

Section II: Other LAER/BACT Determinations

Application No.: 02-540ML

Equipment Category – Flare, Landfill Gas from Non-Hazardous Waste Landfill

1. GENERAL INFORMATION		DATE: 4/18/2006
A. MANUFACTURER: John Zink Co.		
B. TYPE: Enclosed Ground Flare	C. MODEL: ZULE	
D. STYLE: Forced Air		
E. APPLICABLE AQMD RULES:		
F. COST: \$ (NA)	SOURCE OF COST DATA:	
G. OPERATING SCHEDULE:	24 HRS/DAY	3 DAYS/WK
		4 WKS/YR

2. EQUIPMENT INFORMATION		APP. NO.: 02-540ML
A. FUNCTION: Burns product gas from decomposing landfill waste. Operated intermittently, backing up a landfill gas-fired power plant, for first two years (approx.) of operation. Now operates continuously at well below maximum input..		
B. MAXIMUM HEAT INPUT:)	C. MAXIMUM THROUGHPUT: 6000 scfm (design)	
D. BURNER INFORMATION: NO.: Multiple TYPE: 24" dia. coiled tip, premix		
E. PRIMARY FUEL: Landfill Gas (49-51% CH4)	F. OTHER FUEL:	
G. OPERATING CONDITIONS: Intermittent		

3. COMPANY INFORMATION		APP. NO.: 02-540ML
A. NAME: Rhode Island Resource Recovery Corp.		B. SIC CODE: 4953
C. ADDRESS: Central Landfill, 65 Shun Pike		
CITY: Johnston	STATE: RI	ZIP: 02919
D. CONTACT PERSON: Claude Cote	E. PHONE NO.: 401-942-1430 x221	

4. PERMIT INFORMATION		APP. NO.: 02-540ML
A. AGENCY: USEPA (consent decree)	B. APPLICATION TYPE: new construction	
C. AGENCY CONTACT PERSON: Rebecca Kurowski		D. PHONE NO.: 617-918-1863
E. PERMIT TO CONSTRUCT/OPERATE INFORMATION: P/C NO.: ISSUANCE DATE:		
<input checked="" type="checkbox"/> CHECK IF NO P/C P/O NO.: Civil Action 02-540ML, federal district court ISSUANCE DATE: 7/2003		
F. START-UP DATE: March 2004		

5. EMISSION INFORMATION		APP. NO.: 02-540ML
A. PERMIT		
A1. PERMIT LIMIT: Lb/MMBtu limits: NOx-.025, CO-.06. Source test every three years. Mass emission limits (tpy): NOx-21.6, CO-52.		

5. EMISSION INFORMATION		APP. NO.: 02-540ML
A2. BACT/LAER DETERMINATION: Concentration limits in 5A1.		
A3. BASIS OF THE BACT/LAER DETERMINATION: Vendor guarantee		
B. CONTROL TECHNOLOGY		
B1. MANUFACTURER/SUPPLIER: John Zink Co.		
B2. TYPE: Low-emission burner system		
B3. DESCRIPTION: Landfill gas and air are premixed prior to entering the flare. This requires an air blower as opposed to natural draft used in conventional landfill gas flares. The burners are enlarged relative to conventional landfill gas flare burners to accommodate the larger volume throughput. Landfill gas and air are injected to the mixer at 15 In. W.C. versus 5 In. W.C. landfill gas pressure used in conventional flare.		
B4. CONTROL EQUIPMENT PERMIT APPLICATION DATA:		P/C NO.: ISSUANCE DATE:
		P/O NO.: ISSUANCE DATE:
B5. WASTE AIR FLOW TO CONTROL EQUIPMENT:		FLOW RATE:
ACTUAL CONTAMINANT LOADING:		BLOWER HP:
B6. WARRANTY: .025 lb/MMbtu NOx, .06 lb/MMBtu CO		
B7. PRIMARY POLLUTANTS: VOC		
B8. SECONDARY POLLUTANTS: NOx, CO		
B9. SPACE REQUIREMENT: Flare dimensions 13' D x 60' H. Additional plan area required for air blower and duct, venturi flow meter and static mixer.		
B10. LIMITATIONS:		B11. UNUSED
B12. OPERATING HISTORY: After solving some problems with the initial design startup was in the first quarter of 2004. The flare operated intermittently, backing up a power plant, for the first two years (approx.) and then, in December 2005, transitioned to continuous operation at well below rated (6000 scfm) landfill gas input.		
B13. UNUSED		B14. UNUSED
C. CONTROL EQUIPMENT COSTS		
C1. CAPITAL COST: <input type="checkbox"/> CHECK IF INSTALLATION COST IS INCLUDED IN EQUIPMENT COST		
EQUIPMENT: \$ INSTALLATION: \$ (NA) SOURCE OF COST DATA:		
C2. ANNUAL OPERATING COST: \$ (NA) SOURCE OF COST DATA:		
D. DEMONSTRATION OF COMPLIANCE		
D1. STAFF PERFORMING FIELD EVALUATION:		
ENGINEER'S NAME:		INSPECTOR'S NAME: DATE:
D2. COMPLIANCE DEMONSTRATION:		
D3. VARIANCE: NO. OF VARIANCES: None DATES:		
CAUSES:		
D4. VIOLATION: NO. OF VIOLATIONS: None DATES:		
CAUSES:		
D5. MAINTENANCE REQUIREMENTS:		D6. UNUSED

5. EMISSION INFORMATION

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D7. SOURCE TEST/PERFORMANCE DATA RESULTS AND ANALYSIS:

DATE OF SOURCE TEST: 6/9/2004

CAPTURE EFFICIENCY:

DESTRUCTION EFFICIENCY:

OVERALL EFFICIENCY:

SOURCE TEST/PERFORMANCE DATA:

LFG Flow, scfm	4533
O ₂ , % (dry)	12.6
NO _x , lb/MMBtu (ppmvd, uncorrected)	.01 (3.7)
CO, lb/MMBtu (ppmvd, uncorrected)	<.00017 (<0.1)
NMOC, lb/MMBtu (ppmvd@3%O ₂ as hexane)	<.0014 (<0.5)

OPERATING CONDITIONS:

TEST METHODS: Average of three 1-hr tests using continuous gas analyzers.

6. COMMENTS

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The facility reports that this flare is complicated, has required a lot of operator attention and special training was required. The facility modified the flame detectors to reduce the frequency of shutdowns caused by false loss-of-flame indications.