WASTE MANAGEMENT, INC.

PINE TREE ACRES' MALFUNCTION ABATEMENT PLAN FOR FLARES 4 and 6 (4-24-2013 Revision)

Permit condition III.4 of FGFLARES in Pine Tree Acres' Renewable Operating Permit #MI-ROP-N5984-2013 requires a Malfunction Abatement Plan (MAP) for the landfill gas Flares 4 and 6. The underlying applicable requirement is State Rule 911 that specifies minimum requirements for a MAP. The following paragraphs document Pine Tree Acres' MAP for these two enclosed flares in accordance with the provisions of Rule 911.

R911(2)(a)

Pine Tree Acres identifies the following Supervisory personnel for the responsibility of overseeing the inspection, maintenance, and repair of Flares 4 and 6.

Joshua McFadden (primary)
Gas Operations Supervisor
586-531-8046

Rodney Nemeth (secondary)
Gas Operations Manager
734-231-8578

Terry Nichols (secondary)
District Manager
586-749-9698

The attached MAP identifies the equipment covered by this MAP along with the inspection/service frequency and replacement parts maintained in inventory. Inspection records are maintained electronically and saved to a WM network drive. In addition, hardcopy records are maintained in a log book stored on-site.

R911(2)(b)

The attached MAP identifies operating variables to be monitored to detect equipment malfunction along with the normal operating range of these operating variables and the method of inspection.

R911(2)(c)

Pine Tree Acres' utility flares 3 and 5 operate as back-up control devices in the event of an extended malfunction of flares 4 and 6. Flare capacity is currently sufficient to extract landfill gas and maintain compliance.

Flares 4 & 6 Operating Parameters

EQUIPMENT	OPERATING PARAMETER	RANGE
Blower	Motor Amperage Draw	(240 - 270 amps)
Blower	Bearing Temperature	(<220 F)
Blower	Vibration	Per Gardner Denver specification
Flare	Condensate Knockout Pot's Differential Pressure	(0 - 28 in. wc.)
Flare	Condensate Knockout Pot's Liquid Level	visible on sight glass
Flare	Flame Arrestor's Differential Pressure	(0 - 28 in. wc.)
Flare	Autodialer	Power on/enabled
Flare	Visual Check of Flare Stack and Burner	No visible emissions
Flare	Combustion Temperature	(Flare 4 > 1,600 F; Flare 6 >1,650 F)
Flare	Gas Flow Rate	(Flare 4 is 500 - 3,000 cfm; Flare 6 is 1,000 - 6,000 cfm)
Flare	Inlet Vacuum	(-50 to -90 in. wc)
Flare	Inlet Termperature	(40 - 90 F)

SPARE PARTS MAINTAINED IN INVENTORY

Thermocouples (main and pilot), spark plug igniter, UV detector, flow meter, panel indicator bulbs, grease, bearing oil, bearing and seal kits, mesh filter for KOPs, flare damper motor

Pine Tree Acres
Flares 4 and 6 - Malfunction Abatement Plan

Equipment Inspected/Serviced	Equipment	WEEKLY	MONTHLY	3 MOS.	6 MOS.	YEARLY
Check and Record Motor Amperage Draw	Blowers					
Landfill Gas Blower Lubrication	Blowers					
Check Blower Bearing Temperatures	Blowers					
Lubricate Blower Motor Bearings	Blowers					
Test All Blower Shutdowns	Blowers					
Check Condition of Motor Isolation Pads	Blowers					
Check Blower Motor Alignment	Blowers					
Record Line Current and Voltage on Blower Motors	Blowers					
Perform Vibration Analysis	Blowers					
Check Condensate Knockout Pot's Differential Pressure	Flare					
Check Condensate Knockout Pot's Liquid Level	Flare					
Check Flame Arrestor's Differential Pressure	Flare					
Check Propane Supply Tank Pressure	Flare					
Check Autodialer	Flare					
Check and Record Combustion Temperature	Flare					
Check and Record Gas Flow Rate	Flare					
Check and Record Inlet Vacuum	Flare					
Check and Record Inlet Termperature	Flare					
Complete Inspection Checklist	Flare					
Download Datagraph	Flare					
Visual Check of Flare Stack and Burner	Flare					
Check Pipe Supports	Flare					
Check Flare Flame Detection Equipment	Flare					
Check/Clean Flame Arrestor	Flare					
Inspect/Clean Flame Scanner View and Vent Port	Flare					
Inspect/Clean Flare Ignitor	Flare					
Verify Operation of Flare Pilot	Flare					
Calibrate Flow Meter	Flare					