPs and records for total emissions of HAPs.

Note: Detailed requirements for recordkeeping for HAP emissions from the affected facility and the affected engine are contained in Sections 2 and 3 of this permit, respectively.

b. The Permittee shall maintain records for all observations for visible emissions and opacity made in accordance with USEPA Method 22 or 9, respectively, for the affected facility, including the affected flares, and the affected engine, that it conducts or that are conducted on its behest by individuals who are qualified to make such observations. For each occasion on which such observations are made, these records shall include the date and time of the observations, identity of the observer, a description of the various observations that were made, the observed opacity, and copies of the raw data sheets for the observations.

1.9. Retention of Records

Unless a longer retention period is specified by the NSPS or NESHAP for particular records, records required by this permit shall be retained at a readily accessible location at the source for at least five years from the date of entry and shall be made available for inspection and copying by the Illinois EPA upon request. Any records retained in an electronic format (e.g., computer) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA request for records during the course of a source inspection.

1.10. General Notification and Reporting Requirements

a. If there is any deviation from the requirements of this permit, the Permittee shall submit a report to the Illinois EPA as follows. The report shall include a description of the deviation, the probable cause of the deviation, the corrective actions that were taken and any actions taken to reduce similar occurrences in the future.

   i. Deviations from annual limits in Conditions 1.6(a) or (b) shall be reported within 30 days.

   ii. Deviations from other requirements shall be reported in a semi-annual report unless more rapid reporting is required by the applicable NSPS or NESHAP standards or by the CAAPP permit for the source.

b. Two copies of the reports and notification required by this permit shall be sent to the Illinois EPA at the following address:

   Illinois Environmental Protection Agency
   Bureau of Air
   Compliance Section (#40)
   P.O. Box 19276
   Springfield, Illinois 62794-9276
   217/782-5811

   and one copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

   Illinois Environmental Protection Agency
   Division of Air Pollution Control/Regional Office
   412 SW Washington, Suite D
   Peoria, Illinois 61602

   Telephone: 309/671-3022 Facsimile: 309/671-3024

1.11. Authorization to Construct And Operate

a. i. The Permittee may expand and adapt the gas collection system for the affected facility, installing additional gas wells and piping during the life of the facility as different areas become ready for collection of LFG.

   ii. The Permittee may construct and operate the second affected flare pursuant to this permit as part of its continuing program to control LFG from the affected facility, provided that construction of the flare is commenced by December 31, 2020 and this flare is addressed in any application for revision or renewal of the CAAPP permit for the source submitted by the Permittee.

b. The Permittee may operate the affected facility, including the affected GCC System, pursuant to this construction permit until the CAAPP permit for the source is revised or reissued to address this facility provided that an application for such permit is submitted within one year of the initial placement of waste in the affected facility.

c. The above conditions supersede Standard Conditions 1 and 6.

Part 2: Conditions for the West Expansion Unit

2.1 Introduction

The West Expansion Unit (the affected facility) is a new waste disposal area at the Winnebago Landfill. The LFG generated by the West Expansion Unit will be controlled with a new Gas Collection and Control System that includes open flare(s). Measures such as temporary horizontal collectors and early installation of final gas collection wells measures will be used to enhance the collection of LFG. A sulfur removal system would be used to remove hydrogen sulfide from the collected LFG before it is flared.

2.2. Applicable Federal Standards – Landfill NSPS and Landfill NESHAP

a. The affected facility is subject to applicable requirements of New Source Performance Standards (NSPS) for Municipal Solid Waste Landfills, 40 CFR 60 Subpart WWW (the Landfill NSPS). The Permittee shall comply with all applicable requirements of this NSPS and related requirements in the General Provisions of the NSPS, 40 CFR 60 Subpart A, as addressed in CAAPP Permit 99020102, including the following:

i. Preparation and submission of a new or revised Gas Collection Control System Design Plan to address the affected facility, as required by 40 CFR 60.752(b)(2) since the calculated annual emissions of NMOC from the landfill are 50 megagrams or more.

ii. Operation of the affected GCC System in accordance with all applicable requirements of the Landfill NSPS, including requirements of 40 CFR 60.753, 60.755, 60.756, and 60.759, as required by 40 CFR 60.752(b)(2)(i) and (ii).

iii. Routing all LFG collected from the affected facility to an open flare, other control system or a treatment system that complies with the requirements of the Landfill NSPS in 40 CFR 60.752(b)(2)(iii)(A), (B) or (C), respectively.

Note: As the Winnebago Landfill is already subject to the Landfill NSPS and the applicable requirements of this NSPS are addressed in CAAPP Permit 99020102, this construction permit does not reiterate all these requirements, including

requirements for control of LFG, work practices and requirements for testing, monitoring, recordkeeping and reporting.

b. For the affected flares, as the affected facility is subject to the control requirements of the Landfill NSPS, the Permittee shall comply with all applicable requirements of this NSPS for open flares and with related requirements in 40 CFR 60 Subpart A, including the following:

i. Each affected flare shall be designed and operated in accordance with 40 CFR 60.18, except as noted in 40 CFR 60.754(e), including:

A. There shall not be visible emissions from the flare, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours, pursuant to 40 CFR 60.18(f)(1).

B. The flare shall be used only with the net heating value of the gas being combusted being 7.45 MJ/scm (200 Btu/scf) or greater. The net heating value of the gas being combusted shall be determined by the methods specified in 40 CFR 60.18(f)(3) and 60.754(e).

C. The flare shall be designed and operated with an exit velocity less than the maximum allowable velocity, V_{max}, as determined by the method specified in 40 CFR 60.18(f)(6).

D. The flare shall be operated at all times when landfill gases may be vented to it. [40 CFR 60.18(e)]

E. The Permittee shall monitor the flare to ensure that it is operated and maintained in conformance with the manufacturer's design specifications.

ii. Pursuant to 40 CFR 60.756(c)(1), the Permittee shall install, calibrate, maintain and operate a heat sensing device on each affected flare, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame itself to indicate the continuous presence of a flame, in accordance with the manufacturer's specifications.

iii. Pursuant to 40 CFR 60.756(c)(2), the Permittee shall install, calibrate, maintain, and operate equipment to record flow of LFG to each affected flare.

c. The affected facility is subject to the NESHAP for Municipal Solid Waste Landfills, 40 CFR 63 Subpart AAAA (the Landfill

NESHAP). The Permittee shall comply with all applicable requirements of this NESHAP and the General Provisions of the NESHAP, 40 CFR 63 Subpart A.

i. Pursuant to the Landfill NESHAP, 40 CFR 63.1960:

A. Compliance with the Landfill NESHAP shall be determined in the same way it is determined for the Landfill NSPS, including performance testing, monitoring of the LFG collection system, continuous parameter monitoring, and other credible evidence. In addition, continuous parameter monitoring data, collected under 40 CFR 60.756(c)(1) of the Landfill NSPS, shall be used to demonstrate compliance with the operating requirements for open flares.

B. If a deviation occurs, the landfill has failed to meet the control device operating conditions described in the Landfill NESHAP and has deviated from the requirements of the landfill NESHAP.

C. For a landfill, including associated LFG control equipment, the owner or operator must also develop and implement a written startup, shutdown and malfunction (SSM) plan according to the provisions in 40 CFR 63.6(e)(3). A copy of the SSM plan must be maintained on site.

ii. Pursuant to 40 CFR 63.1955(c), for approval of collection and control systems that include any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, recordkeeping or reporting provisions, the Permittee must follow the procedures in 40 CFR 60.752(b)(2). If alternatives have already been approved for the source under the Landfill NSPS, these alternatives can be used to comply with the Landfill NESHAP, except that the owner or operator must:

A. Comply with the requirements related to startup, shutdown and malfunction in 40 CFR 63 Subpart A, as specified in Table 1 of the Landfill NESHAP.

B. Submit compliance reports every 6 months as specified in 40 CFR 63.1980(a) and (b), including information on all deviations that occurred during the 6-month reporting period. Deviations for continuous emission monitors or numerical continuous parameter monitors must be determined using a 3-hour monitoring block average.

d. As the affected facility is subject to the Landfill NSPS and the Landfill NESHAP, at all times, the Permittee shall maintain and operate the affected facility, including the affected GCC

System and affected flares, in a manner consistent with safety and good air pollution control practice for minimizing emissions, as required pursuant to 40 CFR 60.11(d) and 63.6(e).

2.3. Additional Requirements for Collection of LFG (Surface Methane Levels)

a. The Permittee shall implement measures for the affected facility for enhanced collection of LFG, which measures shall include the use of temporary horizontal or vertical gas collectors and accelerated installation of permanent gas collectors and final cover material, in addition to traditional vertical LFG collection wells.

b. The Permittee shall operate the affected GC System so that the methane concentrations at the surface of the affected facility are within the following limits. If these concentrations are exceeded, the Permittee shall implement corrective actions and conduct "re-monitoring" as specified in Condition 2.3(c) or (d), as applicable. To determine whether these limits are exceeded, the Permittee shall conduct monitoring for the concentration of methane at the surface of the affected facility on a periodic basis as specified in Condition 2.7-1 in accordance with the procedures specified in Attachment 1.

i. Instantaneous concentration (measured methane concentration at any point or location that is monitored): 300 ppmv above the background methane concentration.

ii. Integrated concentration for each grid (average measured concentration for the grid): 50 ppmv above the background methane concentration.

Note: The Landfill NSPS, 40 CFR 60.753(d), also sets a standard that applies to the instantaneous concentration of methane at the surface of a subject MSW landfill that applies to the affected facility, i.e., 500 ppmv or more above the background methane concentration.

c. For any reading(s) exceeding the limit in Condition 2.3(b)(i) (i.e., methane concentration more than 300 ppmv above background), the Permittee shall take actions specified below:

i. Maintenance or repair of cover material or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of the location of each exceedance shall be made and the location shall be re-monitored within 10 calendar days of detecting the exceedance.

ii. If the re-monitoring of the location shows a second exceedance of this limit, additional corrective action

shall be taken and the location shall be re-monitored again within 10 days of the second exceedance. If the re-monitoring shows a third exceedance for the same location, action as required by Condition 2.3(c)(iv) shall be taken and no further monitoring of that location to determine compliance with this limit is required until such action has been taken.

iii. Any location that initially showed an exceedance of this limit but shows compliance in the 10-day re-monitoring required by Condition 2.3(c)(i) or (ii) shall be re-monitored within 1 month from the initial exceedance. If the 1-month re-monitoring shows compliance, no further monitoring of that location to address this limit is required until the next regular monitoring. If the 1-month re-monitoring shows an exceedance, action as required by Condition 2.3(c)(ii) or (iv) shall be taken.

iv. For any location where this limit is exceeded three times within a quarterly period, a new well or other LFG collection device shall be installed within 120 calendar days of the initial exceedance, provided, however, that within 30 calendar days of the third exceedance, an alternative remedy to the exceedance, such as upgrading the blower or header pipes, and a corresponding timeline for implementation may be submitted to the Illinois EPA for approval.

d. For any grid exceeding the limit in Condition 2.3(b)(ii) (i.e., average methane concentration more than 50 ppm above background), the Permittee shall take actions specified below:

i. Maintenance or repair of cover material or adjustments to the vacuum of the adjacent wells to increase the gas collection for the grid shall be made and the grid shall be re-monitored within 10 calendar days of detecting the exceedance.

ii. If the re-monitoring of the grid shows a second exceedance of this limit, additional corrective action shall be taken and the grid shall be re-monitored again within 10 days of the second exceedance. If the re-monitoring shows a third exceedance, action as required by Condition 2.3(d)(iv) shall be taken, and no further monitoring of that grid to determine compliance with this limit is required until such action has been taken.

iii. Any grid that initially showed an exceedance of this limit but shows compliance in the 10-day re-monitoring required by Condition 2.3(d)(i) or (ii) shall be re-monitored within 1 month from the initial exceedance unless the average concentration measured during the 10-day re-monitoring is no more than 40 ppm above

background. If the 1-month re-monitoring shows compliance, further monitoring for that grid is not required until the next regular monitoring. If the 1-month re-monitoring is required and shows an exceedance, action as required by Condition 2.3(d)(ii) or (iv) shall be taken.

iv. For any grid in which this limit is exceeded three times within the quarterly period, a new well or other LFG collection device shall be installed within 120 calendar days of the initial exceedance, provided, however, that within 30 calendar days of the third exceedance, an alternative remedy to the exceedance, such as upgrading the blower or header pipes, and a corresponding timeline for implementation may be submitted to the Illinois EPA for approval.

e. If exceedances of a limit or standard for surface methane is measured three times in a quarterly period, as addressed by Condition 2.3(c)(iv) or (d)(iv) or 40 CFR 60.755(c)(4)(v), the Permittee shall notify the Illinois EPA as provided by Condition 2.10(b).

f. The Permittee shall keep records for the remedial or corrective actions taken pursuant to Condition 2.3(d) and (e), including the date that actions were taken, a description of the actions with location(s) and the expected benefits.

2.4. Requirements for Control of Fugitive Dust

a. The Permittee shall follow good air pollution control practices to prevent nuisance fugitive dust from roadways, parking areas, and other open areas of the affected facility. These practices may provide for pavement on all regularly traveled entrances and exits to the facility and treatment (sweeping, application of water or use of dust suppressant), as necessary on roadways that are routinely subject to vehicle traffic.

b. i. The Permittee shall carry out its control measures for fugitive dust in accordance with a written dust control program maintained by the Permittee. This program shall set forth the measures being implemented to control fugitive dust in areas of the landfill with the potential to generate significant quantities of fugitive dust. This program shall include: (A) A map or diagram showing the location of emission units that emit fugitive dust and information describing the volume and nature of expected traffic or other activity at each unit; (B) A detailed description of the standard dust control measures, including type of measure, frequency, and, if applicable application rates; and (C) Triggers for implementation of additional control measures, e.g., presence of extended dust plumes following passage of

vehicles, with description of those additional dust control measures.

ii. The Permittee shall submit a copy of a revised dust control program to the Illinois EPA for review within 90 days of a request from the Illinois EPA for a revision to the program to address observed deficiencies in the control program.

c. The Permittee shall perform inspections of the affected facility on at least a quarterly basis to verify proper implementation of the dust control program. The Permittee shall keep records for these inspections.

2.5-1. Design Requirements

a. The rated design capacity of each affected flare shall not exceed 5000 scfm of LFG.

b. The affected sulfur removal system shall be designed considering the expected maximum sulfur content of the LFG that will be treated to be able to lower the sulfur content of the LFG that is flared to no more than 137 ppmv as hydrogen sulfide (H_2S). It shall also be designed with the capability to increase the number of sorbent modules in the system so as to be able to maintain adequate residence time by LFG in the system as the amount of LFG generated by the affected facility increases.

2.5-2. Operational Limits

a. Sufficient LFG shall be processed by the affected sulfur removal system so that, on an hourly basis, the LFG that is flared contains no more than 4.15 pounds of sulfur.

2.6. Requirements for Observations of Visible Emissions

a. i. Pursuant to 40 CFR 60.8, within 180 days of the initial startup of each affected flare but no later than 60 days after reaching the maximum rate at which the flare will initially be operated, the Permittee shall conduct observations for visible emissions from the flare to verify compliance with 40 CFR 60.18(c)(1). Thereafter, such observations shall be conducted for the flare on at least an annual basis.

ii. The Illinois EPA shall be notified of the date of observations to enable the Illinois EPA to have an observer present. Notification of the expected date of observations shall be provided to the Illinois EPA a minimum of 30 days prior to the expected date. Notice of the actual date and expected time of observations shall be provided a minimum of five working days prior to the actual date of the observations. The Illinois EPA may,

at its discretion, accept shorter advance notice provided that it does not interfere with the Illinois EPA's ability to have an observer present.

b. The Permittee shall submit reports to the Illinois EPA for these observations no later than 30 days after the date that observations are conducted.

2.7-1. Operational Monitoring for Surface Concentrations of Methane

a. For the affected facility, the Permittee shall comply with applicable requirements of the Landfill NSPS and Landfill NESHAP for monitoring of surface concentrations of methane, including 40 CFR 60.755(c) and (d) and 60.756(f).

b. To address compliance with the limits for surface concentration of methane in Condition 2.3(b), the Permittee shall monitor the concentration of methane at the surface of the affected facility according to the procedures in Attachment 1. This monitoring may be combined with the monitoring required for the affected facility by the NSPS, 40 CFR 60.756(f), to address compliance with the NSPS standard for surface concentrations of methane, 40 CFR 60.755(c). The frequency or timing of this monitoring for each grid in the affected facility in which waste has been deposited shall be as follows, in addition to any re-monitoring of a grid as specified by Condition 2.3(c) and (d):

i. Until a grid has been closed for three quarters (nine months), i.e., the grid will no longer receive waste and the final cover has been applied, this monitoring shall be conducted on at least a quarterly basis.

ii. Once a grid has been closed for nine months, if no exceedance of the limits has been measured in three consecutive quarters of monitoring, monitoring may be conducted on an annual basis. That is, monitoring shall be conducted for the grid at least once each year, with monitoring conducted no less than 8 months and no more than 16 months after the previous monitoring. Notwithstanding the above, in the event that an exceedance of a limit is measured during such annual monitoring, monitoring on a quarterly basis shall resume until the above criterion is again met.

iii. Upon written request by the Illinois EPA, the Permittee shall conduct monitoring within 45 days for grids or portions of grids in the affected facility, as specified in the request.

iv. When the gas collection system for a grid is capped or removed, as provided by the Landfill NSPS, 40 CFR

60.752(b)(v), monitoring for surface concentrations of methane is no longer required.

c. In addition to retaining data for methane concentrations measured during surface monitoring, the records for this monitoring shall include the following information for each day in which this monitoring is conducted:

i. Date of monitoring.

ii. Responsible individual(s).

iii. If regular monitoring, whether monitoring was conducted along the NSPS route or the enhanced route.

iv. If re-monitoring, the reason for monitoring (e.g., initial 10-day re-monitoring for a location) and a summary of the corrective actions that were taken prior to re-monitoring.

v. Confirmation that the monitoring instrument was properly calibrated prior to commencing monitoring.

vi. The measured background concentration of methane.

vii. The start and end times of travelling the monitoring route, with an estimate of the duration of any interruptions or breaks in the travel of the route.

viii. A diagram showing the grids or locations that were monitored, with the dates that monitoring was last conduced for these grids or locations; the location and extent of the open working face of the affected facility; and any other portions of the route for which monitoring was not conducted due to temporary dangerous conditions (e.g., construction activity) or because waste had not yet been deposited in the area, with brief description.

ix. A list of areas that were monitored that were not on the monitoring route, with reason for monitoring.

x. The amount of precipitation in the 12 hours preceding the start of monitoring and the average wind speed during monitoring as measured either by the National Weather Service at the Rockford Airport or by measurement instruments installed at the source.

xi. A summary of results with respect to the instantaneous limit.

xii. A summary of results with respect to the integrated limit.

2.7-2. Monitoring and Instrumentation Requirements for Equipment

a. For the affected facility, including the affected GCC System and the affected flare(s), the Permittee shall comply with all applicable monitoring requirements of the Landfill NSPS and Landfill NESHAP, including 40 CFR 60.755, 60.756 and 63.1960.

b. For the affected flare(s):

i. The Permittee shall install, maintain and operate instrumentation to continuously measure the amount of LFG burned, in scf/hour.

ii. In addition to the hourly data automatically recorded by this instrumentation, the Permittee shall compile and record data from this instrumentation for the total amount of LFG burned on a monthly basis (scf per month and running total of 12 months).

c. i. The Permittee shall install, operate and maintain a monitoring system to measure the H_2S content of the LFG that is burned in the affected flares, as follows:

A. This monitoring system shall be operated in accordance with good monitoring practices, including daily calibration and routine maintenance and repair, either in accordance with the manufacturer's recommended procedures or with other written procedures developed by the Permittee.

B. Measurements shall be conducted for at least four, uniformly-spaced 1-hour periods each day, with data automatically recorded as hourly averages.

C. Upon written request by the Illinois EPA, the Permittee shall within 90 days evaluate the performance of this monitoring system by either conducting at least five simultaneous measurements of the sulfur content of the gas by laboratory analysis or having the performance of the monitoring system evaluated using Performance Specification 7 in 40 CFR Part 60, Appendix B using either USEPA Method 11 or Method 15.

ii. The Permittee shall conduct evaluations to establish a correlation between the monitored H_2S content of LFG that is flared and the total sulfur content of this LFG, as follows:

A. An evaluation shall consist of collection of data for the total sulfur content of LFG as determined by sampling and analysis using standard methods and simultaneous data for the H_2S content of the LFG by

the monitoring system, with this data then used to develop a linear equation, as described in Attachment 2, to calculate the total sulfur content of the LFG from the monitored H2S content of the LFG. This data shall be collected for at least 10 separate days over a period of no more than 20 days.

B. The timing of these evaluations shall be as follows:

- The initial evaluation shall be completed within 180 days of the initial startup of the affected sulfur removal system.
- A follow-up evaluation shall be completed between 12 and 15 months of the initial evaluation.
- A new evaluation shall also be completed within 100 days of a written request from the Illinois EPA.

C. In conjunction with the initial and follow-up evaluations and if requested by the Illinois EPA for subsequent evaluation, the Permittee shall conduct sampling and analysis of the raw LFG gas entering the sulfur removal system for its total sulfur content using standard methods. This activity may be combined with the initial sampling and analysis of fuel gas required by Condition 2.10.

iii. For these evaluations, the Permittee shall submit an evaluation plan to the Illinois EPA at least 60 days in advance. Notification of the initial day of sampling shall be provided at least 30 days in advance. The Permittee shall also submit reports to the Illinois EPA for the completed evaluations within 60 days of the last day of sampling.

d. If collected LFG is treated to remove water or is filtered prior to being flared, the Permittee shall install, operate and maintain instrumentation to measure the temperature and pressure of the LFG following treatment. The data measured by this instrumentation shall either be automatically recorded on an hourly average basis or manually recorded at least daily.

e. If a portion of the collected LFG is not processed by the affected sulfur removal system, the Permittee shall install, operate and maintain instrumentation to measure the percentage or fraction of the LFG that is not processed. If the amount or fraction of the LFG that is not processed is automated, the data measured by this instrumentation shall be automatically recorded on an hourly average basis. Otherwise, the fraction shall either be automatically recorded on an hourly average

basis or be manually recorded at least daily and whenever the setting is changed.

2.8. Sampling and Analysis of Landfill Gas (LFG)

a. i. The Permittee shall conduct sampling and analysis of LFG from the affected facility for its composition as follows. This activity may be performed by the Permittee or by an independent entity. Advance notice or submittal of test plans is not required for this activity.

A. The LFG collected from the affected facility at the inlet to the affected sulfur removal system shall be sampled and analyzed for total sulfur content, as sulfur, its H_2S, reduced sulfur compounds (RSC) and total reduced sulfur (TRS), NMOC and HAP content.

B. The LFG burned in the affected flare(s) shall be sampled and analyzed for total sulfur content, as sulfur, its H_2S, reduced sulfur compounds (RSC), total reduced sulfur (TRS), methane and CO_2 content and for net heat content (Btu/scf).

ii. If USEPA Method 18 is used to analyze LFG for NMOC and HAP content, the minimum list of compounds for which analysis shall be conducted shall be the organic constituents of LFG listed in Table 2.4-1 of USEPA's *Compilation of Air Pollutant Emission Factors*, AP-42.

iii. This activity shall be conducted on the following schedule:

A. The initial sampling and analysis shall be conducted in conjunction with the initial observations for visible emissions from an affected flare required by Condition 2.6.

B> Thereafter, sampling and analysis shall be conducted at least annually until three years after the affected facility is closed, i.e., the facility last receives waste at which time sampling and analysis must be conducted at least every two years.

C. Sampling and analysis of LFG shall also be conducted within 45 days of a written request from the Illinois EPA for collected LFG or and constituents as specified in the request.

D. When the gas collection system for the affected facility is capped or removed, as provided for by the Landfill NSPS, 40 CFR 60.752(b)(v), sampling and analysis of LFG is no longer required.

iv. The Permittee shall keep records for this activity, including both measured data and supporting documentation for the sampling and analysis activities.

2.9-1. General Recordkeeping Requirements for the Affected Facility

a. For the affected facility and affected GCC System, the Permittee shall fulfill applicable recordkeeping requirements of the Landfill NSPS and Landfill NESHAP, including 40 CFR 60.757 and 63.1980.

b. For the affected facility, the Permittee shall keep annual records for:

i. The amounts of waste that have been deposited (tons/year and cumulative tons).

ii. The total area of the facility in which waste has been deposited (acres), with a break down by type of cover and LFG collection, e.g., final with wells, interim with horizontal collectors or none (percent).

c. The Permittee shall keep records of the following information related to the generation of LFG from the affected facility and the amount of LFG sent to the affected flare(s) (scf/month and scf/year), with supporting information and data:

i. The total amount of LFG generated by the affected facility, with supporting data and calculations.

ii. The total amount of LFG collected from the affected facility that is flared. (See also Condition 2.7-2(b)(i).)

d. The Permittee shall maintain records documenting implementation of the fugitive dust control program, including.

i. Records documenting implementation of dust control measures;

ii. Records of quarterly inspections pursuant to Condition 2.4(c).

iii. Records of incidents, when control measures were not carried out in accordance with the dust control plan, and incidents, when additional control measures were carried out with description of measures and explanation. These records shall address any adjustments to control measures made by the Permittee due to weather conditions that either acted to reduce or increase the level of potential dust, such as precipitation or extended periods of dry weather.

2.9-2. Recordkeeping Requirements for the Affected Sulfur Removal System

a. For the affected sulfur removal system, the Permittee shall keep a file containing the manufacturer's specifications for the maximum sulfur content, as H_2S, of processed LFG, and the manufacturer's recommended operating and maintenance procedures for the system.

b. The Permittee shall keep the following operating records for the affected sulfur removal system:

i. The total amount of LFG processed, on a daily basis.

ii. An operating log or other operating records for this system that, at a minimum, shall include the following:

A. The amount of LFG that must be processed by the system to comply with limit in Condition 2.5-2(a) with supporting analysis.

B. Status of the system, including recorded operating parameters of the system.

C. Adjustments of the settings for operating parameters.

D. Identification of any period when the system was not operated or operated improperly with a detailed explanation.

c. The Permittee shall keep the following records related to inspection/maintenance of the affected sulfur removal system:

i. Date of inspection and observed condition of the system.

ii. Date and description of maintenance performed including each time when the sulfur removal media is replaced or supplemented.

d. The Permittee shall keep records, based on the monitoring required by Condition 2.7-2(c), for the total sulfur content of LFG sent to the affected flares, as sulfur, in ppm and pounds, on an hourly basis, with supporting data and calculations.

2.9-3. Recordkeeping Requirements for the Affected Flare(s)

a. The Permittee shall a file for each affected flare that contains the design specifications for the flare including design capacity, scfm, and a demonstration that the flare complies with applicable operating requirements of 40 CFR 60.18 and 60.754(e).

b. The Permittee shall maintain an operating log or other records for the operation of each affected flare that, at a minimum, shall include the following:

i. Status of the flare.

ii. Adjustments of flare's operating parameters.

iii. Identification of any period when the flare was to be in service but was out of service with a detailed explanation of the cause and an explanation of actions taken to prevent or reduce the likelihood of similar occurrences in the future.

iv. The amount of LFG burned on a daily basis (scf).

c. The Permittee shall maintain an inspection/maintenance log or other records for each affected flare that, at a minimum, shall include the following:

i. Date of inspection and observed condition of the flare.

ii. Date and description of maintenance performed.

d. The Permittee shall maintain the following records for the affected flares related to the emission of NO_x, CO, SO_2, PM, PM_{10}, $PM_{2.5}$, VOM, MSWE, H_2S, RSC, TRS, individual HAP and total HAPs from the flares:

i. A file containing:

A. The factors or emission rates used by the Permittee to calculate actual emissions of pollutants other than SO_2, with supporting documentation and calculations.

B. A demonstration that the maximum hourly emission rates of each pollutants other than SO_2 will not exceed the applicable hourly emission limit in Condition 1.6(a).

ii. Records of actual emissions for each pollutant (tons/month and tons/year), with supporting calculations.

2.9-4. Recordkeeping Requirements for HAP Emissions

a. The Permittee shall keep the following records related to the emissions of individual HAPs and total HAPs from the affected facility associated with LFG that is not collected:

i. A file containing the current factors used by the Permittee to calculate emissions of individual HAPs and total HAPs, with supporting documentation, including

detailed supporting documentation and explanation if the factors are not based on the analyses for the composition of LFG required by Condition 2.8(a) for LFG collected from the affected facility or the factors rely upon reductions in emissions due to cover material.

ii. Records for actual emissions (tons/month and tons/year), with supporting calculations.

b. The Permittee shall keep the records of the total emissions of HAPs from the affected facility, considering both LFG that is not collected and LFG that is flared, based on the above records and the records required by Conditions 2.9-3(d), (tons/month and tons/year).

2.10. Notification and Reporting Requirements

a. For the affected facility, the Permittee shall fulfill the applicable notification and reporting requirements of the Landfill NSPS and NESHAP, including 40 CFR 60.758 and 63.1980.

b. If exceedances of a limit or standard for surface methane is measured three times in a quarterly period, as addressed by Condition 2.3(c)(iv) or (d)(iv) or 40 CFR 60.755(c)(4)(v), the Permittee shall notify the Illinois EPA. This notification shall include data for each of the three measured exceedances of the limits(s) or standard and a summary of the Permittee's preliminary plans for further corrective action. This notification shall be submitted within 15 days of monitoring the third exceedance(s).

c. The Permittee shall notify the Illinois EPA within 10 days of the following events:

i. When installation of the second affected flare is commenced, with the anticipated date for initial startup.

ii. When an affected flare is permanently removed from service, which notification shall include a demonstration that the remaining flare is sufficient to control the LFG from the affected facility as needed to comply with this permit.

Part 3: Conditions for the Emergency Engine

3.1 Introduction

The emergency engine (the "affected engine") is a diesel fuel-fired engine that will power an electrical generator. This generator will be available to provide emergency power to the affected GCC System for the affected facility during electrical power outages.

3.2 Applicable Emission Standards

The affected engine is subject to the federal New Source Performance Standard (NSPS) for Stationary Compression Ignition Internal Combustion Engines, 40 CFR 60 Subpart IIII (the Engine NSPS) and applicable requirements of the General Provisions of the NSPS, 40 CFR 60 Subpart A. In particular, the affected engines shall be a model of engine that has been certified to comply with the applicable emission standards of the Engine NSPS, 40 CFR 60.4202.

3.3 Non-applicability Provisions

Pursuant to 40 CFR 63.6590(c) and (c)(1), as a new engine at an area source for emissions of HAPs, the affected engine must meet the requirements of the NESHAP for Stationary Reciprocating Combustion Engines, 40 CFR Subpart ZZZZ (the Engine NESHAP) by meeting the applicable requirements of the Engine NSPS and no further requirements apply to the affected engine under the Engine NESHAP.

3.4. Operational Limits

a. The affected engine shall not operate for more than 500 hours/year.

b. i. Only diesel fuel that meets the requirements of 40 CFR 80.510(b) for non-road diesel fuel shall be used in the affected engine, pursuant to 40 CFR 60.4207(b).

ii. The affected engine shall be operated to qualify as "emergency engines" as provided by 40 CFR 60.4211(f).

iii. For the affected engine, the Permittee shall comply with the applicable Compliance Requirements of the Engine NSPS, including 40 CFR 60.4211.

3.5-1 Opacity Observations

a. Upon written request from the Illinois EPA, the Permittee shall conduct observations by Method 9 for the opacity of the emissions of the affected engine. The Permittee may schedule these observations to take place during a normal exercise of the engine.

3.5-2 Emission Testing

a. For the affected engine, if emission testing is required pursuant to the Engine NSPS (for example, if the engine, although certified, the engine is not operated and maintained in accordance with the manufacturer's emissions-related written instructions), the Permittee shall comply with the applicable testing requirements of the NSPS, 40 CFR 60.8 and 60.4243(b)(2)(ii).

b. Within 90 days of a written request from the Illinois EPA, or such later date agreed upon by the Illinois EPA, the Permittee shall have performance tests conducted for the affected engine for emissions of NO_x, CO, SO_2 or VOM, as specified in the request, by a qualified independent testing service during engine operating conditions that are representative of maximum emissions.

3.6 Operational Monitoring

For the affected engine, the Permittee shall install and operate non-resettable hour meters, pursuant to 40 CFR 60.4209(a).

3.7 Recordkeeping

a. For the affected engine, the Permittee shall maintain a file containing a copy of the design specifications for the engine provided by the manufacturer, including rated capacity (kW) and emission rates (lbs/hour and lbs/hp-hour), and a copy of the certification from the manufacturer that the engine complies with applicable emission limitations of the Engine NSPS, 40 CFR 60 Subpart IIII.

b. For the affected engine, the Permittee shall comply with applicable recordkeeping requirements of the Engine NSPS, including 40 CFR 60.4214.

c. The Permittee shall maintain the following records related to the operation and maintenance of the affected engine:

i. An operating log that, at a minimum, includes the following:

A. Identification of each period when the engine is operated, with reason.

B. Adjustments of the engine’s operating parameters.

ii. An inspection/maintenance log, which shall include the following:

A. Date of inspection and observed condition of the engine.

B. Date and description of maintenance performed.

iv. Records for the hours of operation (hours/month and hours/year).

v. Records for the fuel usage of the engine (gallons/month and gallons/year).

c. The Permittee shall maintain the following records related to the emissions of NO_x, CO, SO_2, PM, PM_{10}, VOM, individual HAP and total HAPs the affected engine:

i. The factors or emission rates used by the Permittee to calculate actual emissions, with supporting documentation and calculations.

ii. A demonstration that the maximum hourly emission rates of each pollutant will not exceed the applicable hourly emission limit in Condition 1.6(a).

iii. Records of actual emissions for each pollutant (tons/month and tons/year), with supporting calculations.

3.8. Reporting and Notification Requirements

a. For the affected engine, the Permittee shall comply with applicable notification and reporting requirements of the Engine NSPS, 40 CFR 60.7 and 60.4214.

If you have any questions regarding this permit, please contact Kunj Patel or Christopher Romaine at 217/785-1705.

Raymond E. Pilapil
Acting Manager, Permit Section
Division of Air Pollution Control

Date Signed: _____

REP:CPR:KMP:psj

cc: Region 2

ATTACHMENT 1:

Monitoring Procedures for Surface Methane at the Affected Facility

Introduction

The following procedures shall be used for determining compliance with the surface methane operational limits set for the affected facility in Condition 2.3(b). These procedures build upon the monitoring procedures of the Landfill NSPS for surface methane concentration (40 CFR 60.755(c)), which procedures are still applicable for monitoring for purposes of the surface methane standard in the Landfill NSPS, 40 CFR 60.753(d).1

Monitoring Instrument and Equipment

The instrument for measuring methane concentrations shall be an organic vapor analyzer, flame ionization detector or other portable monitor meeting the specifications in 40 CFR 60.755(d), consistent with requirements of the Landfill NSPS.

The combination of the monitoring instrument and other equipment used for the monitoring shall have the necessary features to enable compliance with both the instantaneous and integrated limits for methane concentration to be determined, including:

- An alarm that identifies measured concentrations that are in excess of the instantaneous limit.
- A geographical positioning device that identifies the location of the monitoring instrument or the individual conducting the monitoring and directs this individual along the predetermined path for conducting surface monitoring.
- One or more of the following to enable measured concentrations of methane along the monitoring path to be recorded on a regular interval either in terms of time or distance: 1) An automatic recording device or data logger that records the concentrations on a frequency of at least once every 10 seconds; 2) A data logger that records the concentration at least once every 25 feet; or 3) An automated device that identifies points at least every 50 feet along the monitoring path so that the concentrations at these points can be manually recorded.

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[1] For further background and guidance on monitoring procedures, refer to Appendix D, "Example Procedure for Conducting Integrated and instantaneous Surface Monitoring Simultaneously" in *Implementation Guidance Document for the Regulation to Reduce Methane Emissions from Municipal Solid Waste Landfills*, California Environmental protection Agency, Air Resources Board, February 2014.

- The ability to enter data or to otherwise identify locations at which monitoring was conducted that are not on the established path or route, to address areas where signs, such as distressed vegetation and cracks or seeps in the cover or odors, indicated the potential for higher levels of methane, with explanation.

Monitoring Plan

For the affected facility, surface monitoring shall be conducted in accordance with a monitoring plan that is maintained by the Permittee. This monitoring plan shall divide the surface of the affected facility into discrete, individually identified grids, each between 45,000 and 55,000 square feet in area. The plan shall also identify the grids in which waste will have been deposited during different stages in the active life of the affected facility.

This monitoring plan shall also include the path or route for routine surface monitoring that is prepared pursuant to the surface monitoring design plan required by the Landfill NSPS, 40 CFR 60.753(d). This route shall include the perimeter of the portion of the affected facility in which waste has been deposited and a pattern that traverses back and forth across this portion of the affected facility with the route generally being separated by no more than 30 meters. For this purpose, it is expected that this route will be designed to provide for monitoring at gas collection wells and other penetrations in the cover on the affected facility. The route shall not traverse areas of the affected facility with steep slopes or other dangerous areas, for which "excluded areas" monitoring is not required. The plan shall include topographical maps with the NSPS monitoring route for the affected facility at different stages in its active life and the rationale for locations in which the route for NSPS monitoring departs from 30 meter separation, other than around the open working face of the affected facility.

The monitoring plan shall also include an enhanced route for routine surface monitoring pursuant to Condition 2.7-1(b). This route shall be prepared as above and generally cover the same route. However, it shall include additional traverses across the surfaces of the affected facility so that the enhanced route is generally separated by no more than 15 meters.

For the purposes of the integrated surface limit under Condition 2.3(b)(ii), these routes shall traverse each grid. For a grid with an irregular shape and/or terrain, the routes shall be designed to provide complete safe coverage of the grid. If a grid has excluded area, which also includes areas that are paved, the route shall be chosen to be representative of the remaining area and the length of the route shall be prorated to the fraction of the grid for which monitoring is conducted.

As an alternative to including information in an initial monitoring plan that addresses the expected changes during the active life of the affected facility to the monitoring route and the grids for which monitoring is conducted, revised plans may be prepared that include this information.

General Procedures for Monitoring

The background concentration of methane shall be determined by moving the inlet probe of the monitoring instrument upwind and downwind outside the boundary of the affected facility at a distance of at least 30 meters from any perimeter wells.

Surface monitoring shall be performed in accordance with Section 4.3.1 of USEPA Method 21, except that the probe inlet shall be placed within 5 to 10 centimeters of the ground. The average walking pace shall be no more than 1.5 miles per hour.

Monitoring shall not be conducted within 12 hours following watering of vegetation or measureable precipitation or during high winds. Monitoring shall otherwise be conducted typical meteorological conditions.

Grass or other vegetation along the monitoring route shall be mowed or trimmed as may be necessary for conducting monitoring, so that the probe inlet may be readily kept within 10 centimeters of the ground.

Procedures for Measuring Instantaneous Methane Concentrations

Except for the active working face of the affected facility and other areas along the monitoring path where conditions are such that it would be unsafe to conduct monitoring, monitoring shall be conducted along the established monitoring route for the portion of the affected facility in which waste has been deposited, as set out in the monitoring plan. If not otherwise included in this route, monitoring must also be conducted for penetrations of the cover material, for areas with signs of LFG emissions, such as distressed vegetation, cracks, seeps or odors, and for cracks in pavement.

Any instantaneous surface reading that is more than 300 ppm above background, other than non-repeatable momentary readings, shall be recorded. Any instantaneous surface reading that is more than 500 ppm above background shall be flagged as exceeding the standard for surface methane in the NSPS, 40 CFR 60.753(d).

Locations of areas that exceed the limit for instantaneous methane concentration shall be physically marked or flagged and the location recorded so that appropriate corrective actions may be taken and further monitoring conducted. The marking or flag shall not be removed until all necessary corrective actions and any required “re-monitoring” has been completed for the locations.

Procedures for Measuring Integrated Methane Concentrations

The average methane concentration for the grid shall be calculated by averaging the set of individual measurements of methane concentration along the expanded monitoring route collected for each grid.

Individual grids in which the average methane concentration exceeds 50 ppm limit shall be highlighted in the records for monitoring so that appropriate

corrective actions may be taken and further re-monitoring conducted for the grid.

Records

In addition to other required records for monitoring of surface methane, the records shall be kept:

- Copies of the instructions and recommended operation and maintenance procedures for the equipment used for monitoring.

- Records for instrument(s) used to monitoring documenting that the specification in 40 CFR 60.755(d) are met.

ATTACHMENT 2:

Form of the Correlation Between the H_2S And Total Sulfur Content of LFG

Case 1: All Collected LFG Is Processed by the Sulfur Removal System

If all collected LFG is processed by the sulfur removal system before being flared, the form of the equation that provides the correlation between the monitored H_2S content of the LFG that is flared and the total sulfur content of the flared LFG shall be as follows:

$S_t = S_h + C$, or

$S_t = S_h + C + C_1 S_h$, if the sulfur removal system serves to remove a statistically significant portion of sulfur compounds other than H_2S from the fuel gas

Where,

S_t is the total sulfur content of the gas, ppm.

S_h is the H_2S content of the gas, ppm.

C is a constant that accounts for sulfur compounds in the collected LFG other than H_2S that are not controlled by the sulfur removal system.

C_1 is a constant, in ppm, that accounts for incidental control of sulfur compounds in the LFG other than H_2S by the sulfur removal system

Case 2: A Portion of the Collected LFG Is Not Processed by the Sulfur Removal System

If a portion of the collected LFG is not processed by the sulfur removal system, the form of the equation that provides the correlation between the H_2S content of the LFG that is flared and the total sulfur content of flared LFG shall be as follows:

$S_t = S_h + C$, or

$S_t = S_h + C + C_1 S_h F_p$, if the sulfur removal system serves to remove a statistically significant portion of sulfur compounds other than H_2S from the fuel gas

Where,

S_t, S_h, C and C_1 are as defined above.

F_p is the fraction of the collected LFG that is processed by the sulfur removal system