CHANGE ORDER

Number One (1)

PROJECT: Phase 2 – Methane Gas Collection & Combustion System, Skid-Mounted Landfill Gas Flare Package, Francis Farm Landfill

DATE OF ISSUANCE: August 26, 2011

OWNER'S PROJECT NO. N/A

OWNER: (Name, Address) Haywood County
215 N. Main Street
Waynesville, North Carolina 28786

ENGINEER: McGill Associates, P.A.
55 Broad Street
Asheville, NC 28801

CONTRACTOR: Philips Electric Company of Durham, Inc., dba Product Recovery Management
1705 New Raleigh Road
Durham, North Carolina 27703

ENGINEER'S PROJECT NO. 09.00721

CONTRACT FOR: Skid-Mounted Landfill Gas Flare Package for the Francis Farm Landfill

You are directed to make the following changes in the Contract Documents.

Description: Modify the Inlet Gas Temperature Switch to enhance safety and more accurately monitor flare inlet header temperature in order to initiate a rapid shutdown in case of a flame flashback. Included in the modifications will be the addition of a 4" Modulating Valve on the inlet side of the flame arrestor to control gas flow rates going to the flare and provide an additional safety shut-off mechanism in case of flame flashback.

Purpose of Change Order: Adjust Contract Amount for modification to the Inlet Gas Temperature Switch and add an additional 4" Modulating Valve to the inline piping to the flare stack.

Attachments (List documents supporting change): See attached description and associated drawings.

CHANGE IN CONTRACT PRICE:	CHANGE IN CONTRACT TIME:
Original Contract Price $ 153,994.00	Original Contract Time 140 Days
Previous Change Order No.__ to No.__ $ N/A	Net Change From Previous Change Orders 0 Days
Contract Price Prior to This Change Order $ 153,994.00	Contract Time Prior to This Change Order 140 Days
Net Increase of This Change Order $ 3,209.85	Net Increase (Decrease) of This Change Order 0 Days
Contract Price With All Approved Change Orders $ 157,203.85	Contract Time With All Approved Change Orders 140 Days

RECOMMENDED:	APPROVED:	APPROVED:
BY: _____ McGill Associates, P.A.	BY: _____ Haywood County	BY: _____ Contractor

EJCDC No. 1910-8-B (1983 Edition)

Francis Farm landfill Phase 2 Methane Gas Collection System

Attention: Bill Sperry

This Document is detailed explanation for requested change order pertaining to **(section 10700.12 Equipment-Miscellaneous)** Inlet Gas Temperature Switch, and **(section 10700.13 Off-Skid Gas Delivery)**.

The inlet gas temperature switch function requested in this section 10700.12 states that an inlet gas temperature switch will monitor the flare inlet header temperature and initiate a shutdown in case of flashback. Due to the limitations of a gas temperature switches such as response time and accurately detecting instant flame, PRM suggest relocating the UV flame scanner from the top of the flare and install it in the flame arrestor located at the base of the flare. PRM will install a Type K thermocouple to monitor process flame coming out of the top of the flare and order a flame arrestor with the proper ports for the UV scanner to attach. The UV scanners quick response will make it a better device for sensing a flashback in the pipework. If a flame is detected in the pipe, a signal will be sent to shut down the system. This will increase the safety by assuring flame detection in case of flashback. The UV scanner would be relocated to the flare side of the flame arrestor which requires the flame arrestor manufacturer to modify the arrestor to maintain its ratings. This additional charge for above will be $449.65. 1% sales and use Tax included.

PRM requests to install a 4 inch pneumatic modulating valve located just before the flame arrestor. This valve is fully automated and will not require any periodic manned adjustments. The proposed modulating valve will operate in conjunction with the modulating valve on the off-gas line to control gas flow rates to the engine and/or flare stack. The valve controls will be programmed to allow the engine to be the primary recipient of gas as long as it is operational and requests gas. The remainder of any gas flow, if of sufficient flow rate to operate the flare, will be directed to the flare stack. If the engine no longer requires gas then the valve will open full to direct the flow of gas to the flare stack. If the flare no longer requires gas then the valve will shut completely to divert all gas flow to the engine. The valve will also close instantly in case of flame detection from the UV scanner, power loss of the equipment, loss of air pressure, or conditions of abnormal operation. PRM will also be installing an air compressor package to provide service air to all 3 Pneumatic valves. The system will be fully plumbed for air and fully wired. The additional charge for above will be $2760.20. 1% sales and use Tax included. Total amount for this change order $3209.85

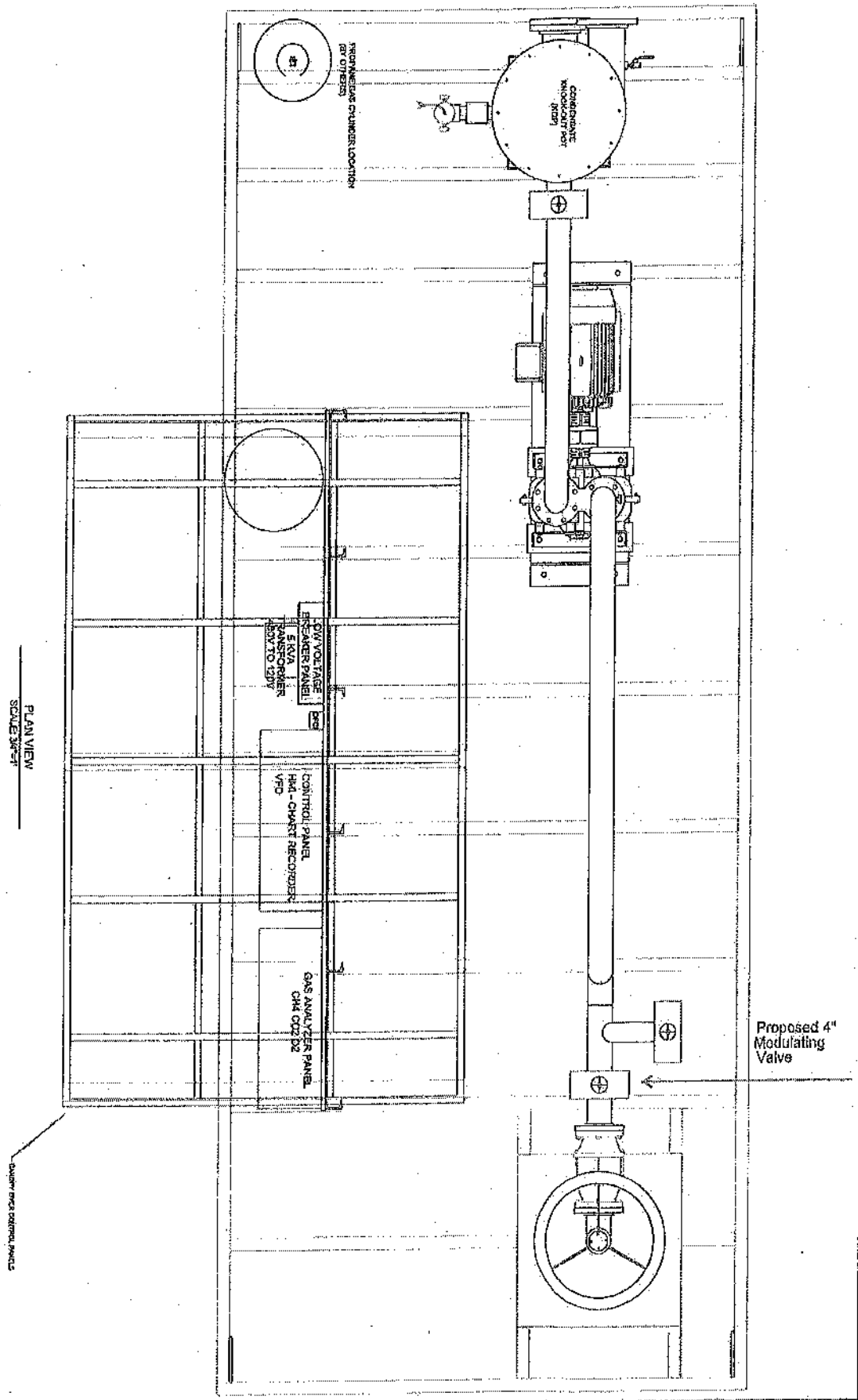

FIGURE	2	JOB #:	WO-2671	PRM PRODUCT RECOVERY MANAGEMENT	McGILL ASSOCIATES HAYWOOD COUNTY LANDFILL ELEVATION VIEW OF FLARE SKID
DRAWN	CORNELL	DATE:	6/11		
CHECKED		REV #:			

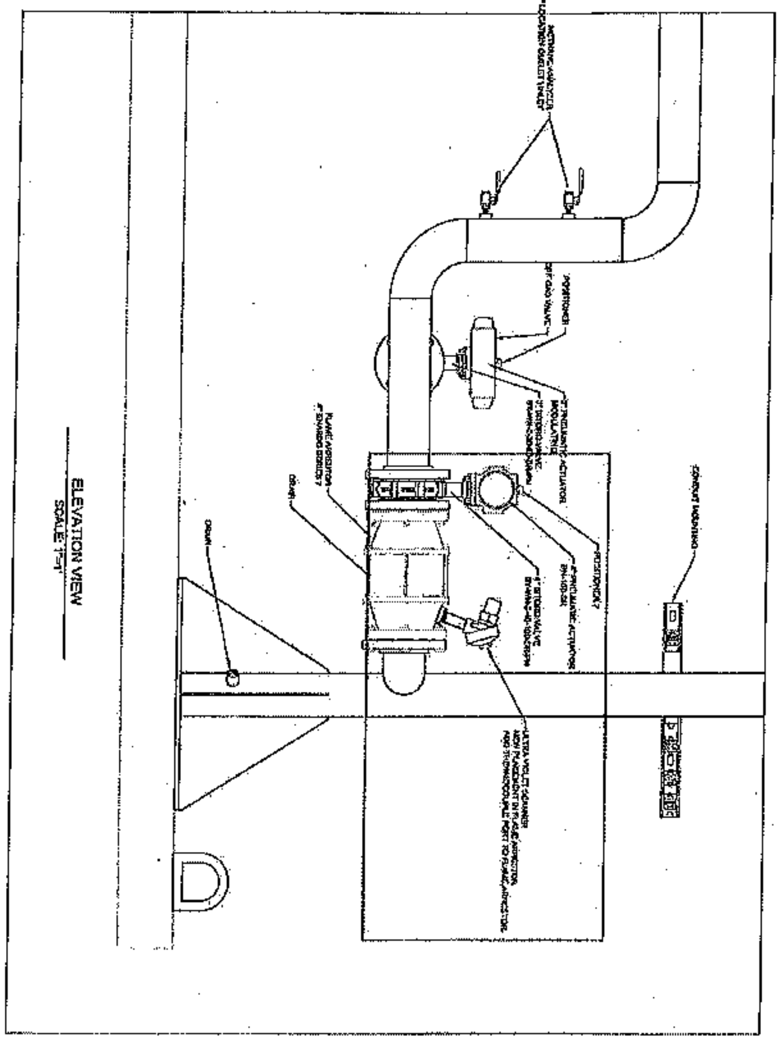

FIGURE	2	JOB #:	WO-2671	PRM PRODUCT RECOVERY MANAGEMENT PRODUCT RECOVERY MANAGEMENT
DRAWN	CORNELL	DATE:	8/11	McGILL ASSOCIATES HAYWOOD COUNTY LANDFILL DETAIL OF BASE OF FLARE
CHECKED		REV #:		