EXHIBIT E
Part 2

EXHIBIT E
Part 2

SECTION 4

STREAMLINING PROPOSAL

ENGINE STREAMLINE DEMONSTRATIONS

System 11
S2.011 Caterpillar IC Engine, Model G3520C, Serial TBD

** Refuse, Inc. – Lockwood Landfill ** - Comparison of Applicable Requirements

System #11 – Caterpillar IC Engine S2.011

	New Source Performance Standards (NSPS), 40 CFR Part 60 Revised as of July 1, 1996	Nevada Administrative Code (NAC) 445B.001 - 445B.395 Revised as of January, 1997	Nevada Administrative Code (NAC) 445B.001 - 445B.395 (Title V Full Approval - November 30, 2001)	State Implementation Plan (SIP) Articles 1 - Article 14 Revised as of August 1981	Draft Operating Permit Requirements
Air Pollution Control Technology	**. 60.40c Applicability and delegation of authority.** FR Update 5/08/96 (a) Except as provided in paragraph (d) of this section, the affected facility to which this subpart applies is each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million Btu per hour (Btu/hr)) or less, but greater than or equal to 2.9 MW (10 million Btu/hr). *RI has determined that this engine will be constructed after June 9, 1989; therefore RI will comply with the provisions of 60.40.*	No Specific Requirements.	No Specific Requirements.	No Specific Requirements.	No Specific Requirements Streamlined.
Emission Limitations	Not Applicable	**445B.362 Fuel-burning equipment** 1. No person may cause or permit the emission of PM_{10} resulting from the combustion of fuel in fuel-burning equipment in excess of the quantity set forth in the following formulas: (b) For input of heat greater than 10 million Btu's per hour, but less than or equal to 4,000 million Btu's per hour, the allowable emissions must be calculated using the following equation: $Y = 1.02X^{0.231}$ 2. For the purposes of paragraphs (b) and (c) of subsection 1: (a) "X" means the operating rate in million Btu's per hour.	**445B.362 Fuel-burning equipment** This section of the NAC is not part of the Title V Operating Permit Program regulations utilized by USEPA for program approval.	**Article 7.1 Fuel Burning Equipment** Article 7.1.1.1 For heat inputs greater than 10 but less than 4,000 million Btu's per hour the allowable emissions shall be calculated by using the following equation: $Y = 1.02X^{0.231}$ *(Resultant PM Maximum Emissions Allowable: Y = 0.52 pounds per million Btu's, or 9.27 pounds per hour, based on the maximum input heat rate value of 17.82 MMBtu/hr, i.e. the proposed permitted limit is more stringent than the emissions allowed by the NAC.)*	**VI.A.2. Emission Limits** **a. The discharge of PM (particulate matter) to the atmosphere will not exceed 0.49 pound per hour, nor more than 2.16 tons per year.** **b. The discharge of PM_{10} (particulate matter less than 10 microns in diameter) to the atmosphere will not exceed 0.49 pound per hour, nor more than 2.16 tons per year.**

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** Refuse, Inc. – Lockwood Landfill ** - Comparison of Applicable Requirements

System #11 – Caterpillar IC Engine S2.011

	New Source Performance Standards (NSPS), 40 CFR Part 60 Revised as of July 1, 1996	Nevada Administrative Code (NAC) 445B.001 - 445B.395 Revised as of January, 1997	Nevada Administrative Code (NAC) 445B.001 - 445B.395 (Title V Full Approval - November 30, 2001)	State Implementation Plan (SIP) Articles 1 - Article 14 Revised as of August 1981	Draft Operating Permit Requirements
		(b) "Y" means the allowable rate of emission in pounds per million Btu's. *(Resultant PM_{10} Maximum Emissions Allowable:* *Y = 0.52 pounds per million Btu's, or 9.27 pounds per hour, based on the maximum input heat rate value of 17.82 MMBtu/hr, i.e. the proposed permitted limit is more stringent than the emissions allowed by the NAC.)*			
Emission Limitations (Continued)	Not Applicable	**445B.373 Fuel-burning equipment** 1. No person may cause or permit the emission of compounds of sulfur caused by the combustion of fuel in fuel-burning equipment in excess of the quantity set forth in the following formulas in subsection 2 or 3: 2. Where an emission unit has a total input of heat of less than 250 million Btu's per hour the allowable emission must be calculated by the use of the following equation: Y = 0.7X For the purposes of this subsection: (a) "X" means the operating input of heat in millions of Btu's per hour (b) "Y" means the allowable rate of emission of sulfur in pounds per hour. (Resultant Sulfur Maximum Emissions Allowable: Y = 12.47 pounds per hour *based on the maximum input heat rate value of 17.82 MMBtu/hr.* *This unit is being limited to a maximum fuel sulfur content of 0.05% and an emission limit of 2.93 pound per hour. Therefore, the resulting permitted maximum emissions allowable is well below the*	**445B.373 Fuel-burning equipment** This section of the NAC is not part of the Title V Operating Permit Program regulations utilized by USEPA for program approval.	**Article 8 - Sulfur Emissions** No person shall cause, suffer, allow or permit the emission of sulfur compounds caused by the combustion of fuel in excess of the quantity set forth in the following table: Article 8.2.1.1 Where a source located on contiguous property has a total heat input of less than 63 million kg-cal (250 million Btu's) per hour the allowable emission shall be calculated by the use of the following equation: Y = 0.7X X = Operating input in millions of kg-cal (Btu's) per hour. Y = Allowable rate of sulfur emissions in kg (pounds) per hour. (Resultant Sulfur Maximum Emissions Allowable: Y = 12.47 pounds per hour *based on the maximum input heat rate value of 17.82 MMBtu/hr.* *This unit is being limited to a maximum fuel sulfur content of 0.05% and an emission limit of 2.93 pound per hour. Therefore, the resulting permitted maximum emissions allowable is well below the*	**VI.A.2. Emission Limits** c. The discharge of sulfur to the atmosphere will not exceed 2.93 pound per hour, nor more than 12.85 tons per year. **VI.A.3. Operating Parameters** c. The maximum sulfur content of the #2 diesel fuel will not exceed 0.05 weight percent sulfur.

** Refuse, Inc. – Lockwood Landfill ** - Comparison of Applicable Requirements

System #11 – Caterpillar IC Engine S2.011

	New Source Performance Standards (NSPS), 40 CFR Part 60 Revised as of July 1, 1996	Nevada Administrative Code (NAC) 445B.001 - 445B.395 Revised as of January, 1997	Nevada Administrative Code (NAC) 445B.001 - 445B.395 (Title V Full Approval - November 30, 2001)	State Implementation Plan (SIP) Articles 1 - Article 14 Revised as of August 1981	Draft Operating Permit Requirements
		maximum allowed from this formula, i.e. the proposed permitted limit is more stringent than the emissions allowed by the NAC.)		*maximum allowed from this formula, i.e. the proposed permitted limit is more stringent than the emissions allowed by the NAC.)*	
Emission Limitations (Continued)	Not Applicable	**445B.354 Maximum opacity of emissions** 1. Unless otherwise provided in NAC 445B.354 to 445B.357, inclusive, no owner or operator may cause or permit the discharge into the atmosphere from any stationary source of any regulated air pollutant for a period or periods aggregating more than 3 minutes in any 1 hour which is of an opacity equal to or greater than 20 percent.	**445B.354 Maximum opacity of emissions** This section of the NAC is not part of the Title V Operating Permit Program regulations utilized by USEPA for program approval.	**Article 4 -Visible Emissions From Stationary Sources** Article 4.1-Unless otherwise provided herein, no person shall cause, suffer, allow, or permit the discharge into the atmosphere, from any stationary source, any air contaminant for a period or periods aggregating more than three minutes in any one hour which is of an opacity equal to or greater than 20 percent.	**VI.A.2. Emission Limits** i. The opacity from the S2.011 stack discharge will not equal or exceed 20% for a period or periods aggregating more than 3 minutes in any one-hour period.
Operating Parameters	Not Applicable	No Specific Requirements.	No Specific Requirements.	No Specific Requirements.	No Specific Requirements Streamlined.
Work Practice Standard(s)	Not Applicable	No Specific Requirements.	No Specific Requirements.	No Specific Requirements.	No Specific Requirements Streamlined.
Testing and Sampling	Not Applicable	No Specific Requirements.	No Specific Requirements.	No Specific Requirements.	No Specific Requirements Streamlined.
Monitoring	PART 60 STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES SUBPART A General Provisions	No Specific Requirements.	No Specific Requirements.	No Specific Requirements.	No Specific Requirements Streamlined.
Recordkeeping Reporting	See Monitoring Above. See Monitoring above.	No Specific Requirements. No Specific Requirements.	No Specific Requirements. No Specific Requirements.	No Specific Requirements. No Specific Requirements.	No Specific Requirements Streamlined. No Specific Requirements Streamlined.
Summary of Shielded Requirements	None.	**445B.362 Fuel-burning equipment** **445B.373 Fuel-burning equipment** **445B.354 Maximum opacity of emissions**	**445B.362 Fuel-burning equipment** **445B.373 Fuel-burning equipment** **445B.354 Maximum opacity of emissions**	**Article 7.1.1.1** **Article 8.2.1.1** **Article 4.1 -Visible Emissions From Stationary Sources**	5. Shielded Requirements Compliance with conditions A.1. through A.4. of this section shall be deemed to be compliance with the applicable requirements specified below, as of the issuance date of this

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** Refuse, Inc. – Lockwood Landfill ** - Comparison of Applicable Requirements

System #11 – Caterpillar IC Engine S2.011

	New Source Performance Standards (NSPS), 40 CFR Part 60 Revised as of July 1, 1996	Nevada Administrative Code (NAC) 445B.001 - 445B.395 Revised as of January, 1997	Nevada Administrative Code (NAC) 445B.001 - 445B.395 (Title V Full Approval - November 30, 2001)	State Implementation Plan (SIP) Articles 1 - Article 14 Revised as of August 1981	Draft Operating Permit Requirements
					operating permit. Permit Requirements (AP9711-0117, issuance date 6/23/95) - Section III.B.2. Emission Limits, a. through f. NAC Requirements (Version dated 1/97) - 445B.362 (Fuel-burning equipment); 445B.373 (Fuel-burning equipment); 445B.354.1 (Maximum opacity of emissions) Applicable SIP Requirements (Version dated 1981) - Article 7.1.1.1 (Fuel Burning Equipment); Article 8.2.1.1 (Sulfur Emissions); Article 4.1 - (Visible Emissions From Stationary Sources)

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ENGINE STREAMLINE DEMONSTRATIONS

System 12

S2.012 Caterpillar IC Engine, Model G3520C, Serial TBD

** Refuse, Inc. – Lockwood Landfill ** - Comparison of Applicable Requirements

System #12 – Caterpillar IC Engine S2.012

	New Source Performance Standards (NSPS), 40 CFR Part 60 Revised as of July 1, 1996	Nevada Administrative Code (NAC) 445B.001 - 445B.395 Revised as of January, 1997	Nevada Administrative Code (NAC) 445B.001 - 445B.395 (Title V Full Approval - November 30, 2001)	State Implementation Plan (SIP) Articles 1 - Article 14 Revised as of August 1981	Draft Operating Permit Requirements
Air Pollution Control Technology	**60.40c Applicability and delegation of authority.** FR Update 5/08/96 (a) Except as provided in paragraph (d) of this section, the affected facility to which this subpart applies is each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million Btu per hour (Btu/hr)) or less, but greater than or equal to 2.9 MW (10 million Btu/hr). *RI has determined that this engine will be constructed after June 9, 1989; therefore RI will comply with the provisions of 60.40.*	No Specific Requirements.	No Specific Requirements.	No Specific Requirements.	No Specific Requirements Streamlined.
Emission Limitations	Not Applicable	**445B.362 Fuel-burning equipment** 1. No person may cause or permit the emission of PM_{10} resulting from the combustion of fuel in fuel-burning equipment in excess of the quantity set forth in the following formulas: (b) For input of heat greater than 10 million Btu's per hour, but less than or equal to 4,000 million Btu's per hour, the allowable emissions must be calculated using the following equation: $Y = 1.02X^{-0.231}$ 2. For the purposes of paragraphs (b) and (c) of subsection 1: (a) "X" means the operating rate in million Btu's per hour.	**445B.362 Fuel-burning equipment** This section of the NAC is not part of the Title V Operating Permit Program regulations utilized by USEPA for program approval.	**Article 7.1 Fuel Burning Equipment** Article 7.1.1.1 For heat inputs greater than 10 but less than 4,000 million Btu's per hour the allowable emissions shall be calculated by using the following equation: $Y = 1.02X^{-0.231}$ *(Resultant PM Maximum Emissions Allowable: Y = 0.52 pounds per million Btu's, or 9.27 pounds per hour, based on the maximum input heat rate value of 17.82 MMBtu/hr, i.e. the proposed permitted limit is more stringent than the emissions allowed by the NAC.)*	**VI.A.2. Emission Limits** a. The discharge of PM (particulate matter) to the atmosphere will not exceed 0.49 pound per hour, nor more than 2.16 tons per year. b. The discharge of PM_{10} (particulate matter less than 10 microns in diameter) to the atmosphere will not exceed 0.49 pound per hour, nor more than 2.16 tons per year.

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** Refuse, Inc. – Lockwood Landfill ** - Comparison of Applicable Requirements					
System #12 – Caterpillar IC Engine S2.012					
	New Source Performance Standards (NSPS), 40 CFR Part 60 Revised as of July 1, 1996	Nevada Administrative Code (NAC) 445B.001 - 445B.395 Revised as of January, 1997	Nevada Administrative Code (NAC) 445B.001 - 445B.395 (Title V Full Approval - November 30, 2001)	State Implementation Plan (SIP) Articles 1 - Article 14 Revised as of August 1981	Draft Operating Permit Requirements
		(b) "Y" means the allowable rate of emission in pounds per million Btu's. *(Resultant PM_{10} Maximum Emissions Allowable:* *Y = 0.52 pounds per million Btu's, or 9.27 pounds per hour, based on the maximum input heat rate value of 17.82 MMBtu/hr, i.e. the proposed permitted limit is more stringent than the emissions allowed by the NAC.)*			
Emission Limitations (Continued)	Not Applicable	**445B.373 Fuel-burning equipment** 1. No person may cause or permit the emission of compounds of sulfur caused by the combustion of fuel in fuel-burning equipment in excess of the quantity set forth in the following formulas in subsection 2 or 3: 2. Where an emission unit has a total input of heat of less than 250 million Btu's per hour the allowable emission must be calculated by the use of the following equation: Y = 0.7X For the purposes of this subsection: (a) "X" means the operating input of heat in millions of Btu's per hour (b) "Y" means the allowable rate of emission of sulfur in pounds per hour. (Resultant Sulfur Maximum Emissions Allowable: Y = 12.47 pounds per hour *based on the maximum input heat rate value of 17.82 MMBtu/hr.* *This unit is being limited to a maximum fuel sulfur content of 0.05% and an emission limit of 2.93 pound per hour. Therefore, the resulting permitted maximum emissions allowable is well below the*	**445B.373 Fuel-burning equipment** This section of the NAC is not part of the Title V Operating Permit Program regulations utilized by USEPA for program approval.	**Article 8 - Sulfur Emissions** No person shall cause, suffer, allow or permit the emission of sulfur compounds caused by the combustion of fuel in excess of the quantity set forth in the following table: Article 8.2.1.1 Where a source located on contiguous property has a total heat input of less than 63 million kg-cal (250 million Btu's) per hour the allowable emission shall be calculated by the use of the following equation: Y = 0.7X X = Operating input in millions of kg-cal (Btu's) per hour. Y = Allowable rate of sulfur emissions in kg (pounds) per hour. (Resultant Sulfur Maximum Emissions Allowable: Y = 12.47 pounds per hour *based on the maximum input heat rate value of 17.82 MMBtu/hr.* *This unit is being limited to a maximum fuel sulfur content of 0.05% and an emission limit of 2.93 pound per hour. Therefore, the resulting permitted maximum emissions allowable is well below the*	**VI.A.2. Emission Limits** c. The discharge of sulfur to the atmosphere will not exceed 2.93 pound per hour, nor more than 12.85 tons per year. **VI.A.3. Operating Parameters** c. The maximum sulfur content of the #2 diesel fuel will not exceed 0.05 weight percent sulfur.

** Refuse, Inc. – Lockwood Landfill ** - Comparison of Applicable Requirements

System #12 – Caterpillar IC Engine S2.012

	New Source Performance Standards (NSPS), 40 CFR Part 60 Revised as of July 1, 1996	Nevada Administrative Code (NAC) 445B.001 - 445B.395 Revised as of January, 1997	Nevada Administrative Code (NAC) 445B.001 - 445B.395 (Title V Full Approval - November 30, 2001)	State Implementation Plan (SIP) Articles 1 - Article 14 Revised as of August 1981	Draft Operating Permit Requirements
		maximum allowed from this formula, i.e. the proposed permitted limit is more stringent than the emissions allowed by the NAC.)		*maximum allowed from this formula, i.e. the proposed permitted limit is more stringent than the emissions allowed by the NAC.)*	
Emission Limitations (Continued)	Not Applicable	**445B.354 Maximum opacity of emissions** 1. Unless otherwise provided in NAC 445B.354 to 445B.357, inclusive, no owner or operator may cause or permit the discharge into the atmosphere from any stationary source of any regulated air pollutant for a period or periods aggregating more than 3 minutes in any 1 hour which is of an opacity equal to or greater than 20 percent.	**445B.354 Maximum opacity of emissions** This section of the NAC is not part of the Title V Operating Permit Program regulations utilized by USEPA for program approval.	**Article 4 -Visible Emissions From Stationary Sources** Article 4.1-Unless otherwise provided herein, no person shall cause, suffer, allow, or permit the discharge into the atmosphere, from any stationary source, any air contaminant for a period or periods aggregating more than three minutes in any one hour which is of an opacity equal to or greater than 20 percent.	**VI.A.2. Emission Limits** i. The opacity from the S2.011 stack discharge will not equal or exceed 20% for a period or periods aggregating more than 3 minutes in any one-hour period.
Operating Parameters	Not Applicable	No Specific Requirements.	No Specific Requirements.	No Specific Requirements.	No Specific Requirements Streamlined.
Work Practice Standard(s)	Not Applicable	No Specific Requirements.	No Specific Requirements.	No Specific Requirements.	No Specific Requirements Streamlined.
Testing and Sampling	Not Applicable	No Specific Requirements.	No Specific Requirements.	No Specific Requirements.	No Specific Requirements Streamlined.
Monitoring	PART 60 STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES SUBPART A General Provisions	No Specific Requirements.	No Specific Requirements.	No Specific Requirements.	No Specific Requirements Streamlined.
Recordkeeping	See Monitoring Above.	No Specific Requirements.	No Specific Requirements.	No Specific Requirements.	No Specific Requirements Streamlined.
Reporting	See Monitoring above.	No Specific Requirements.	No Specific Requirements.	No Specific Requirements.	No Specific Requirements Streamlined.
Summary of Shielded Requirements	None.	**445B.362 Fuel-burning equipment** **445B.373 Fuel-burning equipment** **445B.354 Maximum opacity of emissions**	**445B.362 Fuel-burning equipment** **445B.373 Fuel-burning equipment** **445B.354 Maximum opacity of emissions**	**Article 7.1.1.1** **Article 8.2.1.1** **Article 4.1 -Visible Emissions From Stationary Sources**	5. Shielded Requirements Compliance with conditions A.1. through A.4. of this section shall be deemed to be compliance with the applicable requirements specified below, as of the issuance date of this

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** Refuse, Inc. – Lockwood Landfill ** - Comparison of Applicable Requirements

System #12 – Caterpillar IC Engine S2.012

	New Source Performance Standards (NSPS), 40 CFR Part 60 Revised as of July 1, 1996	Nevada Administrative Code (NAC) 445B.001 - 445B.395 Revised as of January, 1997	Nevada Administrative Code (NAC) 445B.001 - 445B.395 (Title V Full Approval - November 30, 2001)	State Implementation Plan (SIP) Articles 1 - Article 14 Revised as of August 1981	Draft Operating Permit Requirements
					operating permit. Permit Requirements (AP9711-0117, issuance date 6/23/95) - Section III.B.2. Emission Limits, a. through f. NAC Requirements (Version dated 1/97) - 445B.362 (Fuel-burning equipment); 445B.373 (Fuel-burning equipment); 445B.354.1 (Maximum opacity of emissions) Applicable SIP Requirements (Version dated 1981) - Article 7.1.1.1 (Fuel Burning Equipment); Article 8.2.1.1 (Sulfur Emissions); Article 4.1 - (Visible Emissions From Stationary Sources)

ENGINE STREAMLINE DEMONSTRATIONS

System 13
S2.013 Caterpillar IC Engine, Model G3520C, Serial TBD

** Refuse, Inc. – Lockwood Landfill ** - Comparison of Applicable Requirements

System #13 – Caterpillar IC Engine S2.013

	New Source Performance Standards (NSPS), 40 CFR Part 60 Revised as of July 1, 1996	Nevada Administrative Code (NAC) 445B.001 - 445B.395 Revised as of January, 1997	Nevada Administrative Code (NAC) 445B.001 - 445B.395 (Title V Full Approval - November 30, 2001)	State Implementation Plan (SIP) Articles 1 - Article 14 Revised as of August 1981	Draft Operating Permit Requirements
Air Pollution Control Technology	**60.40c Applicability and delegation of authority.** FR Update 5/08/96 (a) Except as provided in paragraph (d) of this section, the affected facility to which this subpart applies is each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million Btu per hour (Btu/hr)) or less, but greater than or equal to 2.9 MW (10 million Btu/hr). *RI has determined that this engine will be constructed after June 9, 1989; therefore RI will comply with the provisions of 60.40.*	No Specific Requirements.	No Specific Requirements.	No Specific Requirements.	No Specific Requirements Streamlined.
Emission Limitations	Not Applicable	**445B.362 Fuel-burning equipment** 1. No person may cause or permit the emission of PM_{10} resulting from the combustion of fuel in fuel-burning equipment in excess of the quantity set forth in the following formulas: (b) For input of heat greater than 10 million Btu's per hour, but less than or equal to 4,000 million Btu's per hour, the allowable emissions must be calculated using the following equation: $Y = 1.02X^{-0.231}$ 2. For the purposes of paragraphs (b) and (c) of subsection 1: (a) "X" means the operating rate in million Btu's per hour.	**445B.362 Fuel-burning equipment** This section of the NAC is not part of the Title V Operating Permit Program regulations utilized by USEPA for program approval.	**Article 7.1 Fuel Burning Equipment** Article 7.1.1.1 For heat inputs greater than 10 but less than 4,000 million Btu's per hour the allowable emissions shall be calculated by using the following equation: $Y = 1.02X^{-0.231}$ *(Resultant PM Maximum Emissions Allowable:* *Y = 0.52 pounds per million Btu's, or 9.27 pounds per hour, based on the maximum input heat rate value of 17.82 MMBtu/hr, i.e. the proposed permitted limit is more stringent than the emissions allowed by the NAC.)*	**VI.A.2. Emission Limits** a. The discharge of PM (particulate matter) to the atmosphere will not exceed 0.49 pound per hour, nor more than 2.16 tons per year. b. The discharge of PM_{10} (particulate matter less than 10 microns in diameter) to the atmosphere will not exceed 0.49 pound per hour, nor more than 2.16 tons per year.

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** Refuse, Inc. – Lockwood Landfill ** - Comparison of Applicable Requirements

System #13 – Caterpillar IC Engine S2.013

	New Source Performance Standards (NSPS), 40 CFR Part 60 Revised as of July 1, 1996	Nevada Administrative Code (NAC) 445B.001 - 445B.395 Revised as of January, 1997	Nevada Administrative Code (NAC) 445B.001 - 445B.395 (Title V Full Approval - November 30, 2001)	State Implementation Plan (SIP) Articles 1 - Article 14 Revised as of August 1981	Draft Operating Permit Requirements
		(b) "Y" means the allowable rate of emission in pounds per million Btu's. *(Resultant PM_{10} Maximum Emissions Allowable:* *Y = 0.52 pounds per million Btu's, or 9.27 pounds per hour, based on the maximum input heat rate value of 17.82 MMBtu/hr, i.e. the proposed permitted limit is more stringent than the emissions allowed by the NAC.)*			
Emission Limitations (Continued)	Not Applicable	**445B.373 Fuel-burning equipment** 1. No person may cause or permit the emission of compounds of sulfur caused by the combustion of fuel in fuel-burning equipment in excess of the quantity set forth in the following formulas in subsection 2 or 3: 2. Where an emission unit has a total input of heat of less than 250 million Btu's per hour the allowable emission must be calculated by the use of the following equation: Y = 0.7X For the purposes of this subsection: (a) "X" means the operating input of heat in millions of Btu's per hour (b) "Y" means the allowable rate of emission of sulfur in pounds per hour. (Resultant Sulfur Maximum Emissions Allowable: Y = 12.47 pounds per hour *based on the maximum input heat rate value of 17.82 MMBtu/hr.* *This unit is being limited to a maximum fuel sulfur content of 0.05% and an emission limit of 2.93 pound per hour. Therefore, the resulting permitted maximum emissions allowable is well below the*	**445B.373 Fuel-burning equipment** This section of the NAC is not part of the Title V Operating Permit Program regulations utilized by USEPA for program approval.	**Article 8 - Sulfur Emissions** No person shall cause, suffer, allow or permit the emission of sulfur compounds caused by the combustion of fuel in excess of the quantity set forth in the following table: Article 8.2.1.1 Where a source located on contiguous property has a total heat input of less than 63 million kg-cal (250 million Btu's) per hour the allowable emission shall be calculated by the use of the following equation: Y = 0.7X X = Operating input in millions of kg-cal (Btu's) per hour. Y = Allowable rate of sulfur emissions in kg (pounds) per hour. (Resultant Sulfur Maximum Emissions Allowable: Y = 12.47 pounds per hour *based on the maximum input heat rate value of 17.82 MMBtu/hr.* *This unit is being limited to a maximum fuel sulfur content of 0.05% and an emission limit of 2.93 pound per hour. Therefore, the resulting permitted maximum emissions allowable is well below the*	**VI.A.2. Emission Limits** c. The discharge of sulfur to the atmosphere will not exceed 2.93 pound per hour, nor more than 12.85 tons per year. **VI.A.3. Operating Parameters** c. The maximum sulfur content of the #2 diesel fuel will not exceed 0.05 weight percent sulfur.

** Refuse, Inc. – Lockwood Landfill ** - Comparison of Applicable Requirements

System #13 – Caterpillar IC Engine S2.013

	New Source Performance Standards (NSPS), 40 CFR Part 60 Revised as of July 1, 1996	Nevada Administrative Code (NAC) 445B.001 - 445B.395 Revised as of January, 1997	Nevada Administrative Code (NAC) 445B.001 - 445B.395 (Title V Full Approval - November 30, 2001)	State Implementation Plan (SIP) Articles 1 - Article 14 Revised as of August 1981	Draft Operating Permit Requirements
		maximum allowed from this formula, i.e. the proposed permitted limit is more stringent than the emissions allowed by the NAC.)		*maximum allowed from this formula, i.e. the proposed permitted limit is more stringent than the emissions allowed by the NAC.)*	
Emission Limitations (Continued)	Not Applicable	**445B.354 Maximum opacity of emissions** 1. Unless otherwise provided in NAC 445B.354 to 445B.357, inclusive, no owner or operator may cause or permit the discharge into the atmosphere from any stationary source of any regulated air pollutant for a period or periods aggregating more than 3 minutes in any 1 hour which is of an opacity equal to or greater than 20 percent.	**445B.354 Maximum opacity of emissions** This section of the NAC is not part of the Title V Operating Permit Program regulations utilized by USEPA for program approval.	**Article 4 -Visible Emissions From Stationary Sources** Article 4.1-Unless otherwise provided herein, no person shall cause, suffer, allow, or permit the discharge into the atmosphere, from any stationary source, any air contaminant for a period or periods aggregating more than three minutes in any one hour which is of an opacity equal to or greater than 20 percent.	**VI.A.2. Emission Limits** i. The opacity from the S2.011 stack discharge will not equal or exceed 20% for a period or periods aggregating more than 3 minutes in any one-hour period.
Operating Parameters	Not Applicable	No Specific Requirements.	No Specific Requirements.	No Specific Requirements.	No Specific Requirements Streamlined.
Work Practice Standard(s)	Not Applicable	No Specific Requirements.	No Specific Requirements.	No Specific Requirements.	No Specific Requirements Streamlined.
Testing and Sampling	Not Applicable	No Specific Requirements.	No Specific Requirements.	No Specific Requirements.	No Specific Requirements Streamlined.
Monitoring	PART 60 STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES SUBPART A General Provisions	No Specific Requirements.	No Specific Requirements.	No Specific Requirements.	No Specific Requirements Streamlined.
Recordkeeping Reporting	See Monitoring Above. See Monitoring above.	No Specific Requirements. No Specific Requirements.	No Specific Requirements. No Specific Requirements.	No Specific Requirements. No Specific Requirements.	No Specific Requirements Streamlined. No Specific Requirements Streamlined.
Summary of Shielded Requirements	None.	**445B.362 Fuel-burning equipment** **445B.373 Fuel-burning equipment** **445B.354 Maximum opacity of emissions**	**445B.362 Fuel-burning equipment** **445B.373 Fuel-burning equipment** **445B.354 Maximum opacity of emissions**	**Article 7.1.1.1** **Article 8.2.1.1** **Article 4.1 -Visible Emissions From Stationary Sources**	5. Shielded Requirements Compliance with conditions A.1. through A.4. of this section shall be deemed to be compliance with the applicable requirements specified below, as of the issuance date of this

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** Refuse, Inc. – Lockwood Landfill ** - Comparison of Applicable Requirements

System #13 – Caterpillar IC Engine S2.013

	New Source Performance Standards (NSPS), 40 CFR Part 60 Revised as of July 1, 1996	Nevada Administrative Code (NAC) 445B.001 - 445B.395 Revised as of January, 1997	Nevada Administrative Code (NAC) 445B.001 - 445B.395 (Title V Full Approval - November 30, 2001)	State Implementation Plan (SIP) Articles 1 - Article 14 Revised as of August 1981	Draft Operating Permit Requirements
					operating permit. Permit Requirements (AP9711-0117, issuance date 6/23/95) - Section III.B.2. Emission Limits, a. through f. NAC Requirements (Version dated 1/97) - 445B.362 (Fuel-burning equipment); 445B.373 (Fuel-burning equipment); 445B.354.1 (Maximum opacity of emissions) Applicable SIP Requirements (Version dated 1981) - Article 7.1.1.1 (Fuel Burning Equipment); Article 8.2.1.1 (Sulfur Emissions); Article 4.1 - (Visible Emissions From Stationary Sources)

Revised 7/03

SECTION 5

FACILITY-WIDE POTENTIAL TO EMIT

INSIGNIFICANT ACTIVITIES

TABLE 1

FACILITY-WIDE EMISSIONS (STATIONARY SOURCE)
POTENTIAL TO EMIT
POUNDS/HOUR AND TONS/YEAR

Pollutant	Potential to Emit (pounds/hour)	Potential to Emit (tons/year)
Total Particulate Matter (TSP)	11.655	25.794
Particulates as PM_{10}	8.575	21.889
Sulfur Dioxide	30.91	127.24
Carbon Monoxide*	87.74	365.23
Oxides of Nitrogen	37.39	82.32
Volatile Organic Compounds	27.17	113.98
Hazardous Air Pollutants (Specify Each Pollutant)		
1,1,1-Trichloroethane (methyl chloroform)	7.76E-05	1.34E-03
1,1,2-Trichloroethane	0.00E+00	0.00E+00
1,1,2,2-Tetrachloroethane	6.60E-06	1.14E-04
1,1-Dichloroethane (ethylidene dichloride)	1.65E-03	2.84E-02
1,1-Dichloroethene (vinylidene chloride)	1.70E-05	2.78E-04
1,2-Dichloroethane (ethylene dichloride)	3.55E-05	5.53E-04
1,2-Dichloropropane (propylene dichloride)	6.00E-06	2.63E-05
Acetaldehyde	2.86E-03	3.34E-03
Acrolein	3.57E-04	4.10E-04
Acrylonitrile	8.71E-06	2.60E-04
Benzene	7.25E-03	1.09E-02
1,3-Butadiene	1.42E-04	1.68E-04
Carbon disulfide	1.60E-04	4.78E-03
Carbon tetrachloride	8.33E-06	1.39E-04
Carbonyl sulfide	1.60E-04	2.15E-03
Chlorobenzene	7.77E-06	1.27E-04
Chloroethane (ethyl chloride)	1.66E-04	2.86E-03
Chloroform	2.47E-05	4.18E-04
Chloromethane (methyl chloride)	8.14E-06	1.40E-04
Cumene	0.00E+00	0.00E+00
Dichlorobenzene (1,4-Dichlorobenzene)	2.65E-05	4.35E-04
Dichloromethane (Methylene Chloride)	3.79E-03	6.53E-02
Ethylbenzene	1.10E-03	3.29E-02
Ethylene dibromide (1,2-Dibromoethane)	7.39E-06	1.27E-04
Formaldehyde	6.94E-01	3.03E+00
Hexane	1.31E-03	3.93E-02
Hydrogen Sulfide	5.27E-03	1.58E-01
Methyl ethyl ketone	5.00E-03	1.49E-01
Methyl isobutyl ketone	4.93E-04	1.47E-02
Napthalene	6.36E-04	5.77E-04
Perchloroethylene (tetrachloroethylene)	6.95E-04	1.19E-02
Toluene	1.28E-02	3.20E-01
Trichloroethylene (trichloroethene)	2.15E-04	3.68E-03
Vinyl chloride	7.67E-06	1.23E-04
Xylenes	6.13E-03	1.39E-01
Mercury (total)	1.92E-05	2.29E-04
Total HAPs	**2.922**	**14.407**
Other Regulated Pollutants (Specify)		
Non-Methane Organic Compounds	59.853	262.319

Notes:
* RI is requesting CO cap of 249 tpy.

POTENTIAL TO EMIT EMISSIONS ESTIMATES
LOCKWOOD LANDFILL
STOREY COUNTY, NEVADA

CAS	Criteria Air Pollutants	LANDFILL (tons/year)	CANDLESTICK FLARE (tons/year)	LFG INTERNAL COMBUSTION ENGINES (tons/year)	WOOD WASTE CIRCUIT: 750-Hp DIESEL ENGINE (tons/year)	WOOD WASTE CIRCUIT: WOOD CHIPPING & HANDLING (tons/year)	ASPHALT GRINDING CIRCUIT: 519-Hp DIESEL ENGINE (tons/year)	ASPHALT GRINDING CIRCUIT: ASPHALT GRINDING & HANDLING (tons/year)	GASOLINE STORAGE AND DISPENSING* (tons/year)	DIESEL STORAGE AND DISPENSING* (tons/year)	SOIL REMEDIATION (tons/year)	WASTE OIL STORAGE* (tons/year)	THREE 10.5 Hp LIGHT PLANTS (tons/year)	96-Hp DIESEL ENGINE (tons/year)	THREE 130-Hp DIESEL ENGINES (tons/year)	PARTS CLEANING* (tons/year)	TOTALS (tons/year)
	Total Non-Methane Organics (NMOCs)	245.958	5.132	11.229													262.319
	Volatile Organic Compounds (VOCs)	96.930	2.003	11.229	0.1474		0.2621		0.0235	0.0043	2.00	0.00	0.1134	0.3024	0.8694	0.0940	113.978
	Sulfur Dioxide (SO_2)		86.603	38.562	0.8272		0.2111						0.0914	0.2436	0.7004		127.239
	Nitrogen Oxides (NOx)		19.316	38.812	5.242		3.2105						1.3892	3.7044	10.650		82.324
	Carbon Monoxide (CO)	5.380	102.098	252.280	1.3923		0.6916						0.2993	0.7980	2.2943		365.233
	Total Suspended Particulates (TSP)		9.198	6.469	0.1142	7.4988	0.2257	1.1814					0.0977	0.2604	0.7487		25.794
	Particulates (PM_{10})		9.198	6.469	0.0939	4.2334	0.2257	0.5626					0.0977	0.2604	0.7487		21.889
CAS	HAZARDOUS AIR POLLUTANTS (HAPs)																
71-55-6	1,1,1-Trichloroethane (methyl chloroform)		3.40E-04	9.98E-04													1.34E-03
79-00-5	1,1,2-Trichloroethane																0.00E+00
79-34-5	1,1,2,2-Tetrachloroethane		2.89E-05	8.49E-05													1.14E-04
75-34-3	1,1-Dichloroethane (ethylidene dichloride)		7.21E-03	2.12E-02													2.84E-02
75-35-4	1,1-Dichloroethene (vinylidene chloride)		7.06E-05	2.08E-04													2.78E-04
107-06-2	1,2-Dichloroethane (ethylene dichloride)		1.40E-04	4.13E-04													5.53E-04
78-87-5	1,2-Dichloropropane (propylene dichloride)		2.63E-05														2.63E-05
75-07-0	Acetaldehyde				4.13E-05		5.58E-04						2.42E-04	6.44E-04	1.85E-03		3.34E-03
107-02-8	Acrolein				1.29E-05		6.73E-05						2.91E-05	7.77E-05	2.23E-04		4.10E-04
107-13-1	Acrylonitrile		3.80E-05	2.22E-04													2.60E-04
71-43-2	Benzene		8.15E-04	4.76E-03	1.27E-03		6.79E-04						2.94E-04	7.84E-04	2.25E-03		1.09E-02
106-99-0	1,3-Butadiene						2.85E-05						1.23E-05	3.28E-05	9.44E-05		1.68E-04
75-25-2	Carbon disulfide		6.98E-04	4.08E-03													4.78E-03
56-23-5	Carbon tetrachloride		3.53E-05	1.04E-04													1.39E-04
463-58-1	Carbonyl sulfide		3.15E-04	1.84E-03													2.15E-03
108-90-7	Chlorobenzene		3.23E-05	9.49E-05													1.27E-04
75-00-3	Chloroethane (ethyl chloride)		7.25E-04	2.13E-03													2.86E-03
67-66-3	Chloroform		1.06E-04	3.12E-04													4.18E-04
74-87-3	Chloromethane (methyl chloride)		3.56E-05	1.05E-04													1.40E-04
98-82-8	Cumene																0.00E+00
106-46-7	Dichlorobenzene (1,4-Dichlorobenzene)		1.10E-04	3.25E-04													4.35E-04
75-09-2	Dichloromethane (Methylene Chloride)		1.66E-02	4.87E-02													6.53E-02
100-41-4	Ethylbenzene		4.81E-03	2.81E-02													3.29E-02
106-93-4	Ethylene dibromide (1,2-Dibromoethane)		3.23E-05	9.50E-05													1.27E-04
50-00-0	Formaldehyde			3.02E+00	1.29E-04		8.59E-04						3.72E-04	9.91E-04	2.85E-03		3.03E+00
110-54-3	Hexane		5.74E-03	3.35E-02													3.93E-02
2148-87-8	Hydrogen Sulfide		2.30E-02	1.34E-01													1.58E-01
78-93-3	Methyl ethyl ketone		2.18E-02	1.27E-01													1.49E-01
108-10-1	Methyl isobutyl ketone		2.15E-03	1.26E-02													1.47E-02
91-20-3	Napthalene				2.13E-04		6.17E-05						2.67E-05	7.12E-05	2.05E-04		5.77E-04
127-18-4	Perchloroethylene (tetrachloroethylene)		3.03E-03	8.92E-03													1.19E-02
115-7-1	Propylene																0.00E+00
108-88-3	Toluene		4.65E-02	2.71E-01	4.60E-04		2.98E-04						1.29E-04	3.44E-04	9.88E-04		3.20E-01
79-01-6	Trichloroethylene (trichloroethene)		9.34E-04	2.75E-03													3.68E-03
75-01-4	Vinyl chloride		3.12E-05	9.17E-05													1.23E-04
133-020-7	Xylenes		2.01E-02	1.17E-01	3.16E-04		2.07E-04						8.98E-05	2.39E-04	6.88E-04		1.39E-01
7439-97-6	Mercury (total)		8.40E-05	1.45E-04													2.29E-04
7647-01-0	Hydrochloric acid		1.07E+00	8.55E-01													1.93E+00
TOTAL HAPS:		6.34E+00	1.23E+00	4.70E+00	2.44E-03	0.00E+00	2.76E-03	0.00E+00	2.35E-02	4.31E-03	2.00E+00	0.00E+00	1.19E-03	3.18E-03	9.15E-03	9.40E-02	1.44E+01

* Insignificant activities per NAC 445B.288.

POTENTIAL TO EMIT EMISSIONS ESTIMATES
LOCKWOOD LANDFILL
STOREY COUNTY, NEVADA

CAS	Criteria Air Pollutants	LANDFILL (lbs/hour)	CANDLESTICK FLARE (lbs/hour)	LPG INTERNAL COMBUSTION ENGINES (lbs/hour)	WOOD WASTE CIRCUIT: 750-Hp DIESEL ENGINE (lbs/hour)	WOOD WASTE CIRCUIT: WOOD CHIPPING & HANDLING (lbs/hour)	ASPHALT GRINDING CIRCUIT: 519-Hp DIESEL ENGINE (lbs/hour)	ASPHALT GRINDING CIRCUIT: ASPHALT GRINDING & HANDLING (lbs/hour)	GASOLINE STORAGE AND DISPENSING* (lbs/hour)	DIESEL STORAGE AND DISPENSING* (lbs/hour)	WASTE OIL STORAGE* (lbs/hour)	SOIL REMEDIATION (lbs/hour)	AQUEOUS WASTE* (lbs/hour)	THREE 18.5 Hp LIGHT PLANTS (lbs/hour)	96-Hp DIESEL ENGINE (lbs/hour)	THREE 130-Hp DIESEL ENGINES (lbs/hour)	PARTS CLEANING* (lbs/hour)	TOTALS (lbs/hour)
	Total Non-Methane Organics (NMOCs)	56.117	1.172	2.564														59.853
	Volatile Organic Compounds (VOCs)	22.130	0.4574	2.5636	0.2268		0.6552		0.0054	0.0010	0.0000	0.457		0.0756	0.2016	0.3780	0.0220	27.1732
	Sulfur Dioxide (SO_2)		19.772	8.804	1.2726		0.5278							0.0609	0.1624	0.3045		30.9051
	Nitrogen Oxides (NOx)		4.410	8.861	8.064		8.0262							0.9261	2.4696	4.631		37.3877
	Carbon Monoxide (CO)	1.228	23.310	57.598	2.1420		1.7290							0.1995	0.5320	0.9975		87.7365
	Total Suspended Particulates (TSP)		2.100	1.477	0.1756	5.6595	0.5642	1.1146						0.0651	0.1736	0.3255		11.6550
	Particulates (PM_{10})		2.100	1.477	0.1444	3.1950	0.5642	0.5308						0.0651	0.1736	0.3255		8.575
CAS	HAZARDOUS AIR POLLUTANTS (HAPs)																	
71556	1,1,1-Trichloroethane (methyl chloroform)		7.75E-05	1.14E-07														7.76E-05
79005	1,1,2-Trichloroethane																	0.00E+00
79345	1,1,2,2-Tetrachloroethane		6.59E-06	9.69E-09														6.60E-06
75343	1,1-Dichloroethane (ethylidene dichloride)		1.65E-03	2.42E-06														1.65E-03
75354	1,1-Dichloroethene (vinylidene chloride)		1.61E-05	2.37E-08									8.44E-07					1.70E-05
107062	1,2-Dichloroethane (ethylene dichloride)		3.21E-05	2.61E-06									8.62E-07					3.55E-05
78875	1,2-Dichloropropane (propylene dichloride)		6.00E-06															6.00E-06
75070	Acetaldehyde				6.35E-05		1.40E-03							1.61E-04	4.30E-04	8.05E-04		2.86E-03
107028	Acrolein				1.99E-05		1.68E-04							1.94E-05	5.18E-05	9.71E-05		3.57E-04
107131	Acrylonitrile		8.68E-06	2.53E-08														8.71E-06
71432	Benzene		1.90E-03	5.43E-07	1.96E-03		1.70E-03						2.72E-07	1.96E-04	5.22E-04	9.80E-04		7.25E-03
106990	1,3-Butadiene						7.12E-05							8.21E-06	2.19E-05	4.11E-05		1.42E-04
75150	Carbon disulfide		1.59E-04	4.65E-07														1.60E-04
56235	Carbon tetrachloride		8.05E-06	1.18E-08									2.68E-07					8.33E-06
463581	Carbonyl sulfide		1.59E-04	2.10E-07														1.60E-04
108907	Chlorobenzene		7.37E-06	1.08E-08									3.92E-07					7.77E-06
75003	Chloroethane (ethyl chloride)		1.66E-04	2.43E-07														1.66E-04
67663	Chloroform		2.42E-05	3.56E-08									4.16E-07					2.47E-05
74873	Chloromethane (methyl chloride)		8.13E-06	1.19E-08														8.14E-06
98828	Cumene																	0.00E+00
106467	Dichlorobenzene (1,4-Dichlorobenzene)		2.52E-05	3.71E-08									1.28E-06					2.65E-05
75092	Dichloromethane (Methylene Chloride)		3.79E-03	5.56E-06														3.79E-03
100414	Ethylbenzene		1.10E-03	3.20E-06														1.10E-03
106934	Ethylene dibromide (1,2-Dibromoethane)		7.38E-06	1.08E-08														7.39E-06
50000	Formaldehyde			6.90E-01	1.99E-04		2.15E-03							2.48E-04	6.61E-04	1.24E-03		6.94E-01
110543	Hexane		1.31E-03	3.83E-06														1.31E-03
7783064	Hydrogen Sulfide		5.26E-03	1.54E-05														5.27E-03
78933	Methyl ethyl ketone		4.98E-03	1.45E-05									6.28E-07					5.00E-03
108101	Methyl isobutyl ketone		4.92E-04	1.44E-06														4.93E-04
91203	Napthalene				3.28E-04		1.54E-04							1.78E-05	4.75E-05	8.90E-05		6.36E-04
127184	Perchloroethylene (tetrachloroethylene)		6.92E-04	1.02E-06									1.44E-06					6.95E-04
11571	Propylene																	0.00E+00
108883	Toluene		1.06E-02	3.10E-05	7.08E-04		7.44E-04							8.59E-05	2.29E-04	4.29E-04		1.28E-02
79016	Trichloroethylene (trichloroethene)		2.13E-04	3.13E-07									1.14E-06					2.15E-04
75014	Vinyl chloride		7.12E-06	1.05E-08									5.44E-07					7.67E-06
1330207	Xylenes		4.59E-03	1.34E-05	4.86E-04		5.19E-04							5.99E-05	1.60E-04	2.99E-04		6.13E-03
	Mercury (total)		1.92E-05	1.65E-08														1.92E-05
7647-01-0	Hydrochloric acid		2.45E-01	9.76E-05														2.45E-01
TOTAL HAPS:		1.45E+00	2.82E-01	6.90E-01	3.76E-03	0.00E+00	6.90E-03	0.00E+00	5.36E-03	9.80E-04	0.00E+00	4.57E-01	8.10E-06	7.96E-04	2.12E-03	3.98E-03	2.20E-02	2.92E+00

* Insignificant activities per NAC 445B.288.

8/4/2010

TABLE 2

INSIGNIFICANT ACTIVITIES
POTENTIAL TO EMIT
POUNDS/HOUR AND TONS/YEAR

Insignificant Activity	Pollutant	Potential to Emit (pounds/hour)	Potential to Emit (tons/year)
Gasoline Dispensing	Volatile Organic Compounds	0.005	0.023
Diesel Dispensing	Volatile Organic Compounds	0.001	0.004
Parts Cleaning	Volatile Organic Compounds	0.02	0.09

INSIGNIFICANT ACTIVITY EMISSION SUMMARY
LOCKWOOD LANDFILL
STOREY COUNTY, NEVADA

CAS NUMBER	Criteria Air Pollutants	GASOLINE DISPENSING (lb/hour)	DIESEL DISPENSING (lb/hour)	WASTE OIL STORAGE (lb/hour)	PARTS CLEANING (lb/hour)	TOTALS (lb/hour)
	VOCs	0.0054	0.0010	0.0000	0.0215	**0.0278**
	Sulfur Dioxide (SO_2)					**0.0000**
	Nitrogen Oxides (NOx)					**0.0000**
	Carbon Monoxide (CO)					**0.0000**
	Total Suspended Particulate (TSP)					**0.0000**
	Particulates (PM_{10})					**0.0000**
Hazardous Air Pollutants (HAPs)						
79005	1,1,2-Trichloroethane					0.00E+00
75354	1,1-Dichloroethene (vinylidene chloride)					0.00E+00
107062	1,2-Dichloroethane (ethylene dichloride)					0.00E+00
75070	Acetaldehyde					0.00E+00
107028	Acrolein					0.00E+00
71432	Benzene					0.00E+00
106990	1,3-Butadiene					0.00E+00
56235	Carbon tetrachloride					0.00E+00
108907	Chlorobenzene					0.00E+00
67663	Chloroform					0.00E+00
98828	Cumene					0.00E+00
106467	Dichlorobenzene (1,4-Dichlorobenzene)					0.00E+00
100414	Ethylbenzene					0.00E+00
50000	Formaldehyde					0.00E+00
110543	Hexane					0.00E+00
78933	Methyl ethyl ketone					0.00E+00
91203	Napthalene					0.00E+00
127184	Perchloroethylene (tetrachloroethylene)					0.00E+00
108883	Toluene					0.00E+00
79016	Trichloroethylene (trichloroethene)					0.00E+00
75014	Vinyl chloride					0.00E+00
1330207	Xylenes					0.00E+00
TOTAL HAPS:		**5.36E-03**	**9.80E-04**	**0.00E+00**	**2.15E-02**	**0.00E+00**

INSIGNIFICANT ACTIVITY EMISSION SUMMARY
LOCKWOOD LANDFILL
STOREY COUNTY, NEVADA

CAS NUMBER	Criteria Air Pollutants	GASOLINE DISPENSING (tons/year)	DIESEL DISPENSING (tons/year)	WASTE OIL STORAGE (tons/year)	PARTS CLEANING (tons/year)	TOTALS (tons/year)
	VOCs	0.0235	0.0043	0.0000	0.0940	**0.1217**
	Sulfur Dioxide (SO_2)					**0.0000**
	Nitrogen Oxides (NOx)					**0.000**
	Carbon Monoxide (CO)					**0.000**
	Total Suspended Particulate (TSP)					**0.000**
	Particulates (PM_{10})					**0.0000**
Hazardous Air Pollutants (HAPs)						
79005	1,1,2-Trichloroethane					0.00E+00
75354	1,1-Dichloroethene (vinylidene chloride)					0.00E+00
107062	1,2-Dichloroethane (ethylene dichloride)					0.00E+00
75070	Acetaldehyde					0.00E+00
107028	Acrolein					0.00E+00
71432	Benzene					0.00E+00
106990	1,3-Butadiene					0.00E+00
56235	Carbon tetrachloride					0.00E+00
108907	Chlorobenzene					0.00E+00
67663	Chloroform					0.00E+00
98828	Cumene					0.00E+00
106467	Dichlorobenzene (1,4-Dichlorobenzene)					0.00E+00
100414	Ethylbenzene					0.00E+00
50000	Formaldehyde					0.00E+00
110543	Hexane					0.00E+00
78933	Methyl ethyl ketone					0.00E+00
91203	Napthalene					0.00E+00
127184	Perchloroethylene (tetrachloroethylene)					0.00E+00
108883	Toluene					0.00E+00
79016	Trichloroethylene (trichloroethene)					0.00E+00
75014	Vinyl chloride					0.00E+00
1330207	Xylenes					0.00E+00
TOTAL HAPS:		**2.35E-02**	**4.31E-03**	**0.00E+00**	**9.40E-02**	**0.00E+00**

TABLE 3
COMPARISON OF FACILITY-WIDE EMISSIONS
LOCKWOOD LANDFILL
STOREY COUNTY, NEVADA

Emission Source(s)	Source (s)	Regulated Air Pollutants: NMOC		PM-10		PM		NOx		CO		SO2		VOCs		HAPs		H2S
		Mg/yr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	ton/yr
F0.001	Municipal Solid Waste Landfill	223.60	246.0	—	—	—	—	—	—	1.23	5.38	—	—	22.13	96.93	1.45	6.34	1.10
PF1.001 - PF1.005	Wood Chipping Circuit	—	—	3.20	4.23	5.66	7.50	—	—	—	—	—	—	—	—	—	—	—
S2.001	750 hp Diesel Engine	—	—	0.14	0.09	0.18	0.11	8.06	5.24	2.14	1.39	1.27	0.83	0.23	0.15	0.0038	0.0024	—
PF1.006 - PF1.010	Asphalt Grinding Circuit	—	—	0.53	0.56	1.11	1.18	—	—	—	—	—	—	—	—	—	—	—
S2.002	519 hp Diesel Engine	—	—	0.56	0.23	0.56	0.23	8.03	3.21	1.73	0.69	0.53	0.21	0.66	0.26	0.0069	0.0028	—
PF1.011	Petroleum Contaminated Soil Storage & Disposal	—	—	—	—	—	—	—	—	—	—	—	—	0.46	2.00	0.46	2.00	—
S2.003 - S2.005	3 - 130 hp Diesel-Fired Engines Total Emissions	—	—	0.33	0.75	0.33	0.75	4.63	10.65	1.00	2.29	0.30	0.70	0.38	0.87	0.0040	0.0092	—
S2.006 - S2.008	3 - 10.5 hp Diesel- Fired Engines Total Emissions	—	—	0.07	0.10	0.07	0.10	0.93	1.39	0.20	0.30	0.06	0.09	0.08	0.11	0.0008	0.0012	—
S2.009	96 hp Diesel Generator	—	—	0.17	0.26	0.17	0.26	2.47	3.70	0.53	0.80	0.16	0.24	0.20	0.30	0.0021	0.0032	—
IA1.001	Less than 1,000 gallon Diesel Fuel Truck	—	—	—	—	—	—	—	—	—	—	—	—	0.0001	0.0006	0.0001	0.0006	—
IA1.002	10,000 gallon underground Diesel Fuel Tank	—	—	—	—	—	—	—	—	—	—	—	—	0.0005	0.0021	0.0005	0.0021	—
IA1.003	2,000 gallon underground Gasoline Fuel Tank	—	—	—	—	—	—	—	—	—	—	—	—	0.0054	0.0235	0.0054	0.0235	—
IA1.004	1,500 gallon Diesel Fuel Truck	—	—	—	—	—	—	—	—	—	—	—	—	0.0004	0.0016	0.0004	0.0016	—
IA1.005	2,000 gallon underground Waste Oil Tank	—	—	—	—	—	—	—	—	—	—	—	—	0.0000	0.0000	0.0000	0.0000	—
IA1.006	Citrus Solve Cleaner/Degreaser	—	—	—	—	—	—	—	—	—	—	—	—	0.008	0.033	0.008	0.033	—
IA1.007	Brake Wash Non-Chlorinated	—	—	—	—	—	—	—	—	—	—	—	—	0.004	0.019	0.004	0.019	—
IA1.008	Petro Amsol 120 (Mineral Spirits)	—	—	—	—	—	—	—	—	—	—	—	—	0.010	0.042	0.010	0.042	—
S2.010	Candlestick Flare	—	5.13	2.10	9.20	2.10	9.20	4.41	19.32	23.31	102.10	19.77	86.60	0.46	2.00	0.28	1.23	0.02
S2.011	LFG IC Engine	—	3.74	0.49	2.16	0.49	2.16	2.95	12.94	19.20	84.09	2.93	12.85	0.85	3.74	0.97	4.80	0.13
S2.012	LFG IC Engine	—	3.74	0.49	2.16	0.49	2.16	2.95	12.94	19.20	84.09	2.93	12.85	0.85	3.74	0.97	4.80	0.13
S2.013	LFG IC Engine	—	3.74	0.49	2.16	0.49	2.16	2.95	12.94	19.20	84.09	2.93	12.85	0.85	3.74	0.97	4.80	0.13

Notes:
Municipal Solid Waste Landfill:- Emission calculations refer to Refuse Inc.'s Email dated September 6, 2007 [EPA Landfill Gas Emissions Model (LandGEM), Version 3.02 was used].
Municipal Solid Waste Landfill:- VOC Emission calculations refer to SCS Engineers letter dated February 7, 2008 [based on AP-42, Table 2.4-2 (Rev. 11/98)].
Municipal Solid Waste Landfill: - CO Emissions from landfill considered fugitive. Emissions would only occur in the event of a landfill fire.
Landfill Gas Candlestick Flare:- Refuse Inc.'s Significant Permit Application dated October 22, 2008 (Section 5, Table 3).
Petroleum Contaminated Soil Storage & Disposal:- Refuse Inc.'s Addendum dated August 3, 2007 requested "Same emission limits, permit conditions/requirements" [re: NDEP-BAPC's provided template, Permit #AP4953-1572].
Insignificant Activities (IA1.001 - IA1.005):- Emission calculations refer to Refuse Inc.'s Addendum dated August 3, 2007 and letter dated July 18, 2008.
Insignificant Activities (IA1.006 - IA1.008):- Emission calculations refer to Refuse Inc.'s 2nd Addendum dated September 6, 2007.

SECTION 6

EMISSIONS CAP INFORMATION

Appendix 7

EMISSIONS CAP

Please Attach Emission Cap Information

☐ **Please Check if not applicable**

Instructions

Federally enforceable emissions cap: Please include in Appendix 7 the information required in 1 through 3 below for each federally enforceable emissions cap in Appendix 7. The request for a federally enforceable emissions cap must, at a minimum:

1. State each applicable requirement which the applicant seeks to avoid [NAC 445B.296.2(a)];

RI seeks to avoid triggering federal prevention of significant deterioration (PSD) for carbon monoxide (CO) emissions. As such, RI requests to cap the CO emissions limit to 249 tons per year (tpy). RI requests that each air pollution control device (i.e. flare and IC engines) and non-mobile combustion equipment, be permitted to their maximum capacity. However, if all control devices were operating concurrently at full capacity, emissions will trigger federal PSD requirements, which would delay and likely jeopardize this renewable energy project. However, in reality this will not happen since any gas burned by the landfill gas (LFG) engines will not be burned by the flare and because actual emissions for the LFG engines are likely to be less than permitted levels. As such, a facility-wide cap is proposed to create a synthetic minor facility under PSD. Under this capped scenario, the LFG-to-energy (LFGTE) facility, flare, and diesel IC engines could operate in any configuration as long as emissions remained at 249 tpy or less. If the LFGTE facility was offline for maintenance or scheduled downtime, the flare would operate as the main air pollution control device, or vice-versa.

2. Demonstrate that any applicable requirements not avoided by the cap will be met [NAC

445B.296.2(b)];

RI will meet all applicable emission limit requirements for pollutants not included in the request for a cap for CO. RI will determine compliance with emission limits for non-CO pollutants with throughput and source test data and calculated on a monthly and annual basis. Please see attached proposed monitoring, recordkeeping, and reporting requirements for a CO emissions cap. Please note the proposed conditions are based on the current Title V Permit for the Altamont Landfill which was approved in the Bay Area Air Quality Management District (BAAQMD) and Unites States Environmental Protection Agency (U.S. EPA) Region IX. The conditions have been customized for the Lockwood Landfill.

3. Contain proposed conditions, including monitoring and recordkeeping conditions for each proposed federally enforceable emissions cap, of the operating permit which will ensure compliance with any applicable requirement [NAC 445B.296.2(c)].

RI will determine compliance with throughput and source test data or default emission factors for each source and calculated on a monthly and annual basis. RI will submit a Title V permit modification and PSD application in the appropriate time before the federal PSD level is triggered. As noted above, attached are proposed monitoring, recordkeeping, and reporting requirements.

4. Contain any additional information that the director determines necessary to process the application. [NAC 445B.296.2(d)]

Attached please find documentation that confirms use of emissions factors from manufacturer guarantees for candlestick flares has been accepted by the United States Environmental Protection Agency (U.S. EPA) Region IX, as source testing is not possible for purposes of compliance and emission estimates. We have provided a copy of the entire file related to this project on federal lands in Arizona and administered directly by U.S. EPA Region IX; however, the final letter from U.S. EPA is the most critical and details their approval of emission factors for this use.

(Note: A common example of an emissions cap is a <u>combined</u> limitation on the yearly (annual) amount of fuel which may be combusted between two boilers.)

Issued to: Refuse Inc., as Permittee

1. Total site-wide carbon monoxide (CO) emissions from all landfill gas fired combustion devices and non-mobile combustion equipment shall not exceed 249 tons of CO during any consecutive rolling 12-month period. For the purposes of this condition, non-mobile combustion equipment includes all stationary combustion devices other than non-road and other mobile sources, as defined in 40 CFR Part 51.50.

2. To demonstrate compliance with Part 1, the owner or operator shall comply with the following recordkeeping procedures.
   a. For each stationary combustion device that is operated on site, the owner or operator shall, on a monthly basis, calculate and record the CO emissions (tons of CO per calendar month) from the device. The CO emissions shall be calculated using NBAPC approved procedures, emission factors, and operating records, as described below for each type of device.
      i. For the S2.010 candlestick flare, the monthly CO emissions from the flare shall be calculated using the monthly heat input rate (MMBtu per month) and the manufacturer's CO emission factor (0.37 lb of CO per MMBtu).
      ii. For the landfill gas IC engines (S2.011 through S2.013), the monthly CO emissions from each engine shall be calculated using the calculated flow (scf/month) to each engine taken from the measured total plant flow from the totalizing flow meter and the CO emission factor from the most recent annual source test for each engine.
      iii. For the diesel fired IC engines subject to this subpart (S2.001 through S2.009), the monthly CO emissions from each engine shall be calculated using the monthly operating rate (operating hours per month) for each engine, the rated power output (bhp) for each engine, the certified emission factor (grams/bhp-hr) for each engine, and appropriate conversion factors. The monthly operating rates for each engine shall be determined from monthly records of the totalized hour meter readings for each engine. If the engine is not equipped with a totalizing hour meter, monthly operating hours shall be determined based on daily operating time records for the engine while it is operating at the site.
      iv. The owner or operator shall maintain records of any supporting data used to determine the monthly CO emission rate from each device subject to this subpart. This data may include but not limited to equipment capacities, fuels used, fuel heating values, certifications, guarantees, compliance demonstration test results, meter readings, operating records, calculation procedures, and conversion factors.
      v. When CO emission factors need to be increased to reflect new source test data, the new emission factor shall become effective for the month in which the final source test report was submitted and each subsequent month. Any changes to the list of devices subject to this subpart, the CO emission factors, the monthly operating rates, and the resulting monthly CO emissions records shall be incorporated into these records within 6 months of the effective date of the new data.

Issued to: Refuse Inc., as Permittee

b. Using the monthly CO emission data from each device recorded pursuant to subpart a above, the owner or operator shall calculate and record the total monthly CO emissions from all stationary combustion devices operated at this site.
c. Using the monthly site-wide CO emissions total from subpart b, the owner or operator shall calculate and record the total annual site-wide CO emissions from all stationary combustion devices, for each rolling consecutive 12-month period.
d. The owner or operator shall submit, on a semi-annual basis, a summary of the 12-month rolling CO emissions to the NBAPC.
e. All records required shall be kept on-site or made readily available to NBAPC staff upon request, and all records shall be retained for at least five years from the date of entry.

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SCS ENGINEERS

September 26, 1997
File No. 10.97017.00

Mr. Steven Branoff
U.S. Environmental Protection Agency
Region 9
Air Division AIR-3
75 Hawthorne Street
San Francisco, California 94105-3901

SUBJECT: APPLICABILITY OF FEDERAL AIR PERMITTING PROGRAMS, PROPOSED SALT RIVER PIMA MARICOPA INDIAN COMMUNITY (SRPMIC) LANDFILL GAS COLLECTION AND CONTROL SYSTEM PROJECTS, ARIZONA

Dear Steve:

This letter states our understanding of the applicability of federal air permitting programs to the proposed landfill gas (LFG) collection and control system (GCCS) projects at the Salt River, North Center Street, and Tri-Cities Landfills located on the Salt River Pima Maricopa Indian Community (SRPMIC) reservation and was prepared by SCS Engineers (SCS) on behalf of DTE Biomass Energy, Inc., formerly known as Biomass Energy Systems (BES), the SRPMIC, and the Salt River Project (SRP).

PROJECT BACKGROUND

The GCCS projects will include the installation and operation of LFG collection and pollution control systems in order to comply with: (1) the New Source Performance Standards (NSPS) and Emission Guidelines (EG) for Municipal Solid Waste (MSW) landfills and/or (2) federal solid waste regulations as they pertain to LFG migration control (e.g., Resource Conservation and Recovery Act, RCRA Subtitle D).

Site Histories

The Tri-Cities and North Center Street Landfills were operated by the SRPMIC until October 1993, when they were formally closed, and engineered soil caps were constructed over both sites. The Tri-Cities Landfill received approximately 11.5 million tons of MSW during its operational life. It is estimated that the North Center Street Landfill received approximately 2 million tons of MSW. The Salt River Landfill was placed in operation in October 1993 and has a design capacity of approximately 4.8 million tons of MSW, with approximately 2 million tons of MSW currently in place.

Proposed Project Configuration

At this time, the SRPMIC is seeking to develop GCCSs within the property boundaries at each landfill. The collected LFG will be combusted in open (i.e., candlestick) flares at the landfill sites in accordance with NSPS/EG requirements.

Once the LFG collection and control systems are operational, SCS, BES, the SRPMIC, and the SRP will evaluate the volume and energy value of the LFG collected at each site. Depending on these and other factors, these parties may utilize recovered LFG for electric power production. However, it has not been determined at this time whether a proposal would be made for a single central project or for individual projects at each of the landfills. Any such proposal would require the approval of the SRPMIC and other involved parties.

For example, if the price for energy is not sufficient to justify power production or if other factors cause the LFG utilization project to become non-viable, the LFG will continue to be managed at each site by flaring in accordance with NSPS/EG requirements. A decision as to the viability of LFG utilization project(s) at the sites will not be made until after the collection systems and flares have been installed and operated.

Based on the above information, it is our view that the LFG collection system and flare projects at the SRPMIC landfills are separate and distinct projects from the possible future LFG utilization projects that may occur at the sites. As such, it is our intention to evaluate the applicability of federal air permitting programs for the flare projects without consideration for future energy recovery projects that may or may not be implemented at the sites.

FLARE EMISSION ESTIMATES

Provided below are estimates of the potential to emit (PTE) for criteria pollutants at each of the landfill sites and rationale for the estimates. Please note that these estimates have been used to evaluate the applicability of federal air permitting programs.

Projected LFG Generation Rates

LFG generation modeling was performed to estimate the LFG generation rate for each landfill using the United States Environmental Agency's (EPA's) LFG emissions model (EPA Model). This model is based on a first-order decomposition model, which estimates the LFG emissions using two parameters: *Lo,* the potential methane generation capacity of the refuse, and *k,* the methane generation decay rate, which accounts for decreases in the methane generation rate as the refuse decomposes.

Salt River Landfill---

The EPA Model was run for the Salt River Landfill using the EPA's AP-42 default values for the above parameters to account for the lined landfill and dry conditions that occur in the southwest region (*Lo* = 4000 cubic feet per ton and *k* = 0.02). Waste quantities for the landfill were estimated based on a review of SRPMIC files.

Based on the modeling, it is estimated that the Salt River Landfill will generate a peak volume of LFG of approximately 1,312 cubic feet per minute (cfm) in 2004. The future refuse filling rate for the Salt River Landfill is unknown; therefore, the LFG collection and control system will be designed to potentially handle the peak generation rate at a 70% collection efficiency (peak recovery rate = 918 cfm) based on waste deposition at the current rate (e.g., 480,000 tons per year) until the existing design capacity is reached.

North Center Street Landfill---

The EPA Model was run for the North Center Street Landfill using the EPA's AP-42 default values for the above parameters to account for the unlined landfill and dry conditions (with some seasonal flash flooding) encountered at the site (Lo = 4000 cubic feet per ton and k = 0.03). Waste quantities disposed in the landfill were estimated based on a review of SRPMIC files. Based on the modeling, it is estimated that the North Center Street Landfill will generate a peak volume of LFG of approximately 560 cfm in 1998 (peak generation for the time period covered by the GCCS project). The peak LFG recovery for this site will be 392 cfm. Please note that the LFG generation rate for the North Center Street Landfill will decline each year after 1998.

Tri-Cities Landfill---

The EPA Model was run for the Tri-Cities Landfill using the EPA's AP-42 default values for the above parameters to account for the unlined landfill and dry conditions (with some possible seasonal flash flooding) encountered at the site (Lo = 4000 cubic feet per ton and k = 0.03). Waste quantities disposed in the landfill were estimated based on a review of SRPMIC files. Based on the modeling, it is estimated that the Tri-Cities Landfill will generate a peak volume of LFG of approximately 3,215 cfm in 1998 (peak generation for the time period covered by the flare project). The peak LFG recovery for this site will be 2251 cfm. Please note that the LFG generation rate for the Tri-Cities Landfill will decline each year after 1998.

Table Nos. 1 (Salt River Landfill), 2 (North Center Street Landfill), and 3 (Tri-Cities Landfill), which summarize the LFG modeling runs for the three sites, are attached to this letter. These tables show LFG recovery volumes based on the LFG generation rates listed above and a collection efficiency of 70% at each landfill.

Flare Sizing

As indicated above, surface emissions and lateral migration of LFG will be controlled by installation and operation of LFG collection systems at each site. The collection efficiency of the LFG systems are estimated to be 70%, which is based on SCS's previous experience at designing and operating these systems and current industry standards. LFG collection systems with this efficiency should provide sufficient collection coverage to meet NSPS/EG surface emission and/or RCRA Subtitle D migration control requirements.

Based on the maximum LFG generation rates described above and a collection efficiency of 70%, SCS has established a design criteria for the LFG flares that will be installed at each of the sites. The maximum LFG flow rates to the flares and the maximum design capacity of the flares to be installed are provided in Table 4 (attached).

Projected Flare Emissions

Using the maximum design capacity of the flares, appropriate emission factors, and the maximum British Thermal Unit (BTU) content of LFG (500 BTU/cf), we have calculated the PTE for criteria pollutant emissions from the open flares. These emission estimates are presented in Table 5 (attached).

Emission factors for carbon monoxide (CO) and nitrogen oxides (NOx) were obtained from the proposed flare manufacturer, John Zink Company. These emission factors have been certified and guaranteed by John Zink, and evidence of emission factor certification has been attached to this letter.

Source test data for operating flares of this type suggest that the actual CO emission factor will be considerably lower than the manufacturer guarantee. However, the manufacturer guarantee was used to provide a conservative estimate. Conversely, the use of emission factors obtained from EPA's *Compilation of Air Pollutant Emission Factors* (AP-42), Section 2.4 (Landfills), would not be valid for this project because the federally enforceable NSPS requires the use of much more efficient flares than those that were considered in developing emission factors within AP-42. For example, while the NSPS imposes a requirement to reduce NMOC emissions by 98%, the flares measured for AP-42 showed only a 83.16% average NMOC destruction efficiency (AP-42, Table 2.4-3). The flares used in this project will, therefore, have a much higher level of combustion efficiency than those used within AP-42 which will result much lower CO emissions. In addition, John Zink has guaranteed a destruction efficiency of 98% for NMOCs/VOCs, as required by the NSPS (see attached).

Emission estimates for volatile organic compounds (VOCs) were developed from the NMOC emission rates obtained from our use of the EPA Model for each site and a destruction efficiency of 98%, as required by the NSPS and guaranteed by the manufacturer. In an effort to be conservative, it was assumed that NMOC were equal to VOCs, although it is well known that many of the NMOCs are not VOCs.

Although projected emissions of sulfur oxides (SOx) are expected to be minimal (since the site's total reduced sulfur concentrations are expected to be less than 100 ppmv), we elected to use the emission factor for SOx contained within AP-42 in the absence of site-specific data. Total reduce sulfur concentrations can be extremely variable within LFG; therefore, SOx emissions can be variable as well. As such, the AP-42 emission factor for SOx was selected for use in this evaluation. We expect PTE emissions of SOx, assuming all reduce sulfur compounds in the LFG will be converted to SO_2 in the flare, to be much lower than those predicted by AP-42.

Emissions of particulate matter less than 10 microns (PM10) are expected to be negligible for the flares that are proposed for installation at the sites.

APPLICABILITY OF FEDERAL AIR PERMITTING PROGRAMS

New Source Review (NSR)

Maximum potential emissions for CO, NOx, VOCs, and PM10 contained in Table 5 were compared to the NSR thresholds applicable to the sites (Table 6). Based on this comparison, NSR will not be triggered for the GCCS projects at any of the 3 sites. As such, the projects currently carry no requirements under NSR.

Prevention of Significant Deterioration (PSD)

Maximum potential emissions for SOx contained in Table 5 were compared to the PSD thresholds applicable to the sites (Table 7). In addition, with the significant reduction in NMOC emissions obtained through the use of GCCSs, NMOC emissions (Table 5) will not exceed the PSD significance level. Based on this comparison, PSD will not be triggered for the GCCS projects at any of the 3 sites. As such, the projects currently carry no requirements under PSD.

Title V Operating Permits

Maximum potential emissions for criteria pollutants contained in Table 5 were compared to the Title V thresholds applicable to the sites (Table 8). Based on this comparison, Title V will not be triggered for any of the 3 sites due to criteria pollutant emissions.

Since the majority of the hazardous air pollutants (HAPs) present in LFG are VOCs, the 98% destruction efficiency (for VOCs) achieved by the flare will significantly reduce HAP emissions from the site. Based on this, Title V requirements should not be triggered at the sites due to an exceedance of the Title V thresholds for HAPs.

However, since the Salt River Landfill is subject to the NSPS, it is also subject to Title V, as outlined in the NSPS regulations. As required, a Title V permit application will be submitted for the Salt River site by November 15, 1998, within 12 months from the date the 40 Code of Federal Regulations (CFR) Part 71 operating permit program becomes applicable.

The Tri-Cities Landfill is subject to the EG and must submit a Title V permit application within 12 months from the date the Federal Plan for the EG is promulgated, which is expected by early 1998.

The North Center Street Landfill does not exceed the design capacity exemption and is, therefore, exempt from the NSPS/EG. As such, it is not subject to Title V.

NSPS/EG

As indicated above, the Salt River Landfill is subject to the NSPS and is currently in compliance. The next NSPS regulatory deadline that must be met for the Salt River site is for installation and operation of a LFG collection and control system by December 12, 1998. The SRPMIC intends to meet this deadline with the LFG collection and control system proposed herein.

The Tri-Cities Landfill will be subject to the provisions of the EG when the Federal Plan is promulgated by the EPA. At that time, an Initial Design Capacity Report and Tier 1 Non-Methane Organic Compound (NMOC) Emission Rate Report will be required to be submitted within 90 days after the date of promulgation. Additional requirements under the EG will depend on the results of the Tier 1 emission rate study.

The North Center Street Landfill is not subject to the NSPS or EG since it does not exceed the design capacity exemption.

State and Local Air Quality Regulations

In accordance with EPA's policy for environmental regulatory jurisdiction on Tribal lands, state and local environmental regulations do not apply to sites on federal lands. As such, State of Arizona and Maricopa County air quality regulations are not applicable for the proposed SRPMIC flare projects.

CONCLUSIONS

Based on the information provided above, there are currently no federal pre-construction air permitting regulations applicable to the proposed GCCS projects at the 3 SRPMIC landfills. As such, it is our intention to begin construction of the LFG collection and open flaring systems as soon as practical.

LFG collection and control systems must be installed by June 30, 1998 in order to take advantage of the Section 29 tax credits available for this project. Without the tax credits, the LFG utilization projects will not be viable. Also, in the absence of the tax credits, the SRPMIC will be required to pay over $3 million to design and install GCCSs at the 3 sites, plus there will be an approximately $300,000 annual expense incurred by the SRPMIC for operations and maintenance (O&M) of the GCCSs.

Our proposed compliance strategy will complies with applicable federal air quality regulations. In fact, the LFG collection and control systems at the sites will maintain compliance with the NSPS (at Salt River), the EG (at Tri-Cities), and RCRA Subtitle D LFG migration control requirements (at North Center Street), including 98% destruction efficiency for NMOCs.

Under normal circumstances, a LFG collection and control system would not be installed at the North Center Street Landfill, since it is not subject to the NSPS or EG. However, the project proposed will provide for LFG collection and emission control at the North Center Street site above and beyond what is required by the regulations.

Also, under the EG, a LFG collection and control system would not be required at the Tri-Cities site until a minimum of 30 months after the promulgation of the Federal Plan for the EG. Under our proposed project, an LFG collection and control system will be installed by June 30, 1998, almost 3 years earlier than required. The LFG collection system at the Salt River Landfill does not have to be installed until December 1998 under the NSPS requirements; however, it will also be installed by June 30, 1998, approximately 6 months before it is required.

In addition to the NSPS/EG compliance activities, Title V requirements will also be met at each of the sites, as applicable.

It is neither feasible nor appropriate to consider energy production projects at this time because there is a high degree of uncertainty regarding whether those projects will occur, and if they do occur, what the resulting emissions might be. However, if the LFG utilization project(s) are implemented, BES, the SRPMIC, and the SRP will apply to EPA for all applicable permits under NSR and will achieve full compliance with the provisions of NSR.

In summary, we strongly believe that our proposed compliance strategy not only meets but exceeds the federal air quality permitting requirements currently applicable to the projects.

If you have any questions regarding this submittal or desire any additional information, please contact either of the undersigned or Krishan Saigal, P.E.

Sincerely,

Patrick S. Sullivan, R.E.A., C.P.P.
Senior Project Scientist
SCS ENGINEERS

Robert P. Stearns, P.E., DEE
President
SCS ENGINEERS

Enclosures

cc: Steve Parker; SRPMIC
Stu Baker; SRPMIC
Rick DiGia; BES
Curt Ranger; BES
Kris Saigal; SCS-LB
Jorge Gutierrez; SCS-FS
Tom Barham; SCS-FS
Mark Krieski; SCS-Phoenix

TABLE 1. METHANE GENERATION AND LFG RECOVERY RATES
SALT RIVER LANDFILL

Year	Disposal Rate (tons/yr)	Refuse In-Place (tons)	Methane Generation (cfm)	Methane Generation (cf/lb-yr)	Methane Generation (MMBtu/hr)	LFG Recovery (cfm)	LFG Recovery (Mmcf/day)
1994	480,000	480,000	0	0.000	0.000	0	0.000
1995	480,000	960,000	72	0.020	4.297	100	0.144
1996	480,000	1,440,000	142	0.026	8.508	199	0.286
1997	480,000	1,920,000	211	0.029	12.637	295	0.425
1998	480,000	2,400,000	278	0.030	16.683	389	0.561
1999	480,000	2,880,000	344	0.031	20.650	482	0.694
2000	480,000	3,360,000	409	0.032	24.538	573	0.824
2001	480,000	3,840,000	472	0.032	28.348	661	0.953
2002	480,000	4,320,000	535	0.033	32.084	749	1.078
2003	480,000	4,800,000	596	0.033	35.745	834	1.201
2004	0	4,800,000	656	0.036	39.334	918	1.322
2005	0	4,800,000	643	0.035	38.555	900	1.295
2006	0	4,800,000	630	0.034	37.792	882	1.270
2007	0	4,800,000	617	0.034	37.044	864	1.245
2008	0	4,800,000	605	0.033	36.310	847	1.220
2009	0	4,800,000	593	0.032	35.591	830	1.196
2010	0	4,800,000	581	0.032	34.886	814	1.172
2011	0	4,800,000	570	0.031	34.196	798	1.149
2012	0	4,800,000	559	0.031	33.518	782	1.126
2013	0	4,800,000	548	0.030	32.855	767	1.104
2014	0	4,800,000	537	0.029	32.204	751	1.082
2015	0	4,800,000	526	0.029	31.566	737	1.061
2016	0	4,800,000	516	0.028	30.941	722	1.040
2017	0	4,800,000	505	0.028	30.329	708	1.019
2018	0	4,800,000	495	0.027	29.728	694	0.999
2019	0	4,800,000	486	0.027	29.140	680	0.979
2020	0	4,800,000	476	0.026	28.563	666	0.960
2021	0	4,800,000	467	0.026	27.997	653	0.941
2022	0	4,800,000	457	0.025	27.443	640	0.922
2023	0	4,800,000	448	0.025	26.899	628	0.904
2024	0	4,800,000	439	0.024	26.367	615	0.886
2025	0	4,800,000	431	0.024	25.844	603	0.868
2026	0	4,800,000	422	0.023	25.333	591	0.851
2027	0	4,800,000	414	0.023	24.831	579	0.834
2028	0	4,800,000	406	0.022	24.339	568	0.818
2029	0	4,800,000	398	0.022	23.857	557	0.802
2030	0	4,800,000	390	0.021	23.385	546	0.786
2031	0	4,800,000	382	0.021	22.922	535	0.770
2032	0	4,800,000	374	0.021	22.468	524	0.755
2033	0	4,800,000	367	0.020	22.023	514	0.740
2034	0	4,800,000	360	0.020	21.587	504	0.725
2035	0	4,800,000	353	0.019	21.160	494	0.711
2036	0	4,800,000	346	0.019	20.741	484	0.697
2037	0	4,800,000	339	0.019	20.330	474	0.683
2038	0	4,800,000	332	0.018	19.927	465	0.670
2039	0	4,800,000	326	0.018	19.533	456	0.656
2040	0	4,800,000	319	0.017	19.146	447	0.643
2041	0	4,800,000	313	0.017	18.767	438	0.631
2042	0	4,800,000	307	0.017	18.395	429	0.618
2043	0	4,800,000	301	0.016	18.031	421	0.606
2044	0	4,800,000	295	0.016	17.674	412	0.594
2045	0	4,800,000	289	0.016	17.324	404	0.582
2046	0	4,800,000	283	0.015	16.981	396	0.571

LFG QUANTITIES NORMALIZED TO: 50% Methane
SELECTED LFG GENERATION RATE CONSTANT 0.0200
SELECTED ULTIMATE METHANE GENERATION RATE 4000 cu ft/ton
ESTIMATES COLLECTION EFFICIENCY 70%

TABLE 2. METHANE GENERATION AND LFG RECOVERY RATES
NORTH CENTER STREET LANDFILL

Year	Disposal Rate (tons/yr)	Refuse In-Place (tons)	Methane Generation (scfm)	Methane Generation (cf/lb-yr)	Methane Generation (mmBtu/hr)	LFG Recovery (scfm)	LFG Recovery (mmBtu/yr)
1970	87,000	87,000	0	0.000	0.000	0	0
1971	87,000	174,000	19	0.029	1.157	27	7,092
1972	87,000	261,000	38	0.038	2.279	53	13,974
1973	87,000	348,000	56	0.042	3.368	79	20,653
1974	87,000	435,000	74	0.045	4.425	103	27,135
1975	87,000	522,000	91	0.046	5.451	127	33,425
1976	87,000	609,000	107	0.046	6.446	150	39,529
1977	87,000	696,000	124	0.047	7.412	173	45,453
1978	87,000	783,000	139	0.047	8.350	195	51,202
1979	87,000	870,000	154	0.047	9.260	216	56,780
1980	87,000	957,000	169	0.046	10.143	237	62,194
1981	87,000	1,044,000	183	0.046	10.999	257	67,448
1982	87,000	1,131,000	197	0.046	11.831	276	72,547
1983	87,000	1,218,000	211	0.045	12.638	295	77,495
1984	87,000	1,305,000	224	0.045	13.421	313	82,297
1985	87,000	1,392,000	236	0.045	14.181	331	86,956
1986	87,000	1,479,000	249	0.044	14.918	348	91,478
1987	87,000	1,566,000	261	0.044	15.634	365	95,867
1988	87,000	1,653,000	272	0.043	16.328	381	100,126
1989	87,000	1,740,000	283	0.043	17.002	397	104,258
1990	87,000	1,827,000	294	0.042	17.656	412	108,269
1991	87,000	1,914,000	305	0.042	18.291	427	112,161
1992	87,000	2,001,000	315	0.041	18.907	441	115,938
1993	0	2,001,000	325	0.043	19.505	455	119,604
1994	0	2,001,000	315	0.041	18.928	442	116,069
1995	0	2,001,000	306	0.040	18.369	429	112,639
1996	0	2,001,000	297	0.039	17.826	416	109,310
1997	0	2,001,000	288	0.038	17.299	404	106,079
1998	0	2,001,000	280	0.037	16.788	392	102,944
1999	0	2,001,000	272	0.036	16.292	380	99,902
2000	0	2,001,000	264	0.035	15.810	369	96,949
2001	0	2,001,000	256	0.034	15.343	358	94,084
2002	0	2,001,000	248	0.033	14.890	347	91,303
2003	0	2,001,000	241	0.032	14.450	337	88,605
2004	0	2,001,000	234	0.031	14.023	327	85,986
2005	0	2,001,000	227	0.030	13.608	318	83,445
2006	0	2,001,000	220	0.029	13.206	308	80,979
2007	0	2,001,000	214	0.028	12.816	299	78,585
2008	0	2,001,000	207	0.027	12.437	290	76,263
2009	0	2,001,000	201	0.026	12.069	282	74,009
2010	0	2,001,000	195	0.026	11.713	273	71,822
2011	0	2,001,000	189	0.025	11.366	265	69,699
2012	0	2,001,000	184	0.024	11.031	257	67,639
2013	0	2,001,000	178	0.023	10.705	250	65,640
2014	0	2,001,000	173	0.023	10.388	242	63,700
2015	0	2,001,000	168	0.022	10.081	235	61,817
2016	0	2,001,000	163	0.021	9.783	228	59,990
2017	0	2,001,000	158	0.021	9.494	222	58,217
2018	0	2,001,000	154	0.020	9.213	215	56,497
2019	0	2,001,000	149	0.020	8.941	209	54,827
2020	0	2,001,000	145	0.019	8.677	202	53,207
2021	0	2,001,000	140	0.018	8.420	196	51,634
2022	0	2,001,000	136	0.018	8.172	191	50,108

LFG QUANTITIES NORMALIZED TO: 50% Methane
SELECTED LFG GENERATION RATE CONSTANT 0.0300
SELECTED ULTIMATE METHANE GENERATION RATE 4000 cu ft/ton
ESTIMATED COLLECTION EFFICIENCY: 70%

TABLE 3. METHANE GENERATION AND LFG RECOVERY RATES
TRI-CITIES LANDFILL

Year	Disposal Rate (tons/yr)	Refuse In-Place (tons)	Methane Generation (scfm)	Methane Generation (cf/lb-yr)	Methane Generation (mmBtu/hr)	LFG Recovery (scfm)	LFG Recovery (mmBtu/yr)
1970	500,000	500,000	0	0.000	0.000	0	0
1971	500,000	1,000,000	111	0.029	6.647	155	40,759
1972	500,000	1,500,000	218	0.038	13.097	306	80,313
1973	500,000	2,000,000	323	0.042	19.357	452	118,698
1974	500,000	2,500,000	424	0.045	25.432	593	155,949
1975	500,000	3,000,000	522	0.046	31.327	731	192,098
1976	500,000	3,500,000	617	0.046	37.048	864	227,180
1977	500,000	4,000,000	710	0.047	42.600	994	261,224
1978	500,000	4,500,000	800	0.047	47.988	1,120	294,263
1979	500,000	5,000,000	887	0.047	53.217	1,242	326,325
1980	500,000	5,500,000	972	0.046	58.291	1,360	357,439
1981	500,000	6,000,000	1,054	0.046	63.215	1,475	387,634
1982	500,000	6,500,000	1,133	0.046	67.993	1,587	416,936
1983	500,000	7,000,000	1,211	0.045	72.631	1,695	445,372
1984	500,000	7,500,000	1,286	0.045	77.131	1,800	472,968
1985	500,000	8,000,000	1,358	0.045	81.499	1,902	499,749
1986	500,000	8,500,000	1,429	0.044	85.737	2,001	525,738
1987	500,000	9,000,000	1,497	0.044	89.850	2,096	550,959
1988	500,000	9,500,000	1,564	0.043	93.841	2,190	575,434
1989	500,000	10,000,000	1,629	0.043	97.715	2,280	599,186
1990	500,000	10,500,000	1,691	0.042	101.474	2,368	622,236
1991	500,000	11,000,000	1,752	0.042	105.121	2,453	644,605
1992	500,000	11,500,000	1,811	0.041	108.662	2,535	666,313
1993	0	11,500,000	1,868	0.043	112.097	2,616	687,379
1994	0	11,500,000	1,813	0.041	108.784	2,538	667,064
1995	0	11,500,000	1,759	0.040	105.569	2,463	647,349
1996	0	11,500,000	1,707	0.039	102.449	2,390	628,217
1997	0	11,500,000	1,657	0.038	99.421	2,320	609,650
1998	0	11,500,000	1,608	0.037	96.483	2,251	591,633
1999	0	11,500,000	1,561	0.036	93.631	2,185	574,147
2000	0	11,500,000	1,514	0.035	90.864	2,120	557,179
2001	0	11,500,000	1,470	0.034	88.179	2,058	540,711
2002	0	11,500,000	1,426	0.033	85.573	1,997	524,731
2003	0	11,500,000	1,384	0.032	83.044	1,938	509,223
2004	0	11,500,000	1,343	0.031	80.589	1,880	494,173
2005	0	11,500,000	1,303	0.030	78.207	1,825	479,568
2006	0	11,500,000	1,265	0.029	75.896	1,771	465,395
2007	0	11,500,000	1,228	0.028	73.653	1,719	451,640
2008	0	11,500,000	1,191	0.027	71.476	1,668	438,292
2009	0	11,500,000	1,156	0.026	69.364	1,618	425,339
2010	0	11,500,000	1,122	0.026	67.314	1,571	412,768
2011	0	11,500,000	1,089	0.025	65.324	1,524	400,569
2012	0	11,500,000	1,057	0.024	63.394	1,479	388,730
2013	0	11,500,000	1,025	0.023	61.520	1,435	377,242
2014	0	11,500,000	995	0.023	59.702	1,393	366,092
2015	0	11,500,000	966	0.022	57.937	1,352	355,273
2016	0	11,500,000	937	0.021	56.225	1,312	344,773
2017	0	11,500,000	909	0.021	54.563	1,273	334,583
2018	0	11,500,000	883	0.020	52.951	1,236	324,695
2019	0	11,500,000	856	0.020	51.386	1,199	315,099
2020	0	11,500,000	831	0.019	49.867	1,164	305,786
2021	0	11,500,000	807	0.018	48.393	1,129	296,749
2022	0	11,500,000	783	0.018	46.963	1,096	287,978

LFG QUANTITIES NORMALIZED TO: 50% Methane
SELECTED LFG GENERATION RATE CONSTANT: 0.030
SELECTED ULTIMATE METHANE GENERATION RATE: 4000 cu ft/ton
ESTIMATED COLLECTION EFFICIENCY: 70%

Table 4. **Maximum LFG Flow Rates and Rated Flare Capacities**

Landfill Site	Maximum LFG Flow Rate to Flare (cfm)	Maximum Rated Capacity of Flares (cfm)
Salt River	918	1,000
North Center Street	392	500
Tri-Cities	2,251	2,500

TABLE 5. SUMMARY OF EMISSIONS FROM PROPOSED LFG COLLECTION AND CONTROL SYSTEM PROJECTS SRPMIC LANDFILL SITES

Criteria Pollutant	Max Flare Rating (1) (cfm)	Maximum Heating Value of LFG (2) (BTUs/cf)	Maximum Hours of Operation (3) (hr/yr)	Emission Factor (4) (units vary)	PTE Emissions (tons/yr)
SALT RIVER LANDFILL					
VOCs	1000	500	8760	98%	0.67
NOx	1000	500	8760	0.11	14.45
SOx	1000	500	8760	0.002	8.76
CO	1000	500	8760	0.25	32.85
PM10	1000	500	8760	14	3.68
NORTH CENTER STREET LANDFILL					
VOCs	500	500	8760	98%	0.34
NOx	500	500	8760	0.11	7.23
SOx	500	500	8760	0.002	4.38
CO	500	500	8760	0.25	16.43
PM10	500	500	8760	14	1.84
TRI-CITIES LANDFILL					
VOCs	2500	500	8760	98%	1.68
NOx	2500	500	8760	0.11	36.14
SOx	2500	500	8760	0.002	21.90
CO	2500	500	8760	0.25	82.13
PM10	2500	500	8760	14	9.20

VOCs = Volatile Organic Compounds
NOx = Nitrogen Oxides
SOX = Sulfur Oxides
CO = Carbon Monoxide
PM10 = Particulate Matter less than 10 microns
PTE = Potential to Emit
LFG = Landfill Gas
SRPMIC = Salt River Pima Maricopa Indian Community

(1) Maximum design capacities for LFG flares
(2) Maximum heating value for LFG (Range: 400-500 BTUs/cf)
(3) Flares will operate 24 hr/day, 365 days/year
(4) Emission factors for CO and NOx from manufacturer's certified data (John Zink Co.); lb/MM BTU
Emission estimates for VOCs based on max. NMOC emission rates for each site, an NMOC concentration of 1170 ppmv as hexane from AP-42, and a 98% destruction efficiency
Emission factors for SOx from AP-42, Section 2.4 (Landfills); lb/hr-scfm
Emission factors for PM10 from AP-42, Section 1.4 (Natural Gas Combustion); lb/MMscf

Table 6. Major Source NSR Thresholds for New Sources in Maricopa County, Arizona

Regulated Pollutant	Attainment Status	Major Source Thresholds (tpy)
Volatile Organic Compounds (VOCs)	Moderate	100
Nitrogen Oxides (NOx)*	Moderate	100
Carbon Monoxide (CO)**	Serious	100
Particulate Matter less than 10 Microns (PM10)	Serious	70

tpy = tons per year
* = Maricopa County has received a NOx waiver for their ozone non-attainment status.
** = Maricopa County has been allowed to maintain a major source threshold of 100 tpy of CO.

Table 7. Major Source PSD Thresholds for New Sources in Maricopa County, Arizona

Regulated Pollutant	Major Source Thresholds (tpy)
Sulfur Oxides (SOx)	250
Non-Methane Organic Compounds (NMOCs)	N/A

tpy = tons per year
N/A = Not Applicable; NMOC PSD significance level is 50 tpy.

Table 8. Major Source Thresholds for Title V Applicability in Maricopa County, Arizona

Regulated Pollutant	Major Source Thresholds (tpy)
Volatile Organic Compounds (VOCs)	100
Nitrogen Oxides (NOx)	100
Carbon Monoxide (CO)	100
Particulate Matter less than 10 Microns (PM10)	70
Sulfur Oxides (SOx)	100
One HAP	10
Total HAPs	25

HAP = Hazardous air pollutant
tpy = tons per year

ATTACHMENT

Certification of Emission Factors by John Zink Company

KOCH ENGINEERING COMPANY, INC.
JOHN ZINK COMPANY.

International Headquarters
11920 East Apache
Tulsa, Oklahoma 74121-1220
Phone: 918/234-2783
Facsimile: 918-234-1986

Tim Locke
Business Team Leader
Biogas Flare Group

TELEFAX TRANSMITTAL MESSAGE

DATE:	August 1, 1997
TO:	Shashi Kothary
COMPANY:	SCS Engineers
FAX NUMBER:	(562)427-0805
TOTAL PAGES:	1
REFERENCE:	*Utility Flare Emissions*
COPIES:	J. Bermingham

IF MISSENT, PLEASE TELEPHONE 918 234-2783. THIS MESSAGE IS BEING SENT FROM 918 234-1986.

As per our conversation earlier today, John Zink can guarantee the following for utility or candlestick landfill gas flares:

- 0.25 lb/mmbtu fired for CO
- 0.11 lb/mmbtu fired for NOx
- 98% destruction efficiency

I hope this helps clarify our earlier conversation. If you need further info, feel free to call me at (918)234-2783.

Regards,

OCT 21 1997

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

October 20, 1997

OFFICE OF THE
REGIONAL ADMINISTRATOR

Patrick Sullivan
Senior Project Scientist
SCS Engineers
6761 Sierra Court, Suite D
Dublin, CA 94568-2611

Dear Mr. Sullivan:

I am writing to you concerning the proposed landfill gas collection and control system projects in the Salt River Pima Maricopa Indian Community. In your letter dated September 26, 1997, you indicated that these projects should be exempt from regulations under federal law since emissions from flares used at each landfill would not exceed the major source thresholds for this area. The emissions calculations which you have performed, however, are not adequate, since they rely on the use of open flare emission factors which are certified by the manufacturer, rather than those which are derived from actual source tests.

In order to demonstrate that the proposed sources have an uncontrolled potential to emit which does not exceed major source thresholds, please submit the results of source testing which justifies the emission factors used in your calculations. Ideally, we would like to see the results of source tests from the source in question to demonstrate the appropriateness of emission factors used in determining a source's potential to emit. Since these are proposed new sources, we will accept source tests done at other landfills which also use John Zink open flares, as you have proposed to use.

In the absence of adequate source-test data, we will rely on emission factors from AP-42, which were just updated last month. In your letter, you indicated that AP-42 factors were not appropriate because the flares measured for AP-42 showed a much lower average NMOC destruction efficiency than those required by the landfill NSPS (40 CFR part 60, subpart WWW). In the newest version of AP-42, however, the tested flares showed a much higher average destruction efficiency (see attached Table 4.7). Thus, these AP-42 emission factors represent a current, category-wide average of the emissions measured at a large number of sources. Since emissions of other pollutants, such as NOx and CO, should be comparable to the NMOC destruction efficiency, there is no reason to believe that these factors are necessarily too high. Using AP-42 emission factors, the Tri-Cities landfill would be subject to regulation as a major source of CO.

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Thank you for your cooperation in this matter. If you have any questions, please contact Steve Branoff, of my staff, at (415) 744-1290.

Sincerely,

Matt Haber, Chief
Permits Office

Table 4-7. CONTROL EFFICIENCIES FOR LFG CONSTITUENTS

Control Device (SCC)	Constituent[a]	Control Efficiency[b] (%) Typical	Range	Data Points[c]	Rating
Boiler/Steam Turbine (50100306) (50100406)	NMOC	98.0	96-99+	3	D
	Halogenated species	99.6	87-99+	4	D
	Non-Halogenated species	99.8	67-99+	4	D
Flare[d] (50100303) (50100403)	NMOC	99.2	90-99+	14	B
	Halogenated species	99.2	91-99+	8	C
	Non-Halogenated species	99.7	38-99+	8	C
Gas Turbine (50100305) (50100405)	NMOC	94.4	90-99+	2	E
	Halogenated species	99.7	98-99+	2	E
	Non-Halogenated species	98.2	97-99+	2	E
IC Engine (50100304) (50100404)	NMOC	97.2	94-99+	3	E
	Halogenated species	93.0	90-99+	2	E
	Non-Halogenated species	86.1	25-99+	2	E

[a] Halogenated species are those containing atoms of chlorine, bromine, fluorine, or iodine. See sections 4.3.2 and 4.3.3 for methods to estimate emissions of SO_2, CO_2, and HCl from control equipment. A control efficiency of 0 should be assumed for mercury.
[b] Background data are given in Appendix C.
[c] Data points are site averages for flares and equipment averages for other equipment that are identical, located at the same site, and fired on the same LFG.
[d] Where information was available on the equipment tested, the data were for enclosed flares. The defaults are assumed to be equally representative of open flares.

Table 4-8. EMISSION FACTORS FOR SECONDARY POLLUTANTS EXITING CONTROL DEVICES

Control Device (SCC)	Pollutant[a]	Emission Rate (kg/hr/dscmm Methane) Minimum	Typical[b]	Maximum	No. of Data Points[c]	Rating
Flare	NO_x	0.013	0.039	0.077	11	C
(50100410) (50300601)	CO	4.1×10^{-3}	0.72	1.8	15	C
	PM	0.013	0.016	0.030	5	D
IC Engine	NO_x	0.15	0.24	0.81	6	D
(50100421)	CO	0.38	0.45	0.56	5	C
	PM	0.046	0.046	0.046	1	E
Gas Turbine	NO_x	0.027	0.083	0.17	4	D
(50100420)	CO	0.092	0.22	0.77	4	E
	PM	0.013	0.021	0.030	2	E
Boiler/Steam Turbine[d]	NO_x	0.026	0.032	0.045	4	D
(50100423)	CO	7.4×10^{-4}	5.4×10^{-3}	0.011	3	E
	PM	6.8×10^{-3}	7.9×10^{-3}	8.6×10^{-3}	3	D

[a] NO_x is expressed as nitrogen dioxide. PM is total particulate, however based on data from other gas-fired combustion sources, most of the particulate matter will be less than 2.5 microns in diameter. See sections 4.3.2 and 4.3.3 for methods to estimate emissions of SO_2, CO_2, and HCl from control equipment.

[b] The arithmetic mean is used as the typical emission rate, unless otherwise denoted. Underlined values indicate the median and double underlined values indicate the geometric mean. Background data and summary statistics are given in Appendix C.

[c] Data points can be averages of identical devices located at the same site (e.g., boilers) and fired on the same LFG. For flares, equipment located at the same site are were assumed to be similar and site averages serve as data points.

[d] All source tests were conducted on boilers, however, emission factors should also be representative of steam turbines. Emission rates are representative of boilers equipped with low-NO_x burners and flue gas recirculation. No data were available for uncontrolled NO_x emissions.

Environmental Consultants

6761 Sierra Court
Suite D
Dublin, CA 94568-2611

510 829-0661
FAX 510 829-5493

SCS ENGINEERS

October 31, 1997
File No. 10.97017.00

Mr. Steve Branoff
U.S. Environmental Protection Agency
Region IX
Air Division AIR-3
75 Hawthorne Street
San Francisco, California 94105-3901

SUBJECT: APPLICABILITY OF FEDERAL AIR PERMITTING PROGRAMS - PROPOSED SALT RIVER PIMA MARICOPA INDIAN COMMUNITY (SRPMIC) LANDFILL GAS COLLECTION AND CONTROL SYSTEM PROJECTS, ARIZONA

Dear Steve:

This is in response to Mr. Matt Haber's October 20, 1997 letter pertaining to the applicability of federal air permitting programs to the subject landfill gas (LFG) collection and control system (GCCS) projects, and is prepared by SCS Engineers (SCS) on behalf of DTE Biomass Energy, Inc., formerly known as Biomass Energy Systems (BES), the SRPMIC, and the Salt River Project (SRP).

Mr. Haber states that, in the absence of source test data to support manufacturer-guaranteed emission factors (EFs), EPA is rejecting the EFs for carbon monoxide (CO) and nitrogen oxides (NOx) provided by John Zink Company. As such, defaulting to EFs prescribed in the revised version of AP-42 (September, 1997), potential to emit (PTE) emissions of CO from the proposed LFG flare at the Tri-Cities Landfill could exceed major source thresholds and trigger federal New Source Review (NSR).

We enclose herewith the back-up documentation for the EFs guaranteed by John Zink for your review.

Please note that it is extremely difficult, albeit impossible, to complete a source test of an open flare once installed. However, John Zink has completed laboratory testing of its open flares, through which it has developed the necessary data to support and guarantee its EFs.

You will be receiving, in the near future, a letter directly from John Zink further documenting the EFs they have guaranteed for this project.

Mr. Steve Branoff
October 31, 1997
Page Two

We trust that the enclosed documentation and any subsequent documentation provided by John Zink will satisfy your needs at this time. Based on the information provided herein, we believe no current federal pre-construction air permitting regulations apply to the proposed GCCS projects at the 3 SRPMIC landfills.

The project participants must construct the LFG collection and flaring systems as soon as practical. As you know, these systems must be installed by June 30, 1998 to realize Section 29 tax credits available for this project. Wellfield construction was initiated recently, and construction of the blower/flare stations must begin within the next several weeks to meet this deadline.

However, installation of the blower/flare station at the Tri-Cities site will not start until the NSR applicability issue is resolved with your office. Nevertheless, installation of the LFG collection systems (i.e., wells and piping) at all 3 SRPMIC sites and installation of the blower/flare stations at the Salt River and North Center Street sites (where NSR is clearly not applicable) will continue. You should recall that installation of LFG collection systems prior to resolving the NSR issue was discussed at our July 31, 1997 meeting.

If you have questions or desire additional information, please contact either of the undersigned or Krishan Saigal, P.E.

Sincerely,

Patrick S. Sullivan, R.E.A., C.P.P.
Senior Project Scientist
SCS ENGINEERS

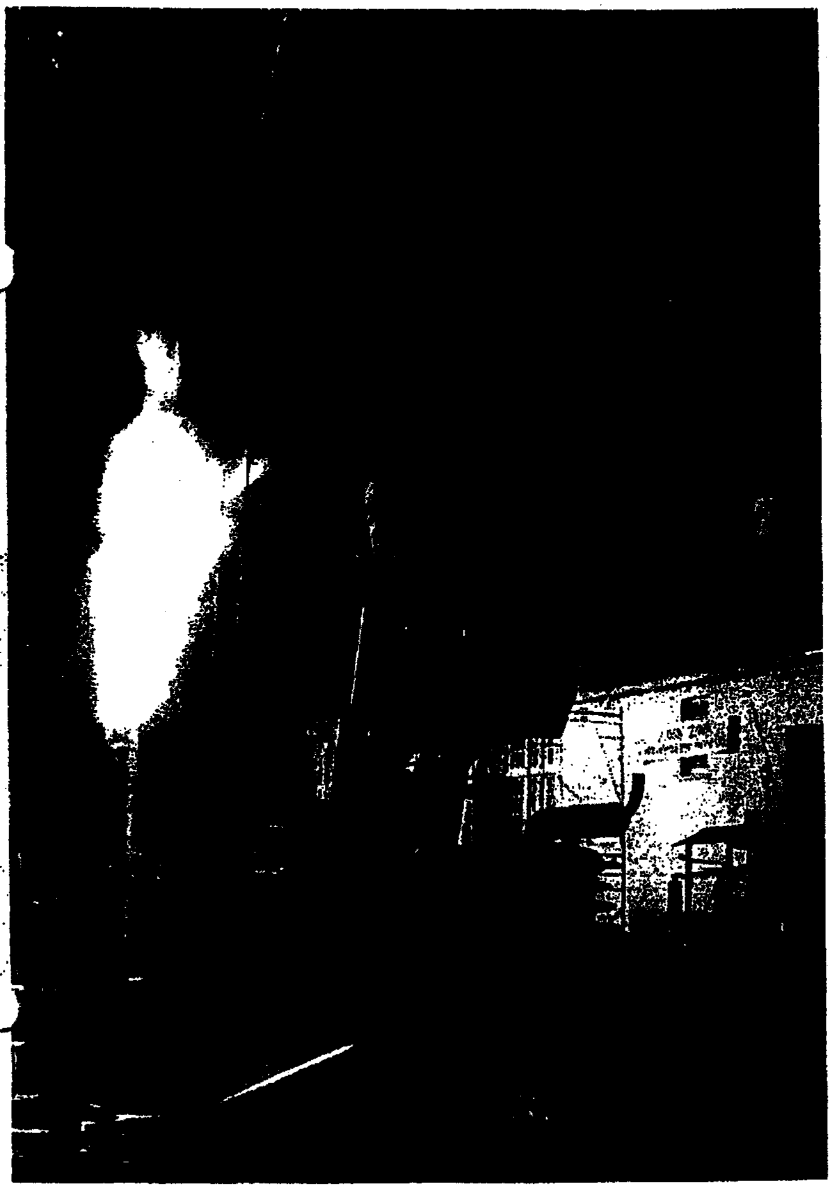
Joseph Miller /for
Robert P. Stearns, P.E., DEE
President
SCS ENGINEERS

Enclosures

cc: Steve Parker; SRPMIC
Stu Baker; SRPMIC
Rick DiGia; BES
Curt Ranger; BES
Kris Saigal; SCS-LB
Jorge Gutierrez; SCS-FS
Tom Barham; SCS-FS (Reston, VA)
Mark Krieski; SCS-Phoenix
Tim Locke; John Zink

ATTACHMENT

Back-up Documentation for Certification of Emission Factors by John Zink Company



RACT for VOC — A Burning Issue

MIKE KELLER and ROGER NOBLE

Emission analysis of the flare combustion reaction has only recently come under study by those charged with air quality regulation. Of particular interest in the use of open-air flare flame is the escape of unreacted volatile organic compounds (VOC), particularly those which participate in atmospheric photochemical reactions.

Measurement of flare system fugitive VOC emissions is required for comparative Reasonably Available Control Technology (RACT) performance. The range of RACT currently under investigation is for systems handling normal daily flare loads. Large emergency reliefs from these systems occur infrequently, and therefore are not considered a major contributor to flare emissions.

Flares as VOC Control Device

Previously, flare emission studies reported VOC destruction efficiencies (or combustion efficiencies) that compare favorably with other reasonably available control technology. Alternative RACT systems though have been specified by EPA for low, continuous and intermittent flows in a closed gaseous vent relief system. The Chemical Manufacturers Association (CMA) as flare users and John Zink Company questioned the need for a substantial capital investment and increased operating costs for installing an enclosed combustion device or vapor recovery system if it would not improve air quality. John Zink Company is a manufacturer of both RACT control devices—thermal oxidizer and flare vapor recovery systems.

CMA's Process Emission Regulatory Task Group and Zink formulated plans to undertake a comprehensive flare efficiency study. Through a review of the proposed tests, additional financial support and encouragement were also obtained from EPA. Zink provided the operating personnel, all operating equipment, piping, controls, the communications system, flares, and the test site. CMA provided the fuel, funding for Engineering Science Co. to observe and analyze the tests. EPA funded the ROSE and several special flare test points. A test matrix was jointly established by the CMA task force, EPA representatives and the John Zink Co.

Flare Testing

The purpose of the jointly-funded tests was to measure fugitive VOC emissions for comparative ranking of flares with other RACT. The intent was to duplicate normal, daily operating conditions of "real world" flares. A multiple component hydrocarbon waste gas composition was obtained using crude propylene as the primary fuel. Tests with crude propylene simulated normal daily purge and relief rates for high smoking tendency, high heating value hydrocarbons.

Secondary waste gas compositions were obtained by blending nitrogen with the crude propylene. These secondary gas compositions were representative of normal flaring practice where vessels and headers are nitrogen-purged. Secondary waste gas compositions of approximately 300 Btu/scf and 150-220 Btu/scf were selected to investigate the lower range of combustibility.

Waste gas flow rates were selected to cover the range of

Reprinted from POLLUTION ENGINEERING Magazine, July 1983

normal daily flaring occurrences. Waste gas delivery to the test flare, space limitation and practical extractive probe sampling heights dictated the maximum test flare size and therefore the maximum flow rates. Flow rates up to approximately 3000 lb/hr were tested for both crude propylene and mixed gases. Fractions of the maximum flow were taken to define intermediate (1/3 maximum) and low flows (1/20 maximum). Intermediate and low flows gave added information for effects of total heat release and exit velocity.

Waste gas flow rates analogous to the purge requirements of flare air infiltration equipment (Molecular Seals and Airrestors) were also investigated. Purge rates which resulted in velocities as low as 0.01 fps were investigated too.

Determining the degree of smokeless burning and the related steam assist rate were important to represent the normal, daily range of operations. For crude propylene, steam ratios were taken for the point of incipient smoke formation, for efficient steam utilization and for normal high steam utilization ratios. Excessively high steam ratios (10 to 20 times the smokeless burning requirement) were investigated to simulate failure of steam control. Failure or absence of the steam supply system was studied by operating the flare without steam assist. The later tests produced copious amounts of smoke.

For the high, intermediate, low, and purge rate flows the effects of the recommended minimum cooling steam flow were studied. Such cooling steam is normally used in process flares to keep the flare steam supply system warm and to prevent thermal cycling of the steam injection equipment. The steam flare used for these smokeless burning tests, as established by flow rate constraints, was a John Zink STF-S-8 smokeless flare.

Test Setup

The schematic setup of the flare tests is shown in Figure 1. Liquid crude propylene was delivered from a 6,000 gal tank truck to an indirect fired water bath vaporizer. Gaseous crude propylene was collected in a volume tank and flowed through metering rotometers and piping to the flare. A blowdown flare was provided to handle propylene delivery or vaporization upsets without upsetting flow to the test flare.

Nitrogen was delivered from gaseous storage to the flare through metering rotometers. Backpressure regulators were used for both the propylene and nitrogen flow rotometers to compensate for downstream line pressure changes. Steam from a 40,000 lb/hr boiler was metered through critical flow orifices.

Extractive emission sampling, recording and analysis was performed by an independent testing company, Engineering Science Co., Austin, TX. The EPA probe developed for the tests was used with minor modifications. Engineering Science (ES) provided continuous monitoring of probe temperature, ambient temperature, wind speed and direction, CO, CO_2, O_2, SO_2, NO_x and total hydrocarbons. Integrated bag samples were collected for VOC species analysis. The probe was positioned above the flare flame using a crane and

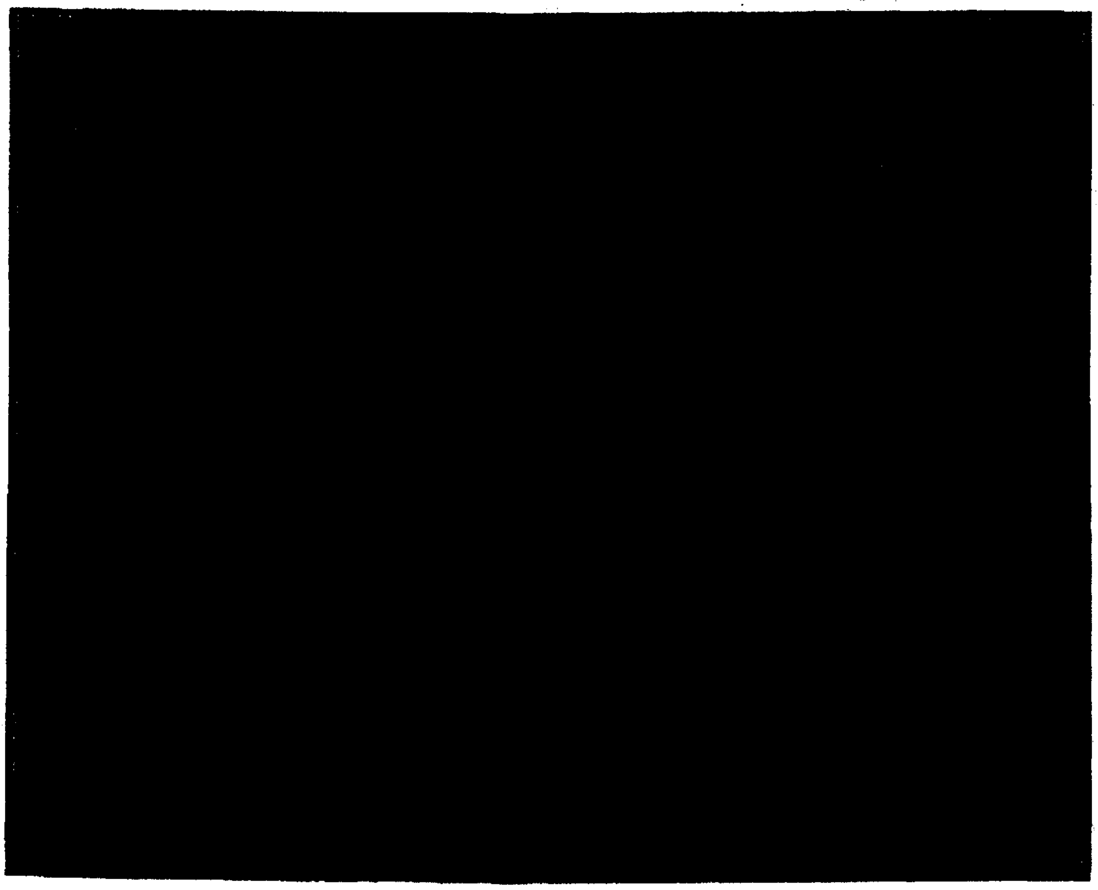


TABLE 1
Steam-Assisted Flare
Smokeless Burning of Crude Propylene

[illegible]

TABLE 2
Steam-Assisted Flare (STF-U-8 Utility Flare)
Nonsmokeless Burning of Crude Propylene

[illegible]

TABLE 3
Steam-Assisted Flare (STF-U-8 Utility Flare)
Burning 300 BTU/SCF Mixed Gas Reliefs

[illegible]

TABLE 4
Steam-Assisted Flare (STF-U-8 Utility Flare)
Burning 150-220 BTU/SCF Mixed Gas Reliefs

[illegible]

TABLE 5
Steam-Assisted Flare (STF-U-8 Utility Flare)
Burning Purge Rate Flows of Mixed Gas Reliefs

[illegible]

guide ropes.

Test Procedures

After ascertaining that ES had quality control calibrations and adequate background readings, Zink personnel established test conditions flows. The flame was then observed and the EPA probe positioned by visual judgment of the Zink test control engineer and the designated CMA representative. Subsequent probe adjustments were determined by continual monitoring by ES.

Once the probe temperature indicated proper probe placement and this was confirmed by the continuous monitors, the recording of test data would commence upon the decision of the CMA observers. Five systems were used for data recording. Instrumentation included continuous strip charts, data logger digital recorded magnetic tape and strip chart printing from the data logger. The CMA observers maintained three bound notebooks to record flow rate data, emis- [illegible] a color video recording of each flare test. A real time clock was mounted in the field of view of the video equipment. This allowed for synchronization of the video with other recorded test data. The audio channel of the video recorder was connected to the test communication network. Interactive discussion between the test controller and technicians controlling flows to the flare and the probe position were recorded.

Test procedures required controlled flare operation for up to 45 minutes. In some tests, wind action required adjustment of the probe during the test sequence. Approximately 20 minutes of "good" data was acquired for each completed test. Test procedures and quality control assured that experimentally sound data was acquired, properly recorded and documented.

Test Results

Thirty-two separate flare operating conditions were tested. Flare performance was evaluated in terms of the combustion efficiency determined by extractive sampling. Extractive sampling data provides the average combustion efficiency, standard deviation, number of observations and background data. For the 32 tests, a total of 3,121 operating points were logged. Flow data for crude propylene, nitrogen and steam are reported as the average value for the test duration.

The test results may be summarized by reviewing blocks of related conditions. First, one can look at various crude propylene flows burned smokelessly by a steam-assisted flare, Table 1. For the seven tests using steam assist for the smokeless burning of crude propylene, the average combustion efficiency was 99.82 percent. Crude propylene flows ranging from 160 to 3,000 lb/hr with steam rates ranging from the point of incipient smoke to very high rates were examined in this series of tests. For the tested propylene flow rates, the steam ratio (lb steam/lb hydrocarbon) required for smokeless burning was relatively high. For the tested flare, the steam ratio required for smokeless burning will decrease for propylene flow rates higher than the turndown conditions tested.

Crude propylene was also flared without steam assist. The flare was then operated as a Utility Flare Burner, Table 2. The average combustion efficiency for nonsmokeless flaring of crude propylene was 98.58 percent. Combustion efficiency was calculated from the gaseous carbon constituents of the extractive sampling. Test No. 4 was run at an average rate of 1,750 lb/hr in order to keep the flare boundaries within the limits of the extractive probe positioning constraints. Some segments of this test were run with flow rates exceeding 2,000 lb/hr.

For the 300 Btu/scf-mixed gas relief flows, the flare was operated both as a utility flare (no steam) and as a steam-assisted flare with minimum cooling rate steam. The 300 Btu/scf-mixed gases did not smoke for either case, Table 3. The average combustion efficiency for mixed gases was 99.5 percent. A utility flare would normally be applied for 300 Btu/scf relief gas, if no alternative higher heating value, smoking reliefs occurred. For utility flare application, the average combustion efficiency was 99.75 percent. The steam-assisted flares operating at up to twice the cooling steam rate had an average combustion efficiency of 99.2 percent. Test No. 16 was operated on an average of 460 Btu/scf. The actual gas mixtures varied from 300 Btu/scf to approximately 700 Btu/scf. This variation was due to problems in maintaining nitrogen flow.

Tests at the low range of combustibility were designed to run at 150 Btu/scf. Problems associated with flowing and metering of large nitrogen flows led to some deviation from the desired mixture. High and intermediate flow rates were tested at an average 220 Btu/scf. This higher heating value mixture strictly resulted from the flow and metering problems, not from adverse flare performance at the designed lower heating value. Unlike Test No. 16, nitrogen and propylene flow rates were held relatively constant for these tests, Table 4.

Relief gas flows of approximately 220 Btu/scf achieved an average combustion efficiency of 98.6 percent. Since the flames produced were light blue and virtually transparent, these tests were run at night in order to properly observe the probe position. Purge rate flows were tested for both 300 Btu/scf and 150 Btu/scf mixed gas reliefs. Tests were run both with and without the cooling flow to the STF-S-8 steam injectors, Table 5. The average combustion efficiency for mixed gas purge flows to the flare was 99.4 percent. For purge flows with a cooling steam, the average combustion efficiency was 99.0 percent.

In total, 19 tests were conducted using steam assisted flares. Nine additional smokeless flaring tests were conducted using a John Zink STF-LH-457-5 Air Assisted flare. Waste gas composition and flow rates tested were similar to those of the steam flare. Air assist rates were similar to those of process plant flares using a two-speed air assist blower. The average combustion efficiency for these tests, including non-smokeless conditions, exceeded 99 percent. Four additional tests were completed to investigate some of the operational limits of flare design and application. These tests determined that it is possible to quench the flare flame by excessive steam injection or by operating the flare at excessive relief gas exit velocities. Good engineering practice of flare design and application, though, can eliminate or minimize operational excursions beyond the limits of efficient hydrocarbon destruction. Results of these tests are available upon request from the John Zink Company or CMA.

Conclusions

Flaring in environmentally sensitive areas has been an area of controversy and dispute between flare users and those charged with regulating air quality. Regulations have been proposed that reasonably available control technology (RACT), other than flares, be installed to meet fugitive volatile organic emission standards. Operating plant flares have not lent themselves to practical field measurement of emissions by means of existing sampling technology. Significant studies, though, have concluded that flares have VOC destruction efficiencies equal to, or greater than, those of other reasonably available control technology.

Notes

Although the research described in this article has been funded in part by the U.S. Environmental Protection Agency through Contract No. 68023541 to Engineering Science, it has not been subjected to the agency's required peer and policy review and therefore does not necessarily reflect the view of the agency and no official endorsement should be inferred. **PE**

Mike Keller, Manager of the Flare Group, John Zink Company, Tulsa, OK. He is a member of the Environmental Protection Agency Peer Group for Flare Research. Roger Noble, Senior Combustion Specialist in the Research and Development Division of John Zink Co.

KOCH ENGINEERING COMPANY, INC.
JOHN ZINK COMPANY.

International Headquarters
11920 East Apache
Tulsa, Oklahoma 74121-1220
Phone: 918/234-2783
Facsimile: 918-234-1986

Tim Locke
Business Team Leader
Biogas Flare Group

TELEFAX TRANSMITTAL MESSAGE

DATE:	August 1, 1997
TO:	Shashi Kothary
COMPANY:	SCS Engineers
FAX NUMBER:	(562)427-0805
TOTAL PAGES:	1
REFERENCE:	*Utility Flare Emissions*
COPIES:	J. Bermingham

IF MISSENT, PLEASE TELEPHONE 918 234-2783. THIS MESSAGE IS BEING SENT FROM 918 234-1986.

As per our conversation earlier today, John Zink can guarantee the following for utility or candlestick landfill gas flares:

0.25 lb/mmbtu fired for CO
0.11 lb/mmbtu fired for NOx
98% destruction efficiency

I hope this helps clarify our earlier conversation. If you need further info, feel free to call me at (918)234-2783.

Regards,

JOHN ZINK.
A KOCH INDUSTRIES COMPANY

International Headquarters
P.O. Box 21220
Tulsa, Oklahoma 74121-1220
918/234-1800

November 11, 1997

U.S. Environmental Protection Agency
Region IX
Air Division AIR-3
75 Hawthorne Street
San Francisco, CA 94105-3901

Attention: Steve Branoff

Reference: Utility Flare Emissions for Proposed SRPMIC Landfill Projects, Arizona
John Zink Proposal BF 2754

Dear Mr. Branoff,

This letter is in reference to the CO emission guarantee for the proposed utility flares from John Zink Company at the SRPMIC Landfills in Arizona. The guarantee is 0.25 lb/mmbtu fired. This number is conservatively based on CO emissions from enclosed landfill flares and previous open flare testing performed at John Zink Company.

In 1983, the Chemical Manufactures Association (CMA) in conjunction with John Zink Company conducted tests at John Zink's International Research facility to try and determine the efficiencies of open flares. The main goal of this testing was to determine the combustion efficiency of open flares so that a more accurate prediction method for VOC emissions would be available. The sampling procedure comprised of a sample probe extended from a crane into the end of the open flame zone. As part of this testing, enormous amounts of raw data were collected, including NOx and CO. However, the purpose of this raw data was not to determine emission factors for NOx and CO, but was merely used in factoring the combustion efficiencies. In fact, the CO data taken in this testing was used to help determine the location of the sampling probe at the end of the flame. Since CO is a product of combustion, this only indicated good combustion efficiency, even though the combustion process was not yet completed (i.e. the CO had not yet completed the combustion cycle or process). Even realizing that the CO data taken is erroneously high, the four data points in the testing that would be applicable to landfill gas based on the lower heating value of the gas flared, indicated CO emissions of 0.155, 0.221, 0.543, and 0.615 lb/mmbtu. Since the CO was merely used as an indicator, one could assume that the lowest value recorded could be the maximum CO actually emitted from an open flare, given that the CO values only increase as the probe approaches the flame.

If the CO data taken from the CMA testing is used in conjunction with actual field testing of enclosed landfill gas flares, we can more easily justify the 0.25 lb/mmbtu guarantee. Currently, the most stringent CO permitting criteria we see is in the State of California and is 0.20 lb/mmbtu fired. John Zink Company has never had an enclosed flare fail to meet this criteria. In fact, of the enclosed flare tests referenced in the AP-42 document, we have copies of six (6) of those, five (5) of which have CO data. These are summarized as follows:

Site	CO Lb/MMBtu
Scholl Canyon	0.040
Azusa	0.040
Sunshine Canyon	0.006
Chicopee	0.184
Bradley	0.018

The data shown above is typical of what we would expect as CO emissions from an enclosed landfill gas flare, and as you can see, these are well below the guaranteed values for both the enclosed flare and the open flare. As far as the "Typical Rate" Emission Factor of 0.78 lb/mmbtu CO stated in the AP-42 document, we feel that this is grossly over stated. The typical permitted value of 0.20 lb/mmbtu CO in the State of California would seem to verify this.

To rationalize the correlation between the enclosed flare emissions and the open flare emissions, we feel the best analogy is to review the excess oxygen. For example, if we look at predictable emission sources such as fired heaters in a refinery, we know that as the excess oxygen increases in the heater, the CO emissions typically increase due to the higher velocity combustion/quench air that is affecting the burner performance. However, in a fired heater, the typical excess oxygen percentages are 2-3% and very rarely reach levels in excess of 6-7%. In an enclosed landfill flare, the typical excess oxygen level is already between 11-13%. Since we already have extremely low CO levels in the enclosed flare and high excess oxygen levels, we would expect only a slightly higher CO emission rate on an open flare (due to virtually unlimited availability of oxygen), thus the only slightly higher CO emission guarantee of 0.25 lb/mmbtu.

I hope this information has helped clarify our reasons for proposing a 0.25 lb/mmbtu guarantee for the open flares at SRPMIC landfills in Arizona. If you have any questions or comments regarding this information, please feel free to call me at (918)234-2783.

Sincerely,

JOHN ZINK COMPANY,
a division of Koch Engineering Company, Inc.

Tim Locke
Business Team Leader
Biogas Flare Group

cc: Patrick Sullivan; SCS
Kris Saigal; SCS-LB
Tom Barham; SCS-FS

DEC 15 1997

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

December 11, 1997

Patrick Sullivan
Senior Project Scientist
SCS Engineers
6761 Sierra Court, Suite D
Dublin, CA 94568-2611

Re: Salt River Pima Maricopa Indian Community (SRPMIC) landfills

Dear Mr. Sullivan:

I have received your letter dated October 31, 1997, as well as the source test data from John Zinc Company. I appreciate your timely response to our request for this information and your willingness to work with EPA to come to a resolution on the applicability of NSR regulations to the SRPMIC landfills. I am writing to inform you that, after reviewing the source test data, we have decided that the emission factors you have submitted for open flares are acceptable. Based on the calculations which you have submitted using these emission factors, all three landfill gas collection and control systems will be considered minor sources, and do not require federal construction permits.

Several things influenced this decision. First, the landfill New Source Performance Standard (NSPS), 40 CFR 60 - Subpart WWW, will apply to the Salt River landfill, the largest of the three landfills. This NSPS requires a minimum VOC destruction, which gave us some confidence that the flare combustion would be relatively efficient, and that the resulting emissions of CO and NOx would be low. Secondly, since the collected gas will most likely eventually be used for energy generation purposes, the installation of flares will probably be a temporary measure. Given the amount of gas that can be collected from these landfills, an energy generation project, such as installation of a gas turbine, would trigger New Source Review. Thus, it is our expectation that these landfills will be regulated under a federal construction permit at that time.

Enclosed please find a list of the requirements for permit applications submitted under the federal Prevention of Significant Deterioration (PSD) and nonattainment New Source Review (NSR) programs.

Thank you for your cooperation in this matter. If you have any questions, please contact Steve Branoff, of my staff, at (415) 744-1290.

Sincerely,

Matt Haber, Chief
Permits Office

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

Patrick Sullivan
Senior Project Scientist
SCS Engineers
6761 Sierra Court, Suite D
Dublin, CA 94568-2611

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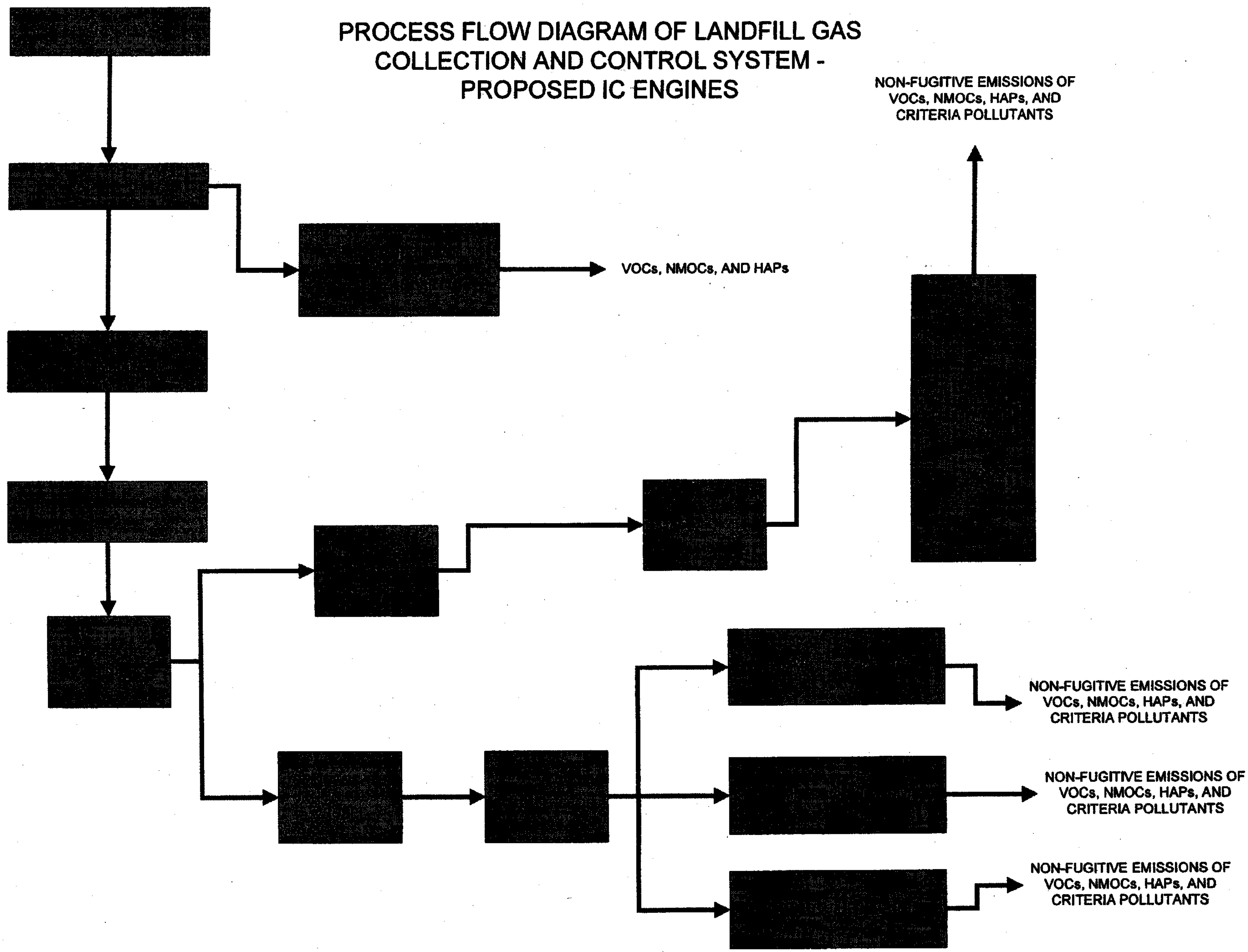
Sincerely,

Matt Haber, Chief
Permits Office

SECTION 7

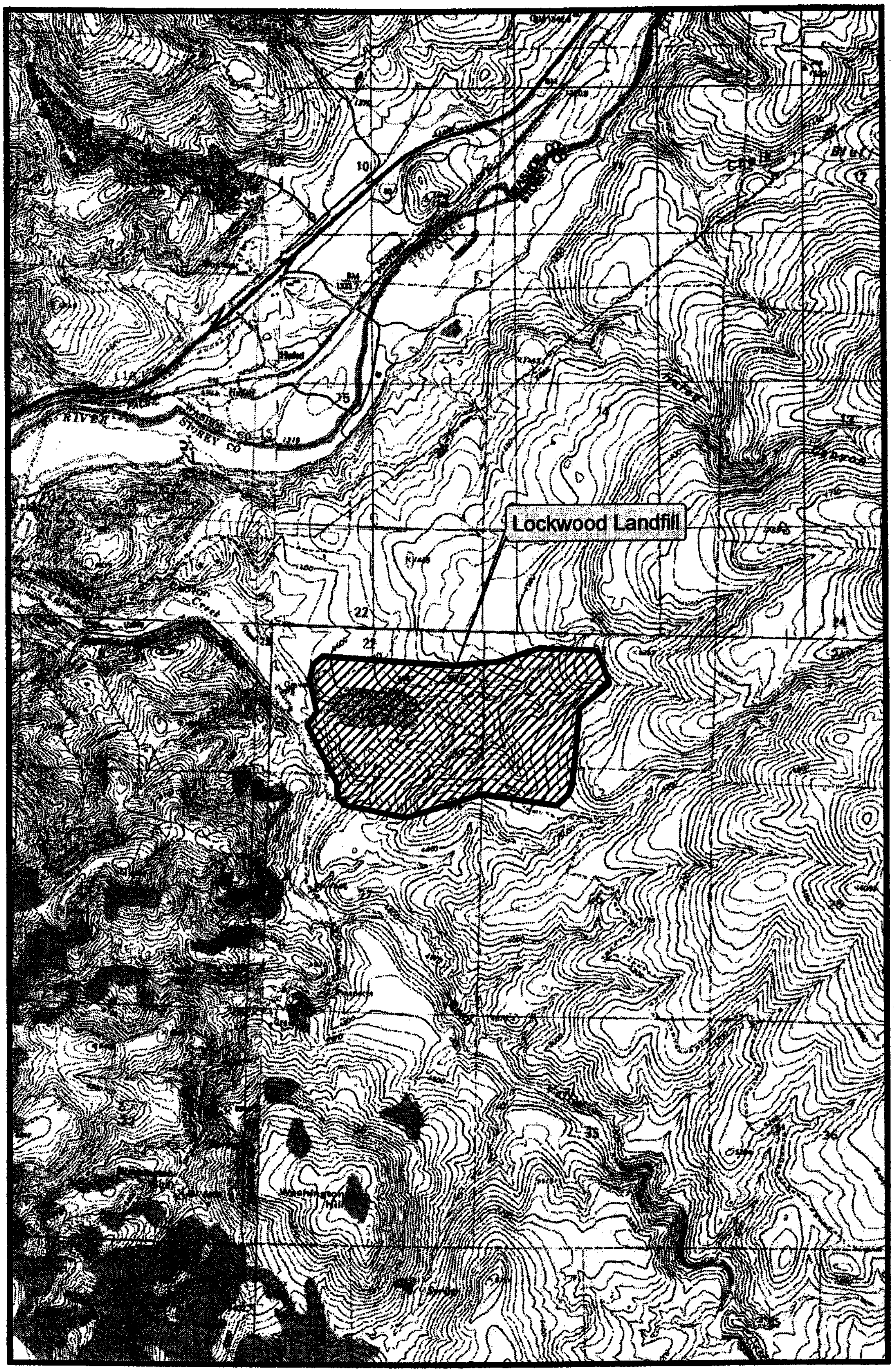
PROCESS FLOW DIAGRAM

PROCESS FLOW DIAGRAM OF LANDFILL GAS COLLECTION AND CONTROL SYSTEM - PROPOSED IC ENGINES



SECTION 8

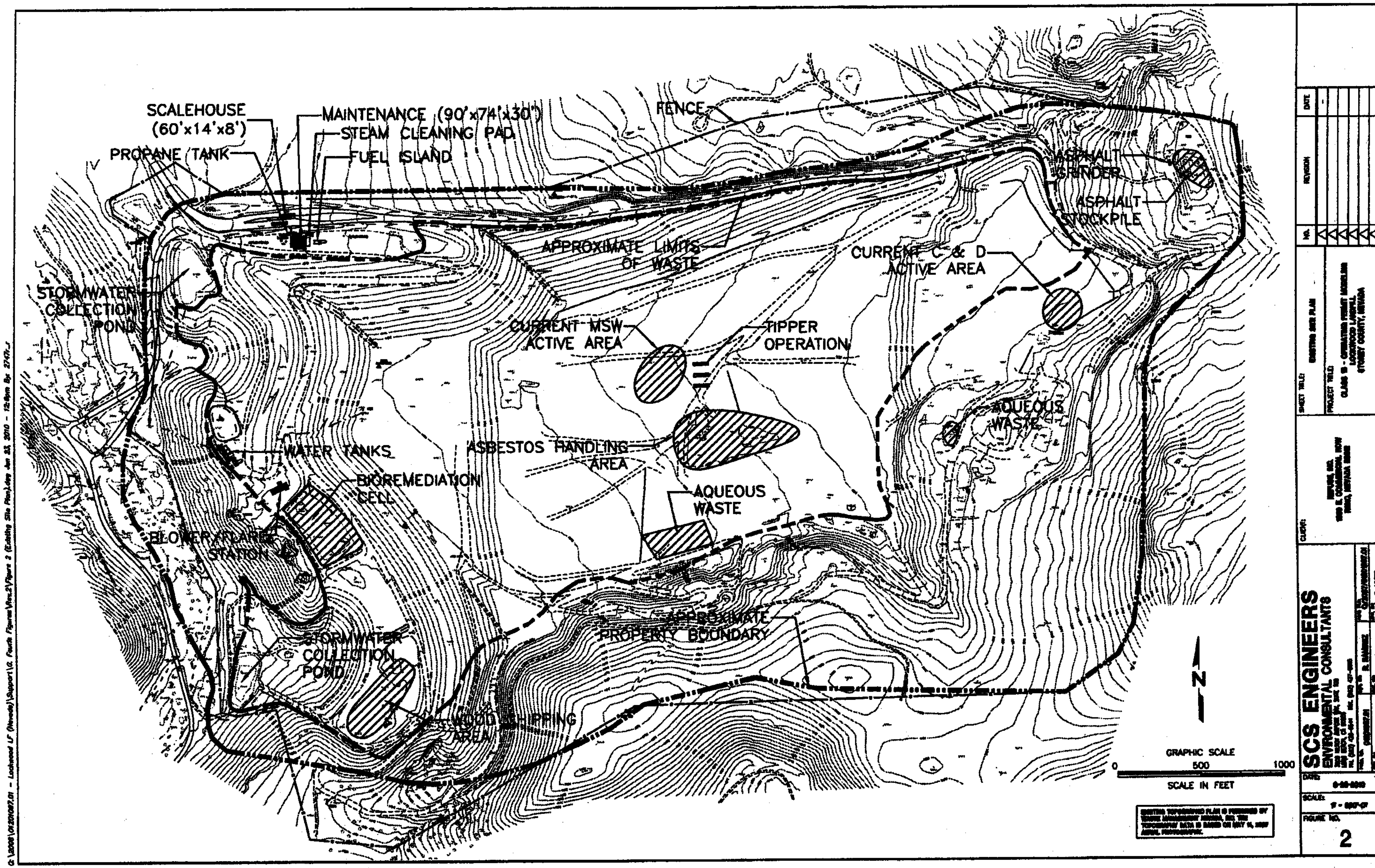
FACILITY MAP



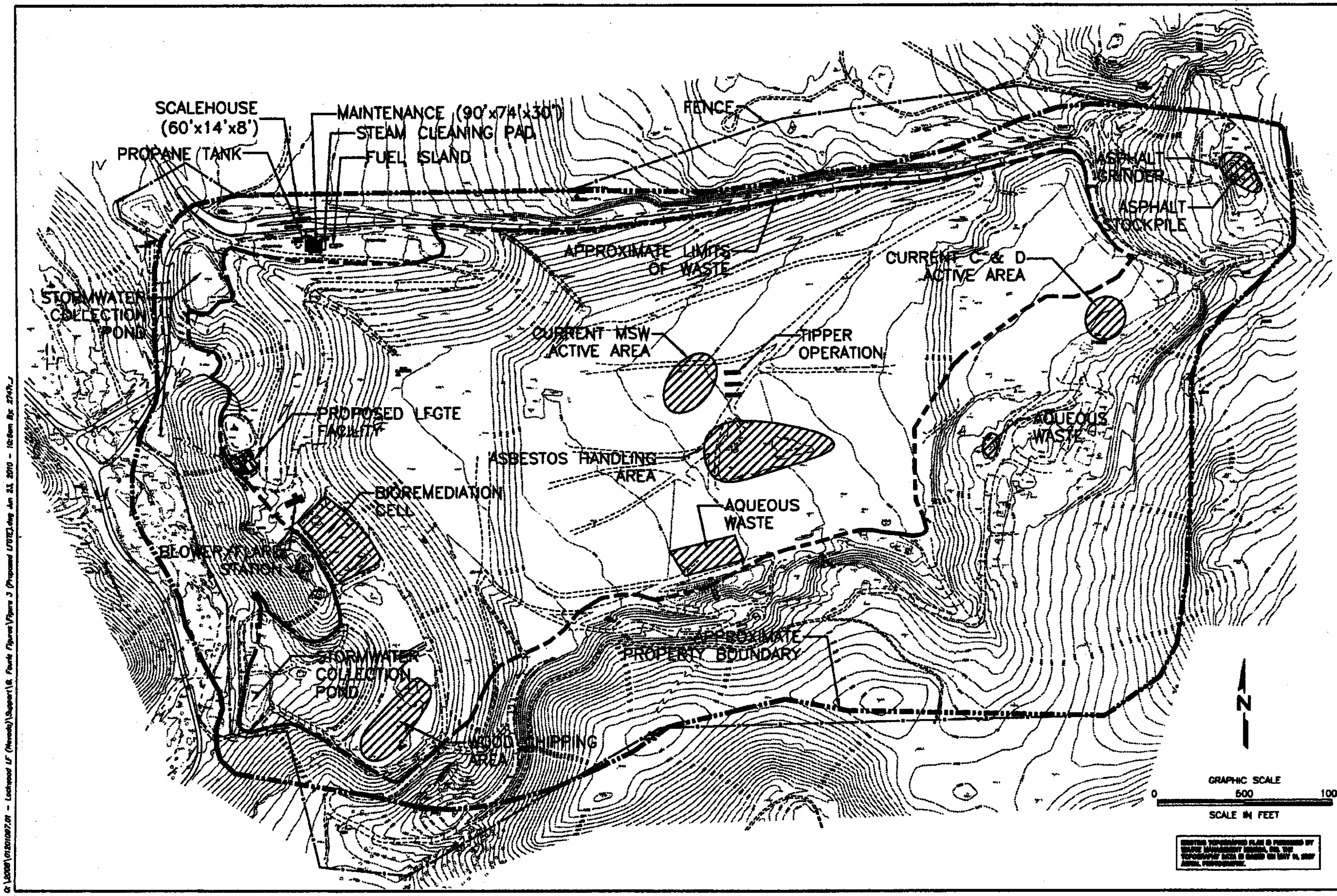
Source: USGS Chalk Hill, Nevada Quadrangle Map, 1990.

1 inch equals 2,000 feet

Figure 1a. Map Showing Location of Lockwood Landfill



SCALEHOUSE (60'x14'x8')
MAINTENANCE (90'x74'x30')
STEAM CLEANING PAD
FUEL ISLAND
PROPANE TANK
FENCE
ASPHALT GRINDER
ASPHALT STOCKPILE
APPROXIMATE LIMITS OF WASTE
CURRENT C & D ACTIVE AREA
STORMWATER COLLECTION POND
CURRENT MSW ACTIVE AREA
TIPPER OPERATION
AQUEOUS WASTE
WATER TANKS
ASBESTOS HANDLING AREA
BIOREMEDIATION CELL
AQUEOUS WASTE
BLOWER/FLARE STATION
APPROXIMATE PROPERTY BOUNDARY
STORMWATER COLLECTION POND
WOOD CHIPPING AREA
N
GRAPHIC SCALE
0
500
1000
SCALE IN FEET
SHEET TITLE:
EXISTING SITE PLAN
PROJECT TITLE:
CLASS III - OPERATING PERMIT MODELING
LOCKWOOD LANDFILL
STOREY COUNTY, NEVADA
CLIENT:
SCS ENGINEERS
ENVIRONMENTAL CONSULTANTS
NO.
REVISION
DATE
FIGURE NO.
2



SCS ENGINEERS
ENVIRONMENTAL CONSULTANTS

SHEET TITLE: PROPOSED LANDFILL GAS TO ENERGY PLANT FACILITY LOCATION

PROJECT TITLE: CLASS III - OPERATING PERMIT MODELING LOCKWOOD LANDFILL STOREY COUNTY, NEVADA

NO.	REVISION	DATE

FIGURE NO. 3

SECTION 9

APPLICATION CERTIFICATIONS

APPLICATION CERTIFICATION

Certification of application content consisting of the following:
(Please check each of the appropriate boxes to indicate the information provided in your application submittal)

General Company Information
☒General Company Information Form

Emission Unit Application Forms (Appendix 1)
☐Industrial Process Application Form(s)
☒Combustion Equipment Application Form(s)
☐Storage Silos Application Form(s)
☐Liquid Storage Tank Application Form(s)
☒Surface Area Disturbance Form(s)

Insignificant Emissions Unit Information (Appendix 2)
☒Insignificant Emissions Unit Information Form(s)

Facility-Wide Applicable Requirements (Appendix 3)
☒Table 1 - Facility-Wide Applicable Requirements

Streamlining and Shield Allowance (Appendix 4)
☒Streamlining Demonstration

Facility-Wide Potential To Emit Tables (Appendix 5)
☒Table 1 - Facility-Wide Potential To Emit
☒Table 2 - Insignificant Activities Potential To Emit

Detailed Emissions Calculations (Appendix 6)
☒Detailed Emissions Calculations Provided

Emissions Cap Information (Appendix 7)
☒Emissions Cap Information Provided

Process Narrative, Process Flow Diagram, Plot Plan, Map, Dust Control Plan (Appendix 8)
☒Process Narrative Provided
☒Flow Diagram Provided
☒Plot Plan Provided
☒Map Provided
☐Dust Control Plan Provided

Dispersion Modelling Files (Appendix 9)
☐Dispersion Modeling Provided

Application Certification (Appendix 10)
☒Application Certification

Additional Information Requested by the Director
☐Any Additional Information Required by the Director

PLEASE NOTE THE FOLLOWING REQUIREMENTS WHICH APPLY TO PERMIT APPLICANTS DURING THE APPLICATION PROCESS:

A. A permit applicant must submit supplementary facts or corrected information upon discovery [NAC 445B.297.1(b)].
B. A permit applicant is required to provide any additional information which the Director requests in writing within the time specified in the Director's request [NAC 445B.297.1(c)].
C. Submission of fraudulent data or other information may result in prosecution for an alleged criminal offense (NRS 445B.470).

CERTIFICATION: I certify that, based on information and belief formed after reasonable inquiry, the statements contained in this application are true, accurate and complete.

[signature]
Signature of Responsible Official

William Carr, District Manager
Print or Type Name and Title

September 7, 2010
Date

COMPLIANCE PLAN/CERTIFICATION [NAC 445B.3368.2.(h)]

Refuse, Inc. certifies that their facility, Lockwood Landfill, is in compliance with the identified applicable requirements of both Federal EPA and State of Nevada Clean Air Acts. Refuse, Inc. will continue to comply with all applicable regulatory requirements. Compliance certifications during the permit term will be submitted annually or more frequently if required by the underlying applicable requirement or by NDEP-BAPC.

Based on information and belief formed after reasonable inquiry, the source identified in this application will continue to comply with the applicable federal requirement(s) with which the source is in compliance as identified in the Applicable Requirements (Section 2) and Facility-Wide Applicable Requirements (Table 1, Section 3) section of the permit application.

Based on information and belief formed after reasonable inquiry, the source identified in this application will comply with applicable federal requirement(s) that will become effective during the permit term as identified in the Applicable Requirements (Section 2) and Facility-Wide Applicable Requirements (Table 1, Section 3) section of the renewal application.

Corrected information will be provided to the Department when I become aware that incorrect or incomplete information has been submitted.

Based on information and belief formed after reasonable inquiry, information and statements in the submitted application package including all accompanying reports, and required certifications are true, accurate and complete.

I declare, under penalty of perjury under the laws of the state of Nevada, that the forgoing is correct and true:

[signature]
Signature of Responsible Official

Sept. 7, 2010
Date

William Carr
Name of Responsible Official

District Manager
Title of Responsible Official