

## **Attachment F**

# **Landfill Gas Technical Memorandum**

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2 July 2020

## TECHNICAL MEMORANDUM

**TO:** Northeast Maryland Waste Disposal Authority and the Montgomery County  
Department of Environmental Protection, Recycling and Resource Management  
Division

**FROM:** Laura Jo Oakes, P.E., BCEE, EA Project Engineer

**SUBJECT:** Remediation Design – Landfill Gas Investigation – FINAL  
Gude Landfill, Montgomery County, Maryland  
EA Project No. 15646.01

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### 1. INTRODUCTION

EA Engineering, Science, and Technology, Inc., PBC (EA) is currently preparing the design for the Maryland Department of the Environment-approved Corrective Measure Alternative, toupee capping and additional landfill gas (LFG) collection, specifically identified in the Northwest, West, and Southwest Areas at the Gude Landfill (the Landfill). The purpose of this Technical Memorandum is to summarize the LFG system investigation that has been performed to aid in the redesign of the LFG collection system and to make immediate improvements as necessary.

### 2. BACKGROUND

Gude Landfill was used by the Montgomery County Department of Environmental Protection, Division of Solid Waste Services (the County) for municipal solid waste disposal between 1965 and 1982. The 120-acre site is located at 600 East Gude Drive in Rockville, Maryland. The site is bordered to the east by industrial operations, to the south by Gude Drive, to the west by the community of Derwood, and to the north by Maryland-National Capital Park and Planning Commission land. The original LFG collection system and landfill gas-to-energy facility (LFGE) at the Landfill became operational in 1985, with the enclosed flares installed in 2005, and expansion of the collection system occurring through 2008. The current LFGE system was installed and connected to the grid in 2009, and subsequently ceased operations on June 1, 2017.

Operational data utilized for this investigation were provided by the County's current contractor, APTIM (formerly CB&I Environmental & Infrastructure, Inc. [CB&I]), as well as historical data and as-built documentation from SCS Engineers that were provided by the County.

### 3. EXISTING LFG MANAGEMENT SYSTEM INFRASTRUCTURE

The existing LFG management system at the Landfill consists of a network of vertical LFG extraction wells, with mainly above-grade polyvinyl chloride conveyance piping. There are three known sumps within the system for the collection of condensate, which are periodically pumped

out, as necessary. LFG is currently flared at one of two enclosed flares, located adjacent to the LFGE system, which recently ceased operations.

### **3.1 EXTRACTION WELL NETWORK**

Based on the information available, there are currently 116 LFG extraction wells, 104 of which were monitored for LFG quality monthly, as of April 2018 (Appendix A). In 2015, CB&I performed a detailed review of the system and noted known total depth, depth to water, well head type (orifice plate or pitot tube), and general condition comments regarding each well. No recent operational data were provided for EW-13, EW-14, EW-49, EW-59, and EW-155. Extraction wells EW-40, EW-41, EW-43, and EW-44 were decommissioned in February 2018 due to the anticipated Purple Line Stockpile project. Based on the field investigation performed by EA on March 5, 2019, extraction wells EW-19 and EW-20 were also abandoned.

### **3.2 EXISTING BLOWERS AND ENCLOSED FLARES**

Three 20-horsepower blowers, each rated for 600 standard cubic feet per minute (scfm) at 60 inches of water column, are utilized to convey LFG from the collection system to two enclosed flares. The blowers currently operate approximately at 82 in. wc, and vary in flow from 25 in. wc to 83 in. wc. The enclosed flares are each rated for 600 scfm at 50 percent methane. In the event that methane is less than 30 percent, propane is onsite and can be supplemented, as necessary. The existing permit to construct and the as-built drawings for the enclosed flares are included in Appendix B. As part of the LFGE project, a butterfly valve and line were installed to direct LFG to the pretreatment skid associated with the LFGE system. It is EA's understanding that this valve was closed June 1, 2017, as part of the LFGE plant shutdown that occurred. The following repairs were also made in April through June 2019 to the two enclosed flares:

- The burner assemblies were replaced. The new burner assemblies included replacement and/or modification of the
  - Main burner,
  - Burner arms,
  - Pilot assembly with ignitor, and
  - Bolts and gaskets were modified, too.
- New fire decks were installed for internal air flow control
- Louver assemblies were replaced. The new louver assemblies' modification included an automation feature.
- New thermocouples were installed.
- New ultraviolet sensors were installed.
- New air flow sensors were installed.

Also, the following modifications were made to the piping between the enclosed flares and the blower skid:

- For each flare inlet, the modifications included the installation of:
  - New flex coupling,
  - New manual isolation valve,
  - New fail closed electric modulating valve, and
  - New flame arrester element with gaskets.
- The piping modifications included:
  - Carbon steel flow span piping for each enclosed flare, and
  - Two thermal dispersion flow meters for each enclosed flare.

The modifications to the piping between the enclosed flares and the blower skid also included a new oxygen (O<sub>2</sub>) sensor to shut the system if the O<sub>2</sub> content exceeds 4 percent. Also, there is updated programming to operate the modulating valves and O<sub>2</sub> sensor and to receive two flow signals.

### **3.3 EXISTING CONDENSATE MANAGEMENT**

It is EA's understanding that condensate is currently managed with the use of three sumps, several condensate traps, and at least one self-draining condensate trap that currently drains back to the Landfill. Additionally, there is a condensate knockout located at the blower skid that drains to a below-grade condensate sump within the fenced area for the enclosed flares.

Based on information provided by APTIM (previously CB&I) and reviewed as-built documentation, the following sumps are utilized to manage condensate:

1. Flare Sump—is located close to the plant where the condensate drains to the sump by gravity from the flare and knockout.
2. Inlet Sump—a sump is located at the inlet to the LFG plant that is below grade with a pneumatic pump.
3. Sump A—located between the Inlet Sump and Sump B, has an estimated depth of 16.5 feet. Based on APTIM's inspections throughout the years, this sump has historically not contained condensate.
4. Sump B—is located near the center of the existing well field with an estimated depth of 12 feet. APTIM noted that the connections to the sump are below grade and include a valve with an extended stem for operations.

#### 4. EXISTING LFG MANAGEMENT SYSTEM OPERATIONAL DATA

As part of this investigation, a review of operational data was performed. The intent of the review was to determine which LFG extraction wells:

1. Produce methane greater than 30 percent by volume,
2. Contain oxygen greater than 5 percent by volume, or
3. Contain water.

It is anticipated that the County will continue to utilize the two enclosed flares only and not pursue operation of the LFG system. The enclosed flares were operating at a median percent methane concentration of 36 and median flow of 501 scfm as of April 2018. Enclosed flares typically require methane to be 30 to 50 percent by volume, with oxygen less than 5 percent by volume.

**Table 1** summarizes the LFG extraction wells which had median methane concentrations of 30 percent or greater (from the period of November 2017 through April 2018) and did not have water when gauged historically. There were 20 LFG extraction wells total, which fit this criterion. Wells with oxygen recorded at least once at a volume greater than 5 percent are denoted with an “\*” symbol.

Similarly, **Table 2** identifies LFG extraction wells which have median methane concentrations of 30 percent or greater; however, these wells have water recorded within the LFG extraction well. There were 35 LFG extraction wells total, which fit this criterion.

**Table 3** summarizes the LFG extraction wells which have median methane concentrations of 30 percent or greater (from the period of November 2017 through April 2018), but in the past were unable to be gauged and, therefore, the presence of water is unknown. There were nine LFG extraction wells total that fit this criterion.

There were many LFG extraction wells which had median methane below 30 percent by volume and water or below 30 percent methane and no water. **Tables 4 and 5** present these LFG extraction wells, respectively.

There were also LFG extraction wells that in the past were not able to be gauged for water and/or total depth that also had a median methane less than 30 percent methane. These wells are presented in **Table 6**.

Twenty wells were selected for further investigation to confirm the reuse potential based on the limited data available (water level, methane and/or oxygen content) for the wells and where they are located. **Table 7** summarizes the results (water level, methane and oxygen content) from the investigation of the LFG extraction wells performed by EA and APTIM on March 5, 2019.

**Figure 1** shows the wells identified in **Tables 1 through 7** for consideration during the re-design of the LFG collection system for the remediation design.

## 5. EXISTING LFG MANAGEMENT SYSTEM CONDITION ASSESSMENT

In order to assess the condition of the existing LFG management system, EA reviewed operational information/comments, as well as photo documentation from the County's current LFG contractor, APTIM (Appendix C). A supplemental field investigation was performed on March 5, 2019, to inspect the condition of extraction wells with low methane that are in an area where a new LFG extraction well would be required, as well as some of the sumps that are to be abandoned. In general, the above-grade LFG system components, including well heads, conveyance piping, and appurtenances, are aged to the point of near or actual failure. Many of the components are glued together, which makes maintenance extremely difficult. It is the intent that as part of the remediation design, the above-grade components of the system will be replaced completely; therefore, an additional inspection of LFG extraction wells, well heads, gas conveyance piping, associated sumps, vaults, flanges, and the piping and infrastructure associated with providing gas to the two enclosed flares is not planned.

## 6. EXISTING LFG WELL CONDITION ASSESSMENT

EA personnel, with the assistance of APTIM's site manager, conducted a field investigation to assess the current condition of 20 selected LFG extraction wells. The wells were investigated for the presence of water, percent of methane, and oxygen in the wells to evaluate the potential to utilize these LFG extraction wells as part of the proposed LFG collection system. During the site visit it was determined that among those wells, 17 wells were able to be accessed; two wells (EW-19 and EW-20) were decommissioned and abandoned; and cap on the well EW-14 was tightly sealed during the visit and would have needed to be cut off for access. However, historically well EW-14 has not been connected to the existing LFG collection network. The complete well inspection logs and photo logs are provided in Appendix D and Appendix E, respectively.

Based on the investigation, all 17 wells had water in the well ranging between 0.0 and 34.8 feet. Only two wells EW-16 (50.4 percent) and EW-157 (52.6 percent) were detected with methane concentration greater than 30 percent and oxygen concentration less than 5 percent based on the March 2019 monitoring data provided by APTIM. However, between October 2018 and March 2019 methane has also been detected above 30 percent in extraction wells EW-4 (10.7 to 66.4 percent; three times), EW-6 (19.7 to 36.1 percent; three times), and EW-100 (5.9 to 55.6 percent; four times) during two or more events (Appendix A). Based on the available water depth, methane concentration, and oxygen concentration data for the investigated wells, four wells—EW-4, EW-16, EW-100, and EW-157—are suitable to be modified and connected with the proposed below-grade LFG collection system. It is EA's recommendation to abandon the remaining 13 existing extraction wells—EW-3, EW-6, EW-7, EW-9, EW-11, EW-12, EW-106, EW-114, EW-116, EW-133, EW-134, EW-135, and EW-147 due to methane being detected in these wells less than the 30 percent threshold. In addition, existing extraction wells EW-13, EW-14, EW-49, EW-59, and EW-155 are proposed to be abandoned since there is no operational data or construction data available.

## 7. PROJECTED LANDFILL GAS GENERATION AND COLLECTION

As part of the investigation, EA performed a LandGEM model analysis to evaluate LFG generation. The County used historical disposal records to estimate waste placement from 1964 until closure of the Landfill in 1982 (Appendix F). This information along with the existing operation of the LFG management system were used as part of this analysis.

The U.S. Environmental Protection Agency's (EPA) LandGEM is a Microsoft Excel-based software application that uses a first-order decay rate equation to calculate estimates for methane and LFG generation. LandGEM was used to calculate expected LFG generation at the Landfill using the following assumptions:

- Waste placement amount based on the historical waste disposal records (Appendix F; **Table 7**).
- Methane generation rate (k, year-1): 0.04 as recommended in EPA AP-42 Chapter 2.4.
- Potential methane generation capacity (L<sub>0</sub>, m<sup>3</sup>/Mg): 100 as recommended in EPA AP-42 Chapter 2.4.

Estimated LFG generation rates were then compared with the logged field data collected by APTIM (**Table 8**) to estimate the collection efficiency, as presented in **Table 9**. It was determined that the current collection efficiency is approximately 75 percent.

The Solid Waste Industry for Climate Solutions (2009) compiled data on field studies of methane flux where collection efficiency was or could be calculated and presented in the bullets below:

- 50 to 70 percent (mid-range default = 60 percent) for a landfill or portions of a landfill that are under daily soil cover with an active LFG collection system installed;
- 54 to 95 percent (mid-range default = 75 percent) for a landfill or portions of a landfill that contain an intermediate soil cover with an active LFG collection system;
- 90 to 99 percent (mid-range default = 95 percent) for landfills that contain a final soil and/or geomembrane cover systems with an active LFG collection system

The overall collection efficiency of an LFG collection system is primarily affected by the cover material. Gude Landfill was covered with 2 feet of soil and stabilized with vegetation. Cover thickness on side slopes may be less. With the closure design considered as the toupee capping on top and northwest side slope of the Landfill with geomembrane cover system and three other side slopes left unlined, the collection efficiency is expected to increase. However, the LFG generation will decrease continuously. It is reasonable to assume that the current collection and flare system will be sufficient to control LFG collected after installation of the toupee capping system.



## 8. CONCLUSIONS

Based on the LFG investigations performed, the following approach is to be used for the basis of design:

- All above-grade components of the LFG management system (piping, well heads, etc.) are to be replaced as part of the design.
- Collection system piping will be buried within the toupee cap, with the exception of existing wells outside of the cap which will be buried within the existing cover.
- Condensate traps and sumps will be abandoned or removed within the Landfill cap. Condensate will be managed with condensate drains.
- Existing LFG extraction wells with high methane (greater than 30 percent) will be modified and not abandoned.
- Existing LFG extraction wells with low methane and no water will be abandoned and replaced as required for adequate coverage.
- Existing LFG extraction wells with low methane and water, or that have unknown depths of water, will be abandoned, unless they are in an area where a LFG extraction well is required for coverage and it was determined during the March 5, 2019, investigation to be viable for future use.
- Existing LFG extraction wells with high methane and water will be modified, and dedicated pumps will be installed in wells with greater than 15 feet of water to facilitate dewatering.
- The enclosed flares and blower appear to be sized appropriately, but consideration for a smaller flare and/or blowers may be required in the future as LFG flow continues to decrease.

### Attachments

#### Figure

- 1 Landfill Gas Extraction Wells Operational Status

#### Tables

- 1 LFG Extraction Wells with High Methane and No Water
- 2 LFG Extraction Wells with High Methane and Water
- 3 LFG Extraction Wells with High Methane and Unknown Depth/Water

- 4 LFG Extraction Wells with Low Methane and No Water
- 5 LFG Extraction Wells with Low Methane and Water
- 6 LFG Extraction Wells with Low Methane and Unknown Depth/Water
- 7 Investigated LFG Extraction Wells
- 8 Landfill Historical Waste Disposal
- 9 November 2017 through April 2018 Recorded LFG Flow
- 10 LandGEM Results with 75 Percent Collection Efficiency

**Appendices**








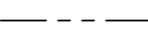
- A Current Operational Data
- B Construction Permit and As-Built Drawings
- C CB&I-Provided Information
- D Well Inspection Logs
- E Field Investigation Photo Logs
- F Historical Disposal Records

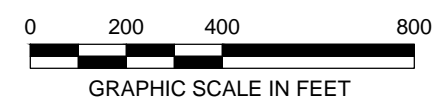
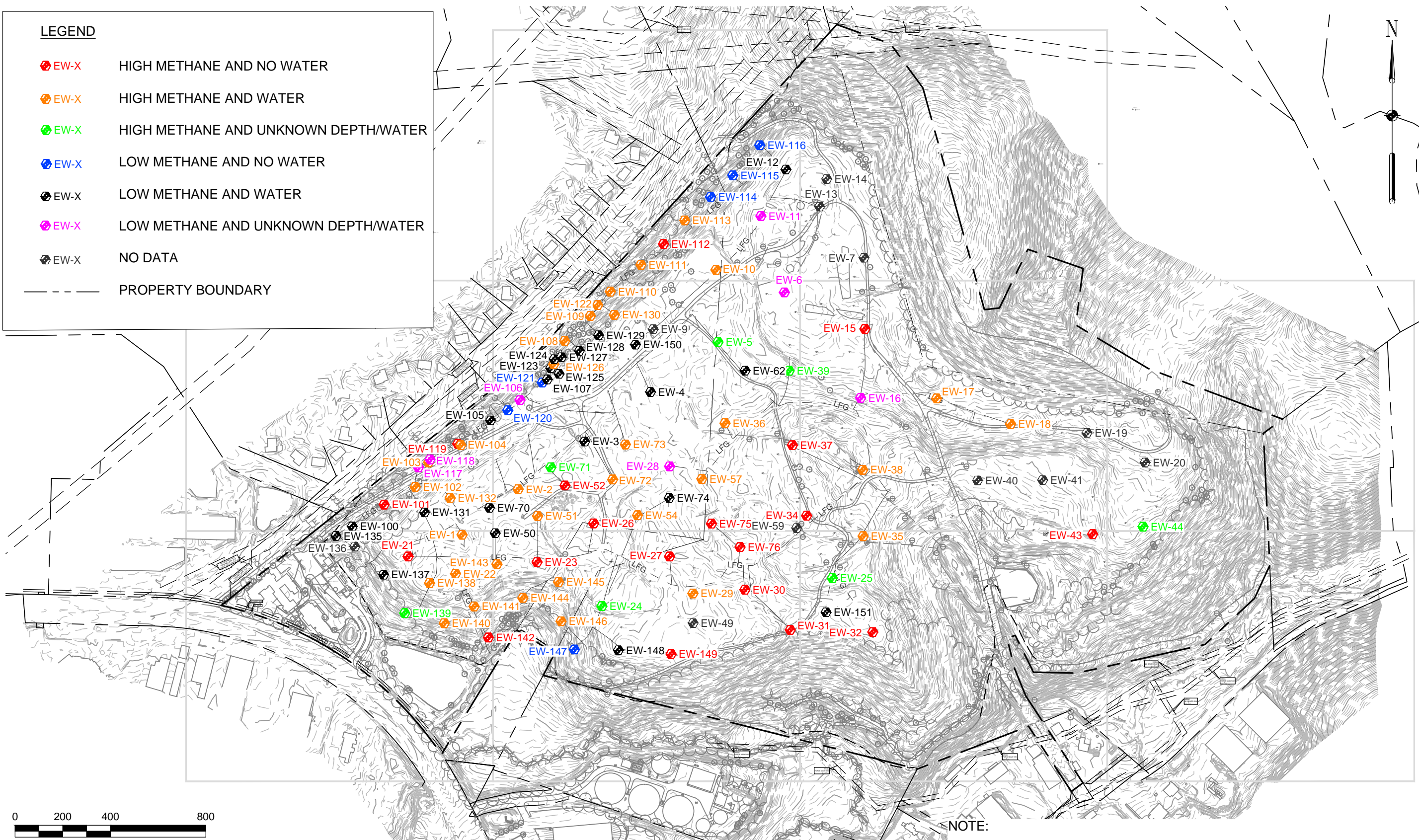
**Figure**

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**LEGEND**

-  EW-X HIGH METHANE AND NO WATER
-  EW-X HIGH METHANE AND WATER
-  EW-X HIGH METHANE AND UNKNOWN DEPTH/WATER
-  EW-X LOW METHANE AND NO WATER
-  EW-X LOW METHANE AND WATER
-  EW-X LOW METHANE AND UNKNOWN DEPTH/WATER
-  EW-X NO DATA
-  PROPERTY BOUNDARY



NOTE:  
1. EW-40, EW-41, EW-43, AND EW-44 DECOMMISSIONED FEBRUARY 2018.



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PROJECT NUMBER: 1564601	DESIGNED BY: CAG	DRAWN BY: CAG	FIGURE: 1
DATE: SEPTEMBER 2018	CHECKED BY: LJO	PROJECT MGR.: MJG	SHEET NUMBER: -

**GUIDE LANDFILL REMEDIATION DESIGN**  
MONTGOMERY COUNTY, MARYLAND

**LANDFILL GAS EXTRACTION WELLS OPERATIONAL STATUS**

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## **Tables**

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**Table 1 LFG Extraction Wells with High Methane and No Water**

<b>Well Identification</b>	<b>Measured Total Depth (feet)</b>	<b>Median Percent Methane</b>
EW-15*	34.9	52.0
EW-21	29.3	57.3
EW-23	26.0	62.1
EW-26*	27.1	59.9
EW-27*	30.4	37.7
EW030	48.2	57.7
EW-31	7.0	54.0
EW-32*	38.1	49.7
EW-34*	29.7	47.9
EW-37	31.3	48.8
EW-43	34.1	33.9
EW-52	22.7	58.9
EW-75*	24.9	57.2
EW-76	41.1	57.2
EW-101	24.9	50.0
EW-112	36.4	43.7
EW-119	21.6	40.7
EW-142*	25.8	33.4
EW-149*	48.1	31.2
EW-156*	43.0	26.3**

1. Extraction well measured total depth, as reported by APTIM.  
2. Median methane based on data recorded by APTIM between November 2017 and April 2018.

\* = Well has greater than 5 percent oxygen.  
\*\* = Median for last 3 months reviewed was 34.4.

**Table 2 LFG Extraction Wells with High Methane and Water**

<b>Well Identification</b>	<b>Measured Total Depth (feet)</b>	<b>Depth to Water (feet)</b>	<b>Height of Water (feet)</b>	<b>Median Percent Methane</b>
EW-1*	29.2	26.4	2.8	52.3
EW-2*	30.3	18.2	12.1	61.8
EW-10	28.3	24.4	3.9	57.0
EW-17	48.0	37.8	10.2	48.2
EW-18*	35.0	30.6	4.4	37.3
EW-22*	28.0	22.8	5.2	56.0
EW-29*	21.2	12.2	9.0	59.8
EW-35*	35.0	20.7	14.3	58.3
EW-36*	34.9	22.6	12.3	67.0
EW-38*	30.4	17.6	12.8	29.5
EW-51*	21.2	10.3	10.9	39.8
EW-54*	35.7	18.2	17.5	44.8
EW-57*	16.0	14.4	1.6	35.0
EW-72*	53.4	44.3	9.1	56.6
EW-73	49.5	31.8	17.7	53.6
EW-102	28.2	27.4	0.8	34.1
EW-103	36.0	24.1	11.9	40.5
EW-104*	46.3	22.1	24.2	50.6
EW-108*	26.1	25.6	0.5	42.1
EW-109	28.5	27.5	1.0	47.2
EW-110*	39.0	38.3	0.7	51.5
EW-111	43.2	36.7	6.5	40.5
EW-113	31.8	28.7	3.1	37.5
EW-122*	14.6	11.9	2.7	42.5
EW-126	35.6	24.4	11.2	46.3
EW-130	33.8	19.7	14.1	63.1
EW-132*	53.2	23.0	30.2	34.8
EW-138	55.2	35.1	20.1	53.8
EW-140*	36.6	28.2	8.4	46.2
EW-141	48.6	34.1	14.5	55.4
EW-143	58.4	54.5	3.9	57.4
EW-144*	36.5	22.9	13.6	57.6
EW-145	57.1	33.2	23.9	55.1
EW-146*	36.5	9.1	27.4	33.8
EW-152*	44.9	40.0	4.9	42.9

1. Extraction well total depth, as reported by APTIM.
2. Median methane based on data recorded by APTIM between November 2017 and April 2018.

\* = Well has greater than 5 percent oxygen.

**Table 3 LFG Extraction Wells with High Methane and Unknown Depth/Water**

<b>Well Identification</b>	<b>Median Percent Methane</b>
DS-2	41.7
EW-5	61.6
EW-24*	38.4
EW-25	59.6
EW-39	57.4
EW-44*	33.6
EW-71	40.0
EW-139*	39.8
EW-158*	52.1
EW-159	44.1

1. Extraction well total depth, as reported by APTIM.  
2. Median methane based on data recorded by APTIM between November 2017 and April 2018.

\* = Well has greater than 5 percent oxygen.

**Table 4 LFG Extraction Wells with Low Methane and Water**

Well Identification	Measured Total Depth (feet)	Depth to Water (feet)	Height of Water (feet)	Median Percent Methane
EW-3*	33.0	6.3	26.7	0.5
EW-4*	33.4	21.0	12.4	7.6
EW-12*	34.4	31.2	3.2	9.0
EW-50*	17.8	10.1	7.7	16.1
EW-62*	34.1	19.3	14.8	22.3
EW-70*	43.5	31.2	12.3	26.7
EW-74*	25.8	22.9	2.9	25.6
EW-100	27.7	21.2	6.5	26.7
EW-105	47.0	28.5	18.5	13.5
EW-107*	42.4	23.0	19.4	0.4
EW-123*	20.2	17.5	2.7	0.7
EW-124*	20.1	11.0	9.1	0.9
EW-125*	39.3	23.0	16.3	2.4
EW-127*	34.0	13.5	20.5	18.3
EW-128*	43.0	20.3	22.7	1.2
EW-129	41.1	18.8	22.3	17.0
EW-131*	35.1	24.4	10.7	20.2
EW-133*	37.2	26.5	10.7	7.0
EW-135*	25.3	15.6	9.7	8.1
EW-137	41.8	31.5	10.3	19.8
EW-148	46.9	28.0	18.9	22.3
EW-150*	47.2	24.5	22.7	20.1
EW-151*	45.8	28.0	17.8	3.5
EW-153*	34.5	21.4	13.1	11.1

1. Extraction well total depth, as reported by APTIM.
2. Median methane based on data recorded by APTIM between November 2017 and April 2018.

\* = Well has greater than 5 percent oxygen.

**Table 5 LFG Extraction Wells with Low Methane and No Water**

Well Identification	Measured Total Depth (feet)	Median Percent Methane
EW-114*	38.0	7.5
EW-115*	38.6	0.5
EW-116	33.7	11.8
EW-120*	14.0	0.1
EW-121*	17.3	0.2
EW-134*	27.0	0.2
EW-147*	42.7	9.1
EW-157	40.5	24.1

1. Extraction well total depth, as reported by APTIM.
2. Median methane based on data recorded by APTIM between November 2017 and April 2018.

\* = Well has greater than 5 percent oxygen.

**Table 6 LFG Extraction Wells with Low Methane and Unknown Depth/Water**

Well Identification	Median Percent Methane
EW-6	22.5
EW-11	19.0
EW-16	11.4
EW-28*	23.0
EW-106	20.2
EW-117*	0.1
EW-118*	0.2
EW-154*	11.6

1. Extraction well total depth, as reported by APTIM.  
 2. Median methane based on data recorded by APTIM between November 2017 and April 2018.

\* = Well has greater than 5 percent oxygen..

**Table 7 Investigated LFG Extraction Wells**

Well Identification	Measured Total Depth (feet)	Measured Depth to Water (feet)	Height of Water (feet)	Median Percent Methane	Median Percent Oxygen
EW-3*	43.0	7.2	35.8	0.4	20.6
EW-4*	33.5	20.0	13.5	10.7	16.7
EW-6	34.3	24.9	9.4	19.7	0.0
EW-7	51.0	44.6	6.4	NA	NA
EW-9	46.6	16.6	30	NA	NA
EW-11	37.5	23.7	13.8	13.9	0.0
EW-12	47.0	37.7	9.3	11.5	0.7
EW-14	NA	NA	NA	NA	NA
EW-16	44.3	40.5	3.8	50.4	0.1
EW-100*	26.2	20.7	5.5	5.9	20.0
EW-106	40.7	38.3	2.4	23.2	0.0
EW-114	37.8	37.8	0.0	18.0	3.4
EW-116	33.8	32.8	1.0	8.8	2.0
EW-133*	37.2	20.9	16.3	0.1	21.5
EW-134*	27.4	14.1	13.3	0.7	19.9
EW-135*	22.0	14.1	7.9	0.4	21.5
EW-147	43.6	42.8	0.8	3.7	0.2
EW-157	41.3	36.7	4.6	52.6	0.1

1. Extraction well total depth and depth to water, as investigated by EA.  
 2. Median percent methane and oxygen based on data recorded by APTIM during March 2019 monitoring event.

\* = Well has greater than 5 percent oxygen.  
 NA = Not available.

**Table 8 Landfill Historical Waste Disposal**

<b>Year</b>	<b>Tons/year</b>	<b>Year</b>	<b>Tons/year</b>
1964	134,986	1974	376,207
1965	139,540	1975	388,900
1966	144,248	1976	382,600
1967	149,115	1977	378,500
1968	154,146	1978	406,400
1969	159,346	1979	422,700
1970	164,723	1980	404,800
1971	170,280	1981	417,000
1972	176,025	1982	408,632
1973	181,964		

**Table 9 – November 2017 through April 2018 Recorded LFG Flow**

<b>Date</b>	<b>Flow (scfm)</b>
11/2/2017	514
11/2/2017	500
11/27/2017	491
11/27/2017	493
11/27/2017	533
11/27/2017	515
11/28/2017	504
11/29/2017	489
12/22/2017	595
12/22/2017	588
12/22/2017	576
12/27/2017	510
12/28/2017	490
12/28/2017	521
1/25/2018	524
1/31/2018	499
2/22/2018	496
2/23/2018	501
3/15/2018	465
3/21/2018	429
3/27/2018	464
4/23/2018	445
4/24/2018	507

Flow as reported by APTIM.  
Recorded data from January 30, 2018 were not included. The recorded flow as 2,539 standard cubic feet per minute (scfm).

**Table 10 – LandGEM Results with 75 Percent Collection Efficiency**

<b>Year</b>	<b>Landfill Gas (acfm)</b>	<b>Year</b>	<b>Landfill Gas (acfm)</b>
1964	0.00	2017	494.70
1965	64.79	2018	475.30
1966	129.22	2019	456.66
1967	193.39	2020	438.76
1968	257.38	2021	421.55
1969	321.27	2022	405.02
1970	385.15	2023	389.14
1971	449.11	2024	373.88
1972	513.23	2025	359.22
1973	577.60	2026	345.14
1974	642.29	2027	331.60
1975	797.67	2028	318.60
1976	953.05	2029	306.11
1977	1,099.32	2030	294.11
1978	1,237.88	2031	282.57
1979	1,384.40	2032	271.50
1980	1,533.00	2033	260.85
1981	1,667.18	2034	250.62
1982	1,801.96	2035	240.79
1983	1,927.43	2036	231.35
1984	1,851.86	2037	222.28
1985	1,779.24	2038	213.57
1986	1,709.48	2039	205.19
1987	1,642.45	2040	197.15
1988	1,578.05	2041	189.42
1989	1,516.17	2042	181.99
1990	1,456.72	2043	174.85
1991	1,399.60	2044	168.00
1992	1,344.72	2045	161.41
1993	1,292.00	2046	155.08
1994	1,241.34	2047	149.00
1995	1,192.66	2048	143.16
1996	1,145.90	2049	137.54
1997	1,100.97	2050	132.15
1998	1,057.80	2051	126.97
1999	1,016.32	2052	121.99
2000	976.47	2053	117.21
2001	938.18	2054	112.61
2002	901.40	2055	108.20
2003	866.05	2056	103.95
2004	832.09	2057	99.88
2005	799.47	2058	95.96
2006	768.12	2059	92.20
2007	738.00	2060	88.58
2008	709.06	2061	85.11
2009	681.26	2062	81.77
2010	654.55	2063	78.57
2011	628.88	2064	75.49
2012	604.22	2065	72.53
2013	580.53	2066	69.68

**Table 10 – LandGEM Results with 75 Percent Collection Efficiency**

<b>Year</b>	<b>Landfill Gas (acfm)</b>	<b>Year</b>	<b>Landfill Gas (acfm)</b>
2014	557.77	2067	66.95
2015	535.90	2068	64.32
2016	514.89	2069	61.80
		2070	59.38
Note: acfm = Actual cubic feet per minute.			



## **Appendix A**

### **Current Operational Data**

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**Gas Extraction Wells**

Rolling Data

Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H <sub>2</sub> O)	Adjusted Static Press. (in. H <sub>2</sub> O)	Adjusted Diff. Press. (in. H <sub>2</sub> O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Adjusted Flow (scfm)	Available Vacuum (in. H <sub>2</sub> O)	Comments
GUEDS02	14:34	11/27/2017	42.4	36.5	0.4	20.7	-65.29	-65.29	-0.078	79.7	79.7	0	-65.97	*No Adj. Made
GUEDS02	10:32	12/28/2017	41.0	35.0	1.1	22.9	-54.63	-53.88	-0.134	45.1	44.9	0	-55.57	*No Adj. Made
GUEDS02	14:27	1/31/2018	37.7	34.4	1.0	26.9	-69.66	-69.64	-0.042	56.7	56.7	0	-70.13	No Change in Valve Position
GUEDS02	13:43	2/22/2018	40.4	35.1	0.3	24.2	-69.94	-69.95	-0.273	78.3	78.1	0	-70.83	*No Adj. Made
GUEDS02	11:07	3/21/2018	43.5	37.9	0.5	18.1	-76.91	-76.91	-0.049	40.5	40.5	0	-77.04	*No Adj. Made
GUEDS02	15:39	4/23/2018	46.0	36.8	0.6	16.6	-62.61	-62.72	-0.059	79.3	79.3	0	-63.1	*No Adj. Made
GUDEW001	15:51	11/28/2017	24.5	16.8	11.8	46.9	-36.52	-36.41	0.001	72.9	73	4.6	-39.63	*Barely Open/*No Adj. Made
GUDEW001	14:39	12/28/2017	43.9	30.6	5.8	19.7	-41.78	-41.78	0.006	36.1	36.2	11.8	-45.14	*No Adj. Made
GUDEW001	12:07	1/31/2018	52.3	33.1	1.2	13.4	-39.03	-38.99	>>>>	58.4	58.4	N/A	-41.8	No Change in Valve Position
GUDEW001	12:08	1/31/2018	57.8	38.5	0.8	2.9	-38.43	-39.67	>>>>	58.3	58.3	N/A	-41.63	*Dec. Flow/Vac.
GUDEW001	11:47	2/22/2018	59.7	39.8	0.5	0.0	-45.57	-45.56	0.029	60.4	60.4	26.9	-45.57	*No Change in Valve Position
GUDEW001	15:39	3/27/2018	21.1	15.0	13.8	50.1	-44.96	-44.91	0.012	50.2	49.9	17	-44.93	*Barely Open/*No Adj. Made
GUDEW001	12:09	4/24/2018	53.1	35.4	1.7	9.8	-32.68	-32.7	0.103	74.2	74.3	51.2	-32.89	*No Adj. Made
GUDEW002	16:57	11/27/2017	61.9	37.4	0.7	0.0	-35.86	-35.87	0.019	59.5	59.1	22	-35.86	*Fully Open/*No Adj. Made
GUDEW002	14:23	12/28/2017	29.1	19.3	11.0	40.6	-44.42	-44.42	0.035	39.2	39.1	29.7	-44.46	*Barely Open/*No Adj. Made
GUDEW002	13:37	1/31/2018	61.9	38.0	0.1	0.0	-40.78	-40.81	-0.047	57.9	57.9	<<>>	-40.45	No Change in Valve Position/*Fully Open
GUDEW002	13:33	2/22/2018	61.4	38.3	0.3	0.0	-63.1	-44.52	0.007	57.8	57.8	13.4	-44.87	*Fully Open/*No Change in Valve Position
GUDEW002	15:47	3/27/2018	61.6	36.9	0.5	1.0	-45.15	-45.15	0.032	55.6	55.6	28.7	-45.14	*Fully Open/*No Adj. Made
GUDEW002	8:12	4/24/2018	62.7	37.3	0.0	0.0	-34.85	-34.84	0.027	58.5	58.4	26.9	-35.05	*Fully Open/*No Adj. Made
GUDEW003	16:40	11/27/2017	0.4	2.0	18.8	78.8	-1.47	-1.43	0.012	58.2	58.2	3.3	-36.4	*Fully Closed/*No Adj. Made
GUDEW003	14:04	12/28/2017	0.2	3.8	16.4	79.6	-1.83	-1.84	-0.014	47.3	47.2	0	-44.24	*Fully Closed/*No Adj. Made
GUDEW003	13:49	1/31/2018	0.8	8.3	15.7	75.2	-1.43	-1.33	0.004	49.6	49.6	1.9	-40.96	No Change in Valve Position/*Fully Closed
GUDEW003	14:09	2/22/2018	1.5	4.6	19.9	74.0	-1.6	-1.6	-0.009	60.4	60.5	0	-44.39	*Fully Closed/*No Change in Valve Position
GUDEW003	16:31	3/27/2018	0.3	5.0	17.8	76.9	-3	-3.02	-0.014	64.2	64.2	0	-44.85	*Fully Closed/*No Adj. Made
GUDEW003	17:33	4/23/2018	0.5	4.1	17.4	78.0	-2.22	-2.2	0.011	70.8	70.5	3.1	-37.78	*Fully Closed/*No Adj. Made
GUDEW004	16:32	11/27/2017	16.0	5.7	16.4	61.9	-36.8	-36.74	-0.003	70.3	70	<<>>	-36.83	*Barely Open/*No Adj. Made
GUDEW004	13:54	12/28/2017	5.9	3.0	16.7	74.4	-42.43	-41.14	-0.002	35.3	34.4	<<>>	-43.93	*Barely Open/*No Adj. Made
GUDEW004	9:44	1/31/2018	3.2	1.7	18.9	76.2	-19.5	-20.51	0.011	44	44	16.3	-44.18	No Change in Valve Position
GUDEW004	14:12	2/22/2018	8.2	3.5	19.5	68.8	-10.63	-10.66	0.012	59.6	59.6	17.6	-34.55	*No Change in Valve Position
GUDEW004	16:42	3/27/2018	7.0	3.1	17.8	72.1	-32.56	-32.12	0.012	46.9	46.8	16.9	-37.56	*Barely Open/*No Adj. Made
GUDEW004	17:42	4/23/2018	19.7	6.1	14.6	59.6	-32.5	-32.48	-0.014	71.6	71.5	<<>>	-33.49	*Barely Open/*No Adj. Made

Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H <sub>2</sub> O)	Adjusted Static Press. (in. H <sub>2</sub> O)	Adjusted Diff. Press. (in. H <sub>2</sub> O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Adjusted Flow (scfm)	Available Vacuum (in. H <sub>2</sub> O)	Comments
GUDEW005	16:22	11/27/2017	60.3	37.7	0.3	1.7	-33.99	-34	-0.003	62.9	62.2	<<>	-34.04	*Fully Open/*No Adj. Made
GUDEW005	10:33	12/28/2017	62.8	37.1	0.1	0.0	-41.84	-41.85	0.062	33	33.2	15.9	-41.82	*No Adj. Made
GUDEW005	9:48	1/31/2018	62.2	37.5	0.3	0.0	-42.5	-42.5	0.032	41	41	11.2	-42.39	No Change in Valve Position/*Fully Open
GUDEW005	9:49	2/22/2018	61.1	38.6	0.3	0.0	-30.77	-30.78	0.033	70.7	70.7	11.1	-30.34	*Fully Open/*No Change in Valve Position
GUDEW005	12:28	3/21/2018	59.6	39.2	1.2	0.0	-52.33	-52.34	-0.012	39.8	39.8	<<>	-52.33	*No Adj. Made
GUDEW005	16:57	4/23/2018	62.1	36.1	0.3	1.5	-26.28	-26.8	-0.006	72.6	72.4	<<>	-26.09	*Fully Open/*No Adj. Made
GUDEW006	16:10	11/27/2017	21.9	23.2	0.0	54.9	-0.1	-0.1	-0.003	75.4	75.6	<<>	-32.92	*Barely Open/*No Adj. Made
GUDEW006	13:17	12/28/2017	19.8	22.8	2.4	55.0	-0.02	-0.03	-0.015	42.5	42.5	<<>	-14.1	*Barely Open/*No Adj. Made
GUDEW006	12:12	1/30/2018	22.4	22.4	0.2	55.0	-0.1	-0.1	0.03	50.9	50.9	5.9	N/A	No Change in Valve Position
GUDEW006	14:15	2/22/2018	23.3	20.3	0.7	55.7	-0.12	-0.12	-0.136	59.5	59.5	<<>	N/A	*No Change in Valve Position
GUDEW006	12:21	3/21/2018	23.7	23.4	0.2	52.7	-0.05	-0.05	0	43.3	43.3	0.2	-49.15	*Barely Open/*No Adj. Made
GUDEW006	16:48	4/23/2018	22.5	20.5	0.0	57.0	-0.05	-0.09	-0.004	77	77.6	<<>	-28.2	*Inc. Flow/Vac.
GUDEW010	16:26	11/27/2017	58.4	35.6	1.0	5.0	-27.07	-28.1	-0.003	70.7	71.4	<<>	-28.53	*Fully Open/*No Adj. Made
GUDEW010	11:46	12/28/2017	59.0	34.9	3.0	3.1	-40.14	-40.13	0.013	50.3	50.4	6.9	-40.06	*Barely Open/*No Adj. Made
GUDEW010	11:56	1/30/2018	15.2	22.2	0.5	62.1	<<<<	<<<<	>>>>	50.1	50.1	N/A	-38.47	No Change in Valve Position
GUDEW010	13:26	2/22/2018	55.5	33.0	2.8	8.7	-12.43	-14.55	3.89	58	58	343.1	-42.42	*Fully Closed/*No Change in Valve Position
GUDEW010	12:25	3/21/2018	59.8	39.9	0.3	0.0	-14.94	-14.97	>>>>	38.3	38.2	N/A	-15.36	*Barely Open/*Surging/*No Adj. Made
GUDEW010	12:27	4/24/2018	54.8	33.5	2.5	9.2	-12.07	-13.55	-0.001	72.1	72.1	<<>	-13.71	*Surging/*No Adj. Made
GUDEW011	16:07	11/27/2017	18.8	22.6	0.1	58.5	-0.35	-0.29	-0.009	72.6	72.7	<<>	-27.66	*Barely Open/*No Adj. Made
GUDEW011	11:43	12/28/2017	20.5	24.0	1.3	54.2	-0.02	-0.01	-0.011	47.1	47.2	<<>	-39.3	*Barely Open/*No Adj. Made
GUDEW011	11:47	1/30/2018	16.2	22.3	0.6	60.9	-1.23	-0.7	0.525	51.7	51.7	25.1	N/A	No Change in Valve Position
GUDEW011	14:42	2/22/2018	18.7	23.1	0.0	58.2	-0.06	-0.06	-0.009	59.7	59.6	<<>	-13.43	*Barely Open/*No Adj. Made
GUDEW011	12:16	3/21/2018	19.1	24.8	0.3	55.8	-0.12	-0.11	0.16	36.9	36.6	5.5	-23.09	*Barely Open/*No Adj. Made
GUDEW011	16:44	4/23/2018	24.6	22.4	0.0	53.0	-0.07	-0.08	0.002	77.4	77.4	0.5	-8.66	*Barely Open/*No Adj. Made
GUDEW012	16:05	11/27/2017	7.9	19.3	0.6	72.2	-0.15	-0.15	-0.001	71.1	71.3	<<>	-23.97	*Barely Open/*No Adj. Made
GUDEW012	11:25	12/28/2017	24.2	23.6	0.4	51.8	0.12	0.11	-0.109	45.8	45.7	<<>	0.09	*Barely Open/*No Adj. Made
GUDEW012	11:44	1/30/2018	0.1	5.9	20.3	73.7	-5.54	-5.02	4.54	52.7	52.7	137	-36.09	No Change in Valve Position
GUDEW012	14:39	2/22/2018	4.7	18.9	1.5	74.9	-0.03	-0.03	-0.008	61.3	61.4	<<>	-11.65	*No Adj. Made
GUDEW012	12:12	3/21/2018	10.0	22.9	0.7	66.4	-0.1	-0.1	-0.428	40.6	40.6	<<>	-15.78	*Barely Open/*No Adj. Made
GUDEW012	16:41	4/23/2018	17.6	21.7	0.0	60.7	-0.03	-0.03	-0.017	77.2	77.2	<<>	-5.95	*Barely Open/*No Adj. Made
GUDEW015	10:55	11/28/2017	60.0	27.2	1.7	11.1	-25.37	-30.16	0.008	67	66.6	5.4	-35.29	*Inc. Flow/Vac.
GUDEW015	11:04	12/28/2017	6.4	24.3	0.5	68.8	-0.03	-0.02	0.031	25	24.9	10.9	-42.61	*No Adj. Made
GUDEW015	12:10	1/30/2018	40.6	20.3	7.5	31.6	-42.76	-43.82	>>>>	52	52	N/A	-41	No Change in Valve Position
GUDEW015	16:30	2/22/2018	63.0	28.0	0.9	8.1	-39.18	-39.16	0.002	57.5	57.5	2.9	-39.52	*Fully Open/*No Adj. Made
GUDEW015	15:01	3/21/2018	44.0	20.8	5.8	29.4	-45.64	-38.21	0.172	44.1	43.8	26.5	-46.94	*Dec. Flow/Vac.
GUDEW015	12:12	4/27/2018	67.8	32.2	0.0	0.0	-1.01	-1.04	0.007	58.4	58.4	5.4	-30.29	*No Adj. Made
GUDEW016	10:59	11/28/2017	7.7	19.3	1.0	72.0	-0.76	-0.76	0.525	65.7	65.6	45	-35.39	*Barely Open/*No Adj. Made
GUDEW016	11:01	12/28/2017	5.0	21.0	0.1	73.9	-0.44	-0.43	0.174	24.9	25.1	26.4	0.08	*No Adj. Made
GUDEW016	10:01	1/31/2018	10.4	20.0	0.6	69.0	-0.44	-0.45	0.39	42.4	42.4	39.8	-41.39	No Change in Valve Position
GUDEW016	16:27	2/22/2018	14.9	22.1	0.0	63.0	-1.43	-1.44	-0.009	53.5	53.3	<<>	-40.44	*Barely Open/*No Adj. Made
GUDEW016	15:04	3/21/2018	12.3	17.5	2.4	67.8	-0.62	-0.62	-0.006	42	41.9	<<>	-47.58	*Barely Open/*No Adj. Made

Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H <sub>2</sub> O)	Adjusted Static Press. (in. H <sub>2</sub> O)	Adjusted Diff. Press. (in. H <sub>2</sub> O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Adjusted Flow (scfm)	Available Vacuum (in. H <sub>2</sub> O)	Comments
GUDEW016	12:14	4/27/2018	15.0	21.1	0.2	63.7	-1.09	-1.1	0.902	57.1	57.1	60.4	-30.32	*No Adj. Made
GUDEW017	11:02	11/28/2017	34.9	23.0	0.1	42.0	-7.02	-3.45	<<<<	69.2	69.8	N/A	-32.21	*Dec. Flow/Vac.
GUDEW017	13:28	12/28/2017	43.5	23.9	2.2	30.4	-2.7	-2.69	2.723	46.7	46.7	112.8	-34.88	*Barely Open/*No Adj. Made
GUDEW017	10:26	1/31/2018	49.1	24.4	0.2	26.3	-3.63	-3.61	3.605	43.1	43.1	132.1	-41.58	No Change in Valve Position
GUDEW017	16:22	2/22/2018	47.8	24.1	0.6	27.5	-3.67	-3.67	3.657	60.3	60.3	130.4	-39.7	*No Adj. Made
GUDEW017	14:58	3/21/2018	48.6	24.9	0.8	25.7	-4.82	-4.83	5.191	47.2	47.2	157.6	-43.56	*No Adj. Made
GUDEW017	8:33	4/24/2018	50.4	24.6	1.0	24.0	-3.97	-3.97	4.03	65.8	65.8	136.8	-29.29	*No Adj. Made
GUDEW018	11:05	11/28/2017	31.8	27.0	3.7	37.5	-33.1	-32.37	0.014	73.5	73.8	1.5	-32.74	*No Adj. Made
GUDEW018	13:30	12/28/2017	25.5	24.6	4.8	45.1	-34.57	-34.57	-0.034	46.3	46.2	<<>>	-34.35	*No Adj. Made
GUDEW018	10:28	1/31/2018	47.9	25.0	0.0	27.1	-41.29	-41.31	0.039	42.7	42.7	6.7	N/A	No Change in Valve Position
GUDEW018	16:20	2/22/2018	23.6	23.9	3.6	48.9	-38.13	-34.63	0.007	59.5	59.7	1	-38.57	*Dec. Flow/Vac.
GUDEW018	14:54	3/21/2018	49.2	30.2	2.0	18.6	-44.44	-45.38	0.308	57.9	57.9	7.4	-44.5	*No Adj. Made
GUDEW018	8:43	4/24/2018	42.7	23.7	6.6	27.0	-31.09	-29.72	0.002	64.5	64.7	0.6	-32.04	*Barely Open/*Dec. Flow/Vac.
GUDEW021	15:44	11/28/2017	28.0	19.9	7.0	45.1	-38.78	-37.33	0.004	70.6	70	3.6	-39.31	*Barely Open/*Dec. Flow/Vac.
GUDEW021	14:41	12/28/2017	60.3	35.0	1.5	3.2	-45.55	-45.53	0.064	39.3	39.3	15.9	-45.45	*No Adj. Made
GUDEW021	11:55	1/31/2018	64.6	35.6	0.0	N/A	-41.98	-41.96	0.023	52.7	52.7	9.4	-41.94	No Change in Valve Position
GUDEW021	11:45	2/22/2018	54.2	33.0	2.9	9.9	-45.7	-45.69	0.042	60.6	60.7	12.5	-44.48	*No Change in Valve Position
GUDEW021	15:34	3/27/2018	47.8	29.1	4.8	18.3	-45.89	-44.9	-0.004	52	51.9	<<>>	-44.99	*Barely Open/*No Adj. Made
GUDEW021	12:05	4/24/2018	61.4	33.9	0.3	4.4	-32.7	-32.69	-0.016	74.5	74.5	<<>>	-32.59	*Inc. Flow/Vac.
GUDEW022	14:33	11/28/2017	53.7	32.2	2.5	11.6	-40.29	-39.75	0.012	73.8	73.9	6.5	-40.14	*Fully Open/*No Adj. Made
GUDEW022	14:51	12/28/2017	44.6	28.3	6.3	20.8	-45.07	-45.07	0.544	40.4	40.4	46.6	-33.69	*No Adj. Made
GUDEW022	11:48	1/31/2018	62.6	35.7	0.9	0.8	-42.16	-42.08	0.051	51.1	51.1	14.1	-41.88	No Change in Valve Position
GUDEW022	11:14	2/22/2018	51.2	31.6	3.8	13.4	-45.86	-45.85	0.149	59.9	59.9	23.7	-44.8	*No Change in Valve Position
GUDEW022	15:09	3/27/2018	58.3	33.0	1.9	6.8	-46.29	-46.3	0.01	63.2	63.2	6.1	-46.38	*Fully Open/*No Adj. Made
GUDEW022	11:49	4/24/2018	58.3	32.1	1.8	7.8	-32.83	-32.83	0.017	71.6	71.7	8	-32.81	*No Adj. Made
GUDEW023	14:05	11/28/2017	60.1	33.0	1.4	5.5	-40.46	-40.4	0.024	77.4	77.2	9.8	-40.34	*Fully Open/*No Adj. Made
GUDEW023	14:03	12/28/2017	65.0	34.5	0.5	0.0	-44.39	-44.39	0	37.8	37.7	<<>>	-44.12	*No Adj. Made
GUDEW023	11:53	1/31/2018	64.5	35.5	0.0	0.0	-41.97	-41.96	0.029	51.4	51.5	10.6	-41.97	No Change in Valve Position/*Fully Open
GUDEW023	11:09	2/22/2018	60.0	31.8	2.3	5.9	-45.54	-44.68	0.071	60.5	60.5	16.6	-44.85	*No Change in Valve Position
GUDEW023	15:03	3/27/2018	63.4	33.2	0.9	2.5	-45.54	-45.57	0.008	62.4	62.6	5.5	-46.59	*Fully Open/*No Adj. Made
GUDEW023	11:41	4/24/2018	60.7	30.0	1.0	8.3	-32.73	-32.73	0.02	68.6	68.6	8.8	-32.84	*Fully Open/*No Adj. Made
GUDEW024	12:33	11/28/2017	36.4	28.6	1.8	33.2	-4.17	-2.5	0.006	73.9	74.3	4.6	-38.53	*Dec. Flow/Vac.
GUDEW024	13:35	12/28/2017	44.8	33.2	0.0	22.0	-2.1	-2.09	0.011	38.2	38.2	6.7	-40.93	*No Adj. Made
GUDEW024	11:10	1/31/2018	40.4	28.3	5.1	26.2	-2.03	-2.01	0.012	49.6	49.6	6.7	-34.92	No Change in Valve Position
GUDEW024	11:00	2/22/2018	36.0	30.0	0.2	33.8	-5.31	-5.32	-0.15	59	59	<<>>	-40.02	*No Change in Valve Position
GUDEW024	15:01	3/27/2018	32.1	30.3	0.0	37.6	-4.46	-2.93	-0.003	60.2	59.3	<<>>	-42.92	*Dec. Flow/Vac.
GUDEW024	11:43	4/24/2018	57.6	34.2	0.1	8.1	-2.39	-3.1	0.007	71.5	72.1	5.3	-30.36	*Inc. Flow/Vac.
GUDEW025	11:32	11/28/2017	58.7	38.4	0.4	2.5	-34.29	-34.29	-0.031	79.2	79.2	<<>>	-35.49	*Fully Open/*No Adj. Made
GUDEW025	11:25	12/28/2017	58.7	41.3	0.0	0.0	-3.6	-3.6	3.639	32.6	32.6	130.6	-52.2	*No Adj. Made

Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H <sub>2</sub> O)	Adjusted Static Press. (in. H <sub>2</sub> O)	Adjusted Diff. Press. (in. H <sub>2</sub> O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Adjusted Flow (scfm)	Available Vacuum (in. H <sub>2</sub> O)	Comments
GUDEW025	10:47	1/31/2018	60.7	39.4	0.0	N/A	3.49	3.5	-3.404	44.1	44.1	<<>>	3.49	No Change in Valve Position
GUDEW025	10:21	2/22/2018	59.3	39.8	0.9	0.0	-27.62	-27.63	-0.002	62.7	63.1	<<>>	-25.82	*Fully Open/*No Change in Valve Position
GUDEW025	15:56	3/21/2018	61.4	37.1	1.5	0.0	-0.49	-10.7	>>>>	46.4	46.3	N/A	-32.31	*Inc. Flow/Vac.
GUDEW025	8:50	4/24/2018	59.8	39.6	0.2	0.4	-29.61	-30.35	0.006	65.3	65.3	4.5	-30.36	*Fully Open/*No Adj. Made
GUDEW026	16:09	11/28/2017	60.3	30.0	1.5	8.2	-23.23	-28.32	-0.011	72.5	72.5	<<>>	-38.56	*Inc. Flow/Vac.
GUDEW026	14:10	12/28/2017	27.9	15.3	12.3	44.5	-42.85	-42.83	0	37.5	37.5	<<>>	-43.46	*Barely Open/*No Adj. Made
GUDEW026	11:14	1/31/2018	45.7	30.9	0.8	22.6	-3.59	-3.63	0.07	49.9	49.9	17	-28.6	No Change in Valve Position
GUDEW026	13:45	2/22/2018	72.9	26.8	0.3	0.0	84.05	-0.6	-0.013	58.2	57.2	<<>>	-40.09	*Barely Open/*Inc. Flow/Vac.
GUDEW026	16:09	3/27/2018	61.9	31.7	2.0	4.4	-43.11	-43.73	0.015	53.1	53.2	7.6	-43.52	*Inc. Flow/Vac.
GUDEW026	8:01	4/24/2018	59.5	29.0	2.5	9.0	-33.69	-33.7	-0.019	63.8	63.8	<<>>	-33.63	*No Adj. Made
GUDEW027	16:13	11/28/2017	25.1	16.8	12.6	45.5	-19.64	-17.2	0.004	66	65.2	3.5	-38.49	*Barely Open/*Dec. Flow/Vac.
GUDEW027	13:30	12/28/2017	39.3	27.0	7.7	26.0	-7.25	-6.58	1.012	35.4	35.6	67.1	-43.15	*Surging
GUDEW027	11:07	1/31/2018	60.1	40.1	0.0	N/A	-42.97	-43	>>>>	48.5	48.5	N/A	-43	No Change in Valve Position
GUDEW027	10:47	2/22/2018	4.7	9.6	16.4	69.3	-1.39	-1.37	-0.174	58.2	58.2	<<>>	-38.42	*Fully Closed/*No Change in Valve Position
GUDEW027	15:41	3/21/2018	61.6	37.8	0.6	0.0	0.98	-5.39	0.007	39.6	39.1	5.5	-48.8	*Inc. Flow/Vac.
GUDEW027	17:16	4/23/2018	36.1	24.2	8.4	31.3	-14.91	-13.79	-0.002	69.3	68.4	<<>>	-31.06	*Dec. Flow/Vac.
GUDEW028	16:28	11/28/2017	16.3	10.2	15.0	58.5	-29.88	-29.87	-0.007	60.6	62.2	<<>>	-37.9	*Barely Open/*No Adj. Made
GUDEW028	10:54	12/28/2017	29.6	19.4	14.2	36.8	-29.15	-30.8	>>>>	26.5	26.3	N/A	-44.04	*No Adj. Made
GUDEW028	10:12	1/31/2018	61.6	37.5	0.9	0.0	-36.37	-36.28	0.143	43.1	43.1	63.1	-42.3	No Change in Valve Position
GUDEW028	13:54	2/22/2018	3.4	9.1	13.3	74.2	-21.17	-21.17	4.077	58.3	58.3	329.6	-31.12	*Fully Closed/*No Change in Valve Position
GUDEW028	15:25	3/21/2018	6.8	4.6	17.8	70.8	-26.44	-23.2	4.68	35.1	35	366.8	-48.23	*Barely Open/*Dec. Flow/Vac.
GUDEW028	17:08	4/23/2018	62.2	37.4	0.3	0.1	14.53	-8.1	-0.005	72.5	72.2	<<>>	-26.09	*Barely Open/*Inc. Flow/Vac.
GUDEW029	12:08	11/28/2017	1.9	2.1	18.4	77.6	-19.08	-2.15	0.019	74.6	72.7	8.4	-38.65	*Barely Open/*Dec. Flow/Vac.
GUDEW029	13:24	12/28/2017	59.8	39.9	0.3	0.0	1.73	1.76	0.031	23.7	23.6	11.7	-43.47	*No Adj. Made
GUDEW029	11:06	1/31/2018	60.8	39.5	0.0	N/A	8.78	8.92	-8.878	46.5	46.5	<<>>	-42.83	No Change in Valve Position
GUDEW029	10:43	2/22/2018	72.6	27.3	0.1	0.0	0.64	-0.12	0.415	58.6	58.6	45.6	-40.45	*Fully Closed/*No Change in Valve Position
GUDEW029	10:44	2/22/2018	72.0	28.0	0.0	0.0	0.38	-4.17	1.371	58.9	58.4	83.4	-40.54	*Barely Open/*Inc. Flow/Vac.
GUDEW029	15:37	3/21/2018	20.2	11.6	14.3	53.9	-42.56	-42.54	0.006	37.5	37.3	4.7	-48.99	*Barely Open/*No Adj. Made
GUDEW029	17:19	4/23/2018	50.5	28.3	4.6	16.6	-32.13	-32.14	-0.015	75.3	75.4	<<>>	-33.24	*No Adj. Made
GUDEW030	11:54	11/28/2017	54.6	38.2	1.1	6.1	-14.01	-26.72	0.018	77.7	78.5	20.8	-38.53	*Inc. Flow/Vac.
GUDEW030	11:40	12/28/2017	58.5	41.0	0.5	0.0	-28.11	-28.06	0.043	26.5	26.3	34.8	-35.93	*No Adj. Made
GUDEW030	10:59	1/31/2018	49.3	31.6	0.6	18.5	-35.18	-35.18	0.047	46.5	46.5	35.3	-42.02	No Change in Valve Position
GUDEW030	10:33	2/22/2018	58.4	41.0	0.6	0.0	-37.44	-36.9	4.887	56	55.8	368.3	-40.21	*No Change in Valve Position
GUDEW030	10:33	2/22/2018	58.3	41.4	0.3	0.0	-36.6	-39.46	5.629	53.8	53.7	395.1	-40.6	*Inc. Flow/Vac.
GUDEW030	15:34	3/21/2018	57.7	40.9	1.3	0.1	-47.25	-47.24	0.005	41	41	11.4	-48.26	*No Adj. Made
GUDEW030	9:01	4/24/2018	57.1	39.1	0.8	3.0	-32.59	-32.6	0.024	62	62	24.8	-33.12	*No Adj. Made
GUDEW031	11:48	11/28/2017	52.8	36.7	0.3	10.2	-38.71	-38.72	0.069	73.8	73.8	15.7	-38.71	*Fully Open/*No Adj. Made
GUDEW031	11:37	12/28/2017	54.9	36.1	0.5	8.5	-44.62	-44.62	0.05	29.3	29.3	14	-44.45	*No Adj. Made
GUDEW031	10:55	1/31/2018	50.1	37.3	0.3	12.3	-43.18	-43.15	0.028	48.5	48.5	10	-43.12	No Change in Valve Position
GUDEW031	10:30	2/22/2018	53.0	37.4	0.3	9.3	-40.92	-40.24	0.022	62.6	62.8	8.9	-40.76	*No Change in Valve Position
GUDEW031	15:45	3/21/2018	57.0	42.8	0.2	0.0	-48.79	-48.79	0.006	36.7	36.6	4.7	-48.55	*Fully Open/*No Adj. Made

Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H <sub>2</sub> O)	Adjusted Static Press. (in. H <sub>2</sub> O)	Adjusted Diff. Press. (in. H <sub>2</sub> O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Adjusted Flow (scfm)	Available Vacuum (in. H <sub>2</sub> O)	Comments
GUDEW031	8:59	4/24/2018	58.9	38.2	0.4	2.5	-33.12	-33.11	0.018	59.4	59.1	8.2	-33.12	*Fully Open/*No Adj. Made
GUDEW032	11:44	11/28/2017	41.6	15.8	8.5	34.1	-37.68	-37.65	>>>>	87.7	88	N/A	-38.24	*Barely Open/*No Adj. Made
GUDEW032	11:34	12/28/2017	57.8	21.6	4.9	15.7	-3.57	-3.56	3.505	36.1	36.4	134.6	-3.6	*No Adj. Made
GUDEW032	10:52	1/31/2018	69.2	26.0	0.6	4.2	2.91	2.95	-2.914	47.4	47.4	<<>>	3.02	No Change in Valve Position
GUDEW032	10:28	2/22/2018	29.0	15.3	10.9	44.8	-19.82	-19.81	>>>>	60.9	60.7	N/A	-29.4	*No Change in Valve Position
GUDEW032	15:52	3/21/2018	72.9	23.8	3.3	0.0	55.99	-7.59	8.982	48.2	49.9	222.1	-30.86	*Inc. Flow/Vac.
GUDEW032	8:56	4/24/2018	40.4	16.9	8.9	33.8	-30.08	-29.65	>>>>	62.7	62.9	N/A	-30.01	*Barely Open/*Dec. Flow/Vac.
GUDEW034	10:48	11/28/2017	44.3	29.4	4.0	22.3	-3.09	-2.26	0.012	68.6	67.7	6.8	-36.19	*Barely Open/*Dec. Flow/Vac.
GUDEW034	11:16	12/28/2017	47.6	31.1	4.1	17.2	-1.8	-1.82	0.216	24.1	23.9	31.3	-44.45	*No Adj. Made
GUDEW034	10:21	1/31/2018	48.1	31.4	3.6	16.9	-1.7	-1.69	0.032	42.9	42.9	11.6	-43.16	No Change in Valve Position
GUDEW034	10:15	2/22/2018	29.3	18.1	9.6	43.0	-2.16	-2.16	0.02	55.2	55.3	8.8	-42.14	*Fully Closed/*No Change in Valve Position
GUDEW034	15:12	3/21/2018	49.9	33.2	3.1	13.8	-1.47	-1.46	-0.3	42.6	42.6	<<>>	-48.51	*Barely Open/*No Adj. Made
GUDEW034	8:28	4/24/2018	55.5	34.8	1.4	8.3	-0.22	-1.56	-0.003	64.1	63.4	<<>>	-33.3	*Inc. Flow/Vac.
GUDEW035	11:30	11/28/2017	58.2	26.9	3.0	11.9	-33.32	-34.3	0.019	75.4	76.2	22.3	-34.54	*Inc. Flow/Vac.
GUDEW035	11:22	12/28/2017	47.0	22.3	7.7	23.0	-3.71	-3.72	0.037	34.9	35.3	33.5	-3.55	*No Adj. Made
GUDEW035	10:44	1/31/2018	68.8	31.2	0.0	0.0	3.63	3.64	0.048	43.6	43.6	39.5	3.42	No Change in Valve Position
GUDEW035	10:19	2/22/2018	13.2	7.2	17.1	62.5	-29.13	-28.42	0.026	58.2	58.3	25.3	-28.22	*No Change in Valve Position
GUDEW035	15:59	3/21/2018	67.3	32.6	0.1	0.0	-34.89	-33.52	>>>>	48.5	49.5	N/A	-36.14	*Inc. Flow/Vac.
GUDEW035	8:47	4/24/2018	58.3	25.7	3.5	12.5	-29.49	-30.45	0.007	65.5	65.6	14	-29.33	*No Adj. Made
GUDEW036	16:34	11/28/2017	40.6	20.6	7.8	31.0	-29.37	-29.34	0.003	70.7	70.7	8	-38.09	*Barely Open/*No Adj. Made
GUDEW036	16:40	11/28/2017	67.0	31.4	0.3	1.3	-32.93	-32.95	-0.006	64.5	64.5	<<>>	-38.13	*No Adj. Made
GUDEW036	10:49	12/28/2017	68.9	30.8	0.3	0.0	-14.47	-14.37	0.033	40.2	40.3	31.9	-42.37	*No Adj. Made
GUDEW036	10:04	1/31/2018	66.7	30.1	1.2	2.0	-40.12	-40.04	0.025	41.7	41.7	26.6	-42.11	No Change in Valve Position/*Fully Open
GUDEW036	10:05	2/22/2018	68.3	29.7	0.9	1.1	-22.13	-22.12	0.03	56.3	56.7	30	-23.39	*Fully Closed/*No Change in Valve Position
GUDEW036	15:18	3/21/2018	65.3	31.5	1.2	2.0	-46.61	-46.59	0.007	47.1	47.1	13.9	-47.99	*Fully Open/*No Adj. Made
GUDEW036	17:00	4/23/2018	67.9	31.0	0.2	0.9	-25.41	-25.42	-0.016	76.2	76.2	<<>>	-26.64	*Inc. Flow/Vac.
GUDEW037	10:45	11/28/2017	50.0	33.4	0.3	16.3	-9.4	-9.41	-0.196	70.3	70.1	<<>>	-35.93	*Barely Open/*No Adj. Made
GUDEW037	11:08	12/28/2017	48.7	34.0	0.0	17.3	-9.34	-9.33	9.317	54.1	54.6	530.4	-42.03	*No Adj. Made
GUDEW037	10:16	1/31/2018	48.3	33.2	2.6	15.9	-9.33	-9.28	9.204	41.8	41.8	533.7	-42.1	No Change in Valve Position
GUDEW037	10:09	2/22/2018	48.9	32.6	0.1	18.4	-8.35	-8.34	8.251	53.9	53.8	501.9	-42.16	*No Change in Valve Position
GUDEW037	15:15	3/21/2018	46.2	33.8	1.0	19.0	-8.75	-6.03	0.019	59.3	59.4	22.5	-48.52	*Dec. Flow/Vac.
GUDEW037	8:26	4/24/2018	51.9	34.9	0.5	12.7	-3.34	-4.12	-0.004	63.3	63.2	<<>>	-33.2	*Inc. Flow/Vac.
GUDEW038	10:51	11/28/2017	21.5	16.8	6.9	54.8	-0.44	-0.41	0.224	70.8	70.8	29.9	-36.13	*Fully Closed/*No Adj. Made
GUDEW038	11:12	12/28/2017	45.0	32.0	0.6	22.4	-0.03	-0.02	0.027	29.8	29.7	10.8	-33.63	*No Adj. Made
GUDEW038	10:17	1/31/2018	46.4	32.9	0.5	20.2	-0.02	-0.62	0.955	42.3	42.3	65.4	-42.94	No Change in Valve Position
GUDEW038	10:14	2/22/2018	7.4	11.0	15.0	66.6	-0.28	-0.25	-0.108	52.6	52.6	<<>>	-41.11	*Fully Closed/*No Change in Valve Position
GUDEW038	15:09	3/21/2018	37.4	26.0	3.1	33.5	-2.67	-2.67	2.618	48.5	48.6	108.1	-48.51	*Barely Open/*No Adj. Made
GUDEW038	8:31	4/24/2018	10.5	8.8	13.0	67.7	-0.44	-0.44	0.116	66.3	66.3	21.3	-33.1	*Barely Open/*No Adj. Made
GUDEW039	16:16	11/27/2017	52.6	20.2	0.8	26.4	-0.67	-0.94	0.024	63.3	63.1	10.1	-33.4	*Inc. Flow/Vac.

Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H <sub>2</sub> O)	Adjusted Static Press. (in. H <sub>2</sub> O)	Adjusted Diff. Press. (in. H <sub>2</sub> O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Adjusted Flow (scfm)	Available Vacuum (in. H <sub>2</sub> O)	Comments
GUDEW039	10:43	12/28/2017	55.8	21.2	1.2	21.8	-0.88	-0.86	0.08	30.1	30.4	19.7	-21.97	*No Adj. Made
GUDEW039	9:57	1/31/2018	58.9	22.5	0.4	18.2	-1.12	-1.11	0.086	42.2	42.2	20.3	-40.85	No Change in Valve Position
GUDEW039	10:01	2/22/2018	60.4	21.0	0.5	18.1	-1.91	-1.91	-0.041	63.7	63.5	<<>>	-25.24	*No Change in Valve Position
GUDEW039	10:02	2/22/2018	59.1	22.2	0.3	18.4	-1.91	-2.3	-0.07	62.6	62.3	<<>>	-21.65	*Inc. Flow/Vac.
GUDEW039	12:34	3/21/2018	50.7	24.3	1.3	23.7	-3.63	-3.63	0.28	61.4	61.5	35.3	-49.02	*No Adj. Made
GUDEW039	16:53	4/23/2018	51.9	24.0	0.0	24.1	-2.1	-2.93	0.299	76.2	76	36.2	-25.06	*Inc. Flow/Vac.
GUDEW040	11:29	8/2/2017	26.0	21.2	0.0	52.8	-0.61	-0.61	0.034	102.6	102.6	2.4	-43.75	*Barely Open/*No Adj. Made
GUDEW040	11:47	9/21/2017	26.7	20.1	1.0	52.2	-0.46	-0.46	>>>>	89.9	89.6	N/A	-39.7	*Barely Open/*No Adj. Made
GUDEW040	17:11	10/25/2017	28.1	21.0	0.7	50.2	-0.54	-0.53	0.017	70.6	70.5	1.7	-41.8	*Barely Open/*No Adj. Made
GUDEW040	11:08	11/28/2017	25.3	20.6	1.5	52.6	-0.4	-0.3	0.027	70	69.4	2.2	-35.93	*Dec. Flow/Vac.
GUDEW040	13:33	12/28/2017	27.3	20.1	2.9	49.7	-0.02	-0.01	0.004	47.7	47.9	0.9	-42.98	*Barely Open/*No Adj. Made
GUDEW040	10:40	1/31/2018	26.4	17.7	11.7	44.2	-0.2	-0.17	0.158	43.8	43.8	14.1	N/A	No Change in Valve Position
Note: Decommissioned February 2018														
GUDEW041	11:34	8/2/2017	24.9	18.8	0.0	56.3	-6.71	-3.57	-0.006	103.8	104.4	<<>>	-44.24	*Dec. Flow/Vac.
GUDEW041	11:44	9/21/2017	24.5	19.0	0.1	56.4	-2.75	-2.74	>>>>	95.5	95.4	N/A	-39.51	*Barely Open/*No Adj. Made
GUDEW041	17:14	10/25/2017	25.0	19.5	0.0	55.5	-3.32	-3.32	-0.009	73.2	73.2	<<>>	-42.37	*Barely Open/*No Adj. Made
GUDEW041	11:12	11/28/2017	22.4	19.3	0.1	58.2	-2.57	-0.62	0.016	74	75.4	7.7	-36.2	*Barely Open/*Dec. Flow/Vac.
GUDEW041	13:36	12/28/2017	32.1	19.5	0.5	47.9	-0.18	-0.18	-0.011	45.4	45.7	<<>>	-43.01	*Barely Open/*No Adj. Made
GUDEW041	10:31	1/31/2018	8.2	20.3	12.5	59.0	-1.87	-1.79	1.739	42.5	42.5	83.9	-42.66	No Change in Valve Position
Note: Decommissioned February 2018														
GUDEW043	11:37	8/2/2017	31.0	27.6	0.5	40.9	-13.57	-9.19	-0.03	107.3	108.2	<<>>	-44.12	*Dec. Flow/Vac.
GUDEW043	11:40	9/21/2017	34.1	30.0	0.6	35.3	-8.51	-8.52	>>>>	97.2	97.2	N/A	-39.71	*No Adj. Made
GUDEW043	17:18	10/25/2017	33.7	30.1	0.6	35.6	-9.56	-9.56	-0.029	73.3	73.3	<<>>	-41.7	*No Adj. Made
GUDEW043	11:16	11/28/2017	31.4	28.1	1.5	39.0	-7.9	-1.79	0.012	67.7	67.1	6.5	-37.05	*Dec. Flow/Vac.
GUDEW043	13:39	12/28/2017	46.8	32.1	1.0	20.1	-1.34	-1.34	-0.023	50.8	50.8	<<>>	-42.77	*No Adj. Made
GUDEW043	10:34	1/31/2018	50.6	34.5	0.4	14.5	-1.61	-1.65	0.173	43.8	43.8	27.4	-42.56	No Change in Valve Position
Note: Decommissioned February 2018														
GUDEW044	11:40	8/2/2017	33.4	19.1	8.4	39.1	-0.1	-0.07	-0.004	108.5	108.2	<<>>	-45.02	*Barely Open/*Dec. Flow/Vac.
GUDEW044	11:36	9/21/2017	33.3	19.4	8.5	38.8	-0.18	-0.17	>>>>	96.8	96.9	N/A	-39.59	*Barely Open/*No Adj. Made
GUDEW044	17:22	10/25/2017	33.7	19.6	9.5	37.2	-0.17	-0.1	-0.018	73.9	75.3	<<>>	-41.64	*Barely Open/*Dec. Flow/Vac.
GUDEW044	11:20	11/28/2017	43.3	26.9	5.4	24.4	0.11	-0.08	0.136	72.7	67.5	23.7	-38.09	*Barely Open/*Inc. Flow/Vac.
GUDEW044	13:50	12/28/2017	64.4	34.4	1.2	0.0	0.09	-0.43	0.861	38	40.2	64.5	-42.88	*Barely Open/*Inc. Flow/Vac.
GUDEW044	10:37	1/31/2018	29.2	19.8	10.1	40.9	-0.55	-0.54	0.013	43.1	43.1	7.1	-42.64	No Change in Valve Position
Note: Decommissioned February 2018														
GUDEW050	15:54	11/28/2017	34.0	23.2	9.0	33.8	-38.97	-38.89	0.001	74.8	75.5	5.4	-39.33	*Barely Open/*No Adj. Made
GUDEW050	14:29	12/28/2017	38.4	27.0	8.3	26.3	-41.96	-41.96	0.051	42.2	42.1	35.9	-44.33	*Barely Open/*No Adj. Made
GUDEW050	12:17	1/31/2018	6.3	8.3	17.9	67.5	-40.29	-40.74	>>>>	53.8	53.8	N/A	-41.42	No Change in Valve Position
GUDEW050	11:49	2/22/2018	8.5	15.1	12.7	63.7	-44.04	-44.05	>>>>	59.5	59.4	N/A	-44.61	*Fully Closed/*No Change in Valve Position
GUDEW050	15:41	3/27/2018	15.0	10.5	15.2	59.3	-44.76	-44.76	0.015	53.4	53.5	19	-44.4	*Barely Open/*No Adj. Made
GUDEW050	12:12	4/24/2018	17.2	10.7	13.9	58.2	-32.06	-31.88	-0.011	73	72.6	<<>>	-32.06	*Barely Open/*Dec. Flow/Vac.
GUDEW051	16:00	11/28/2017	67.5	31.6	0.9	0.0	0.3	-5.61	-0.002	71.9	70.5	<<>>	-39.31	*Barely Open/*Inc. Flow/Vac.
GUDEW051	14:20	12/28/2017	12.1	6.4	16.2	65.3	-1.99	-1.98	0.012	46.9	47.1	6.7	-44.25	*Barely Open/*No Adj. Made
GUDEW051	13:28	1/31/2018	8.8	6.6	17.6	67.0	-0.07	-0.05	-2.479	51.2	51.2	<<>>	-40.4	No Change in Valve Position
GUDEW051	11:51	2/22/2018	68.1	31.4	0.5	0.0	-0.25	-0.21	-0.044	59.1	59.5	<<>>	-44.67	*No Change in Valve Position
GUDEW051	16:05	3/27/2018	67.9	31.5	0.6	0.0	-0.2	-32.86	-0.055	50.4	50.4	<<>>	-45.13	*Inc. Flow/Vac.



Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H <sub>2</sub> O)	Adjusted Static Press. (in. H <sub>2</sub> O)	Adjusted Diff. Press. (in. H <sub>2</sub> O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Adjusted Flow (scfm)	Available Vacuum (in. H <sub>2</sub> O)	Comments
GUDEW051	12:19	4/24/2018	3.6	1.9	18.6	75.9	-31.88	-16.21	-0.011	66.2	65	<<>	-31.89	*Barely Open/*Dec. Flow/Vac.
GUDEW052	16:06	11/28/2017	56.6	38.8	0.6	4.0	-39.34	-39.3	-0.002	73.4	73.4	<<>	-39.23	*No Adj. Made
GUDEW052	14:12	12/28/2017	59.1	38.8	2.1	0.0	-43.91	-43.92	0.016	43.5	43.5	20.2	-44.09	*No Adj. Made
GUDEW052	13:43	1/31/2018	58.7	41.2	0.1	0.0	-40.94	-40.92	0.029	56.2	56.2	27.2	-40.38	No Change in Valve Position/*Fully Open
GUDEW052	13:38	2/22/2018	59.3	39.9	0.8	0.0	-45.4	-45.39	2.963	58.2	58.2	283.5	-44.54	*No Change in Valve Position
GUDEW052	16:03	3/27/2018	59.0	39.6	0.6	0.8	-45.13	-45.12	0.007	53	53	13	-45.21	*No Adj. Made
GUDEW052	8:22	4/24/2018	55.5	37.0	1.7	5.8	-34.79	-34.79	-0.003	63.7	63.7	<<>	-34.6	*No Adj. Made
GUDEW054	16:21	11/28/2017	55.9	33.7	2.3	8.1	-37.3	-38.48	0.003	68.1	68.2	3.2	-38.69	*Inc. Flow/Vac.
GUDEW054	14:56	12/28/2017	62.1	37.5	0.4	0.0	-44.29	-44.28	0.029	38.5	38.5	10.6	-44.09	*No Adj. Made
GUDEW054	13:57	1/31/2018	1.6	7.3	16.0	75.1	-34.99	-32.61	0.006	51.4	51.4	4.5	-35.65	No Change in Valve Position
GUDEW054	13:48	2/22/2018	52.6	26.7	7.5	13.2	-39.67	-39.06	0.061	57.5	57.6	15.3	-38.72	*No Change in Valve Position
GUDEW054	16:12	3/27/2018	37.0	23.2	8.8	31.0	-43.25	-39.87	0.007	46.5	45.4	5.1	-43	*Barely Open/*Dec. Flow/Vac.
GUDEW054	17:13	4/23/2018	32.1	18.6	10.5	38.8	-32.01	-32.02	-0.008	70.1	70	<<>	-33.34	*Barely Open/*No Adj. Made
GUDEW057	16:31	11/28/2017	34.7	21.0	9.3	35.0	-37.52	-37.54	-0.017	70.2	70.7	<<>	-37.77	*Barely Open/*No Adj. Made
GUDEW057	10:51	12/28/2017	35.1	22.0	10.0	32.9	-41.24	-41.3	-0.007	27.5	27.4	<<>	-42.64	*No Adj. Made
GUDEW057	10:09	1/31/2018	30.6	18.5	11.4	39.5	-41.54	-41.54	0.018	42.5	42.5	8.1	-42.53	No Change in Valve Position
GUDEW057	13:56	2/22/2018	36.1	21.6	9.0	33.3	-29.61	-29.61	-0.001	58.9	58.8	<<>	-29.64	*No Change in Valve Position
GUDEW057	15:21	3/21/2018	38.6	23.1	8.9	29.4	-47.14	-47.15	0.004	46.6	46.5	3.7	-47.81	*Barely Open/*No Adj. Made
GUDEW057	17:05	4/23/2018	34.9	19.5	9.3	36.3	-25.45	-25.51	-0.015	75.5	75.5	<<>	-26.55	*No Adj. Made
GUDEW062	16:19	11/27/2017	63.5	35.4	0.0	1.1	4.11	-17.83	-0.006	66.6	65.7	<<>	-33.87	*Barely Open/*Inc. Flow/Vac.
GUDEW062	10:38	12/28/2017	0.6	4.7	19.9	74.8	-41.77	-41.77	-0.011	23	23	<<>	-42.14	*No Adj. Made
GUDEW062	9:53	1/31/2018	20.1	14.9	14.1	50.9	-42.24	-42.23	0.023	41.6	41.6	9	-42.23	No Change in Valve Position
GUDEW062	9:58	2/22/2018	0.2	2.4	19.9	77.5	-30.66	-30.62	0.05	68.5	68.4	13.1	-30.57	*No Change in Valve Position
GUDEW062	12:31	3/21/2018	24.4	15.3	11.6	48.7	-52.2	-51.54	0.006	40	39.4	4.6	-52.16	*Dec. Flow/Vac.
GUDEW062	16:55	4/23/2018	65.6	33.3	0.0	1.1	0.05	-9.82	0	76.3	75.8	0	-26.17	*Barely Open/*Inc. Flow/Vac.
GUDEW070	15:57	11/28/2017	26.3	12.7	12.6	48.4	-38.91	-38.87	-0.002	73.3	73.1	<<>	-39.5	*Barely Open/*No Adj. Made
GUDEW070	14:32	12/28/2017	22.4	11.5	13.2	52.9	-43.54	-43.54	0.05	40.2	40.2	13.6	-44.39	*Barely Open/*No Adj. Made
GUDEW070	12:13	1/31/2018	22.0	13.7	13.2	51.1	-40.78	-40.28	0.632	54.3	54.3	49.2	-42.47	No Change in Valve Position
GUDEW070	13:28	2/22/2018	28.5	16.4	11.1	44.0	-44.13	-44.1	0.48	57.1	57.1	42.8	-43.59	*No Change in Valve Position
GUDEW070	15:44	3/27/2018	31.6	16.0	12.3	40.1	-44.41	-44.41	0.13	52.6	52.5	22.2	-45.16	*Barely Open/*No Adj. Made
GUDEW070	12:15	4/24/2018	27.1	12.3	12.7	47.9	-31.82	-31.84	0.006	70.6	70.6	4.4	-32.85	*Barely Open/*No Adj. Made
GUDEW071	16:52	11/27/2017	56.6	35.5	0.4	7.5	-31.45	-35.03	0.004	64.1	63.2	3.9	-35.94	*Inc. Flow/Vac.
GUDEW071	14:13	12/28/2017	36.1	31.0	1.7	31.2	-43.58	-43.58	0.37	43.7	43.7	37.4	-44.09	*Barely Open/*No Adj. Made
GUDEW071	13:46	1/31/2018	44.1	33.3	0.4	22.2	-39.47	-39.44	1.07	54.8	54.8	64.6	-40.37	No Change in Valve Position
GUDEW071	13:41	2/22/2018	31.3	27.0	3.4	38.3	-43.92	-43.93	0.606	59	59	47.3	-44.87	*No Change in Valve Position
GUDEW071	16:00	3/27/2018	35.8	30.0	1.6	32.6	-44.52	-43.93	0.003	50.7	51.8	3.3	-45.1	*Barely Open/*Dec. Flow/Vac.
GUDEW071	8:20	4/24/2018	43.8	28.8	4.0	23.4	-33.32	-33.32	0.228	61.8	62	29.6	-34.88	*Barely Open/*No Adj. Made
GUDEW072	16:43	11/27/2017	47.2	34.9	3.6	14.3	-6.98	-6.99	-0.009	61.8	61.7	<<>	-36.51	*No Adj. Made
GUDEW072	14:06	12/28/2017	58.0	39.8	2.2	0.0	-10.1	-10.11	0.016	44.9	44.8	21.2	-44.17	*Barely Open/*No Adj. Made

Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H <sub>2</sub> O)	Adjusted Static Press. (in. H <sub>2</sub> O)	Adjusted Diff. Press. (in. H <sub>2</sub> O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Adjusted Flow (scfm)	Available Vacuum (in. H <sub>2</sub> O)	Comments
GUDEW072	13:52	1/31/2018	7.2	9.1	19.0	64.7	-3.92	-3.81	-0.011	54.3	54.3	<<>	-42.88	No Change in Valve Position
GUDEW072	14:00	2/22/2018	58.3	41.6	0.1	0.0	1.17	-0.65	0.008	59.9	60.8	14.9	-44.18	*Barely Open/*Inc. Flow/Vac.
GUDEW072	16:18	3/27/2018	57.3	39.7	0.9	2.1	-3.05	-5	0.375	52.1	50.6	105	-45.15	*Inc. Flow/Vac.
GUDEW072	17:31	4/23/2018	55.8	39.3	0.4	4.5	-12.4	-14.78	-0.013	70.5	70.4	<<>	-38.01	*Inc. Flow/Vac.
GUDEW073	16:46	11/27/2017	51.6	34.9	2.6	10.9	-35.22	-36.04	0.004	63.2	62.9	3.5	-36.04	*Inc. Flow/Vac.
GUDEW073	14:01	12/28/2017	59.4	37.9	1.8	0.9	-44.16	-44.16	-0.009	46.9	46.9	<<>	-43.91	*Barely Open/*No Adj. Made
GUDEW073	14:02	1/31/2018	59.8	39.3	0.9	0.0	-40.91	-40.87	0.322	57.7	57.7	35.5	-40.88	No Change in Valve Position
GUDEW073	14:03	2/22/2018	46.3	41.5	0.9	11.3	-34.39	-34.42	0.034	63	63	10.9	-34.16	*No Change in Valve Position
GUDEW073	16:38	3/27/2018	55.5	36.1	2.0	6.4	-37.55	-37.57	0.023	50.1	50	9.3	-37.67	*No Adj. Made
GUDEW073	7:58	4/24/2018	48.2	31.3	3.7	16.8	-34.74	-34.03	-0.014	56.3	55.5	<<>	-34.28	*Barely Open/*Dec. Flow/Vac.
GUDEW074	16:18	11/28/2017	30.7	18.7	10.8	39.8	-31.32	-31.33	-0.007	68.3	68	<<>	-38.92	*Barely Open/*No Adj. Made
GUDEW074	14:56	12/28/2017	27.8	17.3	12.8	42.1	-38.82	-38.82	0.028	33.9	33.7	10.2	-43.67	*Barely Open/*No Adj. Made
GUDEW074	14:17	1/31/2018	12.6	5.7	18.3	63.4	-11.15	-11.7	0.008	52.7	52.7	5.4	-40.9	No Change in Valve Position
GUDEW074	13:51	2/22/2018	23.4	16.3	11.5	48.8	-34.82	-34.84	0.045	58.4	58.4	12.7	-38.82	*No Change in Valve Position
GUDEW074	16:46	3/27/2018	15.3	8.3	15.4	61.0	-35.83	-35.81	0.021	49.4	49.1	8.7	-43.15	*Barely Open/*No Adj. Made
GUDEW074	17:11	4/23/2018	34.9	18.9	9.8	36.4	-15.57	-15.57	-0.013	73.8	73.8	<<>	-33.24	*Barely Open/*No Adj. Made
GUDEW075	12:01	11/28/2017	56.5	37.5	1.1	4.9	-28.83	-30.27	0.026	72.4	72	9.8	-38.44	*Inc. Flow/Vac.
GUDEW075	11:46	12/28/2017	60.3	36.1	0.2	3.4	-22.34	-22.36	0.067	28.5	28.6	16.9	-28.16	*No Adj. Made
GUDEW075	11:02	1/31/2018	58.9	41.2	0.0	N/A	-42.96	-42.93	0.081	48.3	48.3	17.5	-42.92	No Change in Valve Position
GUDEW075	10:39	2/22/2018	57.9	37.1	1.5	3.5	-40.41	-37.71	0.527	58.4	58.6	45.8	-40.27	*No Change in Valve Position
GUDEW075	15:29	3/21/2018	13.2	8.5	15.5	62.8	-45.99	-44.76	0.015	36.6	36.1	7.3	-48.49	*Barely Open/*Dec. Flow/Vac.
GUDEW075	17:26	4/23/2018	26.0	16.3	12.8	44.9	-29.67	-29.64	-0.024	68.5	68.3	<<>	-32.67	*Barely Open/*No Adj. Made
GUDEW076	11:58	11/28/2017	56.1	40.2	0.2	3.5	-38.45	-38.45	-0.254	68.5	68.6	<<>	-38.63	*Fully Open/*No Adj. Made
GUDEW076	11:44	12/28/2017	57.9	41.8	0.3	0.0	-44.3	-44.3	-0.054	26.7	26.6	<<>	-44.2	*No Adj. Made
GUDEW076	11:01	1/31/2018	58.5	41.5	0.0	0.0	-42.94	-42.92	0.075	47.7	47.7	44	-42.92	No Change in Valve Position/*Fully Open
GUDEW076	10:36	2/22/2018	59.0	40.8	0.2	0.0	-40.27	-40.29	-2.344	56.3	56.3	<<>	-40.31	*Fully Open/*No Change in Valve Position
GUDEW076	15:31	3/21/2018	56.5	43.0	0.5	0.0	-48.71	-48.7	0.067	39.9	39.8	41.2	-48.96	*Fully Open/*No Adj. Made
GUDEW076	17:23	4/23/2018	54.9	39.0	0.4	5.7	-32.8	-32.8	-1.294	72.7	72.8	<<>	-33.25	*Fully Open/*No Adj. Made
GUDEW100	13:55	11/27/2017	25.6	31.8	0.4	42.2	-67.14	-67.13	-0.019	72.2	72.2	0	-67.08	*Barely Open/*No Adj. Made
GUDEW100	17:12	12/27/2017	24.1	31.0	1.1	43.8	-72.98	-72.98	-0.008	35.2	34.9	0	-72.71	*Barely Open/*No Adj. Made
GUDEW100	12:40	1/25/2018	22.3	29.7	0.6	47.4	-69.31	-69.32	0.012	56.6	56.5	2.9	-69.34	*Barely Open/*No Adj. Made
GUDEW100	11:41	2/22/2018	27.7	29.4	0.4	42.5	-72.38	-72.37	-0.013	61.7	61.4	0	-72.19	*Barely Open/*No Adj. Made
GUDEW100	10:21	3/21/2018	36.2	30.8	1.1	31.9	-77.46	-77.46	-0.034	46.2	46.1	0	-77.49	*Barely Open/*No Adj. Made
GUDEW100	15:07	4/23/2018	40.1	28.6	0.7	30.6	-63.46	-63.49	-0.031	87.5	87.5	0	-64.48	*No Adj. Made
GUDEW101	13:58	11/27/2017	43.5	30.9	0.4	25.2	-5.71	-5.71	-0.016	63.2	62.8	0	-66.97	*Barely Open/*No Adj. Made
GUDEW101	17:14	12/27/2017	50.2	33.8	0.0	16.0	-5.36	-5.35	0.011	35.7	35.7	3.3	-72.82	*Barely Open/*No Adj. Made
GUDEW101	12:42	1/25/2018	46.5	34.5	0.0	19.0	-4.72	-4.69	-0.006	49.3	49	0	-69.13	*Barely Open/*No Adj. Made
GUDEW101	11:43	2/22/2018	51.6	35.9	0.0	12.5	-4.98	-4.98	-0.017	58.9	58.7	0	-72.12	*Barely Open/*No Adj. Made
GUDEW101	10:24	3/21/2018	49.8	35.7	0.2	14.3	-2.37	-2.36	-0.015	44.2	43.9	0	-77.36	*Barely Open/*No Adj. Made
GUDEW101	15:10	4/23/2018	59.5	36.9	0.0	3.6	-3.59	-21.14	-0.002	85	79.5	0	-63.56	*Inc. Flow/Vac.

Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H <sub>2</sub> O)	Adjusted Static Press. (in. H <sub>2</sub> O)	Adjusted Diff. Press. (in. H <sub>2</sub> O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Adjusted Flow (scfm)	Available Vacuum (in. H <sub>2</sub> O)	Comments
GUDEW102	14:00	11/27/2017	34.5	32.2	0.6	32.7	-65.65	-65.65	-0.024	63.9	63.8	0	-66.51	*Barely Open/*No Adj. Made
GUDEW102	17:16	12/27/2017	29.0	32.1	0.8	38.1	-59.27	-59.27	0.021	41.5	42.1	4.1	-60.51	*Barely Open/*No Adj. Made
GUDEW102	12:44	1/25/2018	30.5	32.4	0.4	36.7	-66.15	-66.16	-0.124	57.8	57.8	0	-68.99	*Barely Open/*No Adj. Made
GUDEW102	11:46	2/22/2018	33.6	32.2	0.2	34.0	-70.43	-70.42	-0.014	60	59.8	0	-71.95	*Barely Open/*No Adj. Made
GUDEW102	10:26	3/21/2018	44.6	35.8	0.6	19.0	-76.87	-76.86	0.002	44.3	44.4	1.1	-77.33	*Barely Open/*No Adj. Made
GUDEW102	15:12	4/23/2018	53.4	35.4	0.7	10.5	-62.74	-62.79	-0.005	77.6	77.1	0	-63.71	*Inc. Flow/Vac.
GUDEW103	14:07	11/27/2017	37.0	32.6	2.3	28.1	-58.2	-58.2	0.017	74.5	74.5	3.7	-66.5	*Barely Open/*No Adj. Made
GUDEW103	17:25	12/27/2017	36.7	32.7	3.1	27.5	-51.5	-51.52	0.015	65	65.1	3.5	-58.5	*Barely Open/*No Adj. Made
GUDEW103	12:48	1/25/2018	33.3	30.8	3.7	32.2	-58.43	-47.84	-0.001	72	71.6	0	-68.97	*Barely Open/*Dec. Flow/Vac.
GUDEW103	13:21	2/22/2018	43.9	34.5	0.8	20.8	-47.97	-41.95	-0.011	68.4	68.4	0	-71.07	*Dec. Flow/Vac.
GUDEW103	10:35	3/21/2018	53.3	40.1	0.3	6.3	-40.51	-42.59	0.001	56.4	57.7	0.9	-77.43	*Inc. Flow/Vac.
GUDEW103	15:16	4/23/2018	57.7	38.0	0.7	3.6	-43.95	-53.93	-0.001	76.9	74.7	0	-62.91	*Inc. Flow/Vac.
GUDEW104	14:11	11/27/2017	39.0	29.5	7.7	23.8	-66.3	-66.32	0.002	73.5	73.5	1.3	-66.29	*Barely Open/*No Adj. Made
GUDEW104	17:29	12/27/2017	62.4	35.8	1.8	0.0	-58.07	-58.07	0.004	32.7	32.6	1.9	-57.96	*Barely Open/*No Adj. Made
GUDEW104	12:52	1/25/2018	59.1	35.0	1.2	4.7	-68.84	-68.84	0.006	57.4	56.9	2.2	-68.77	*Fully Open/*No Adj. Made
GUDEW104	13:25	2/22/2018	59.4	35.5	1.0	4.1	-71.03	-71.04	-0.003	63.6	63.5	0	-71.1	*Fully Open/*No Adj. Made
GUDEW104	10:41	3/21/2018	42.0	29.4	6.7	21.9	-77.41	-77.42	0.003	40.3	39.9	1.5	-77.36	*Fully Open/*No Adj. Made
GUDEW104	15:23	4/23/2018	32.8	19.4	10.6	37.2	-63.85	-63.86	0.005	80.7	80.5	1.9	-63.33	*Fully Open/*No Adj. Made
GUDEW105	14:15	11/27/2017	22.7	25.9	0.0	51.4	-1.22	-1.23	0.001	66.1	66	0.9	-66.23	*Barely Open/*No Adj. Made
GUDEW105	10:15	12/28/2017	16.6	26.7	1.1	55.6	-1	-1	0.008	34.6	34.6	2.8	-55.76	*Barely Open/*No Adj. Made
GUDEW105	12:56	1/25/2018	15.0	24.0	0.3	60.7	-1.24	-1.24	0.007	51.9	51.9	2.5	-68.97	*Barely Open/*No Adj. Made
GUDEW105	13:31	2/22/2018	5.5	19.0	0.9	74.6	-7.82	-7.82	-0.013	60	59.8	0	-70.8	*Barely Open/*No Adj. Made
GUDEW105	10:56	3/21/2018	12.0	21.1	0.4	66.5	-8.69	-8.69	0.011	42.3	42.1	3.2	-77.39	*Barely Open/*No Adj. Made
GUDEW105	15:26	4/23/2018	8.8	20.0	1.1	70.1	-8.63	-8.6	-0.004	80.9	80.4	0	-62.73	*No Adj. Made
GUDEW106	14:31	11/27/2017	19.0	26.4	0.1	54.5	-6.17	-4.74	-0.003	83.1	82.7	0	-66.32	*Dec. Flow/Vac.
GUDEW106	10:25	12/28/2017	17.4	26.3	1.6	54.7	-3.53	-3.53	-0.007	56.5	57	0	-56.52	*Barely Open/*No Adj. Made
GUDEW106	10:45	1/30/2018	16.6	22.8	0.6	60.0	-3.39	-3.34	-0.014	48.8	48.8	0	-71.64	No Change in Valve Position
GUDEW106	13:40	2/22/2018	21.4	28.1	0.2	50.3	-3.23	-3.23	-0.027	68.6	68.7	0	-71.12	*Barely Open/*No Adj. Made
GUDEW106	11:04	3/21/2018	25.6	30.2	0.2	44.0	-3.5	-3.49	0.002	53.7	54.7	1.2	-77.78	*No Adj. Made
GUDEW106	15:37	4/23/2018	26.6	30.5	0.0	42.9	-2.66	-2.66	-0.004	73.6	73.6	0	-63.31	*No Adj. Made
GUDEW107	14:38	11/27/2017	0.2	12.9	12.3	74.6	-0.91	-0.89	-0.009	69.3	69.3	0	-66.15	*Fully Closed/*No Adj. Made
GUDEW107	10:35	12/28/2017	0.1	7.9	15.6	76.4	-3.36	-3.36	0.011	27.9	27.7	3.2	-56.05	*Fully Closed/*No Adj. Made
GUDEW107	10:50	1/30/2018	0.2	5.8	20.4	73.6	-0.22	-0.24	-0.19	46.8	46.8	0	-71.9	No Change in Valve Position
GUDEW107	13:47	2/22/2018	0.6	6.1	15.9	77.4	-3.36	-3.35	-0.008	61.2	60.8	0	-70.37	*Fully Closed/*No Adj. Made
GUDEW107	11:15	3/21/2018	0.7	10.5	14.2	74.6	-0.77	-0.77	0.008	46.1	46.1	2.6	-77.03	*Barely Open/*No Adj. Made
GUDEW107	15:44	4/23/2018	0.5	9.0	12.7	77.8	-1.08	-1.08	-0.004	78.6	78.4	0	-62.96	*No Adj. Made
GUDEW108	14:52	11/27/2017	21.3	23.5	7.9	47.3	-48.57	-26.91	-0.002	64.8	63.6	0	-66.99	*Dec. Flow/Vac.
GUDEW108	10:49	12/28/2017	36.1	34.3	0.9	28.7	-21.28	-21.33	0.008	37.9	37.9	2.8	-56.7	*No Adj. Made
GUDEW108	11:05	1/30/2018	41.2	36.4	0.5	21.9	-22.98	-22.95	-0.023	49.1	49.1	0	-72.44	No Change in Valve Position
GUDEW108	14:02	2/22/2018	43.0	35.9	0.4	20.7	-21.77	-21.77	-0.013	58.3	58.2	0	-70.54	*Barely Open/*No Adj. Made

Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H <sub>2</sub> O)	Adjusted Static Press. (in. H <sub>2</sub> O)	Adjusted Diff. Press. (in. H <sub>2</sub> O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Adjusted Flow (scfm)	Available Vacuum (in. H <sub>2</sub> O)	Comments
GUDEW108	11:32	3/21/2018	42.9	39.2	0.4	17.5	-23.35	-23.36	0.014	44.9	45	3.5	-77.17	*No Adj. Made
GUDEW108	16:03	4/23/2018	43.6	38.4	0.1	17.9	-19.39	-19.39	0.005	68.9	68.9	2.2	-62.17	*No Adj. Made
GUDEW109	15:38	11/27/2017	45.5	37.5	0.8	16.2	-67.32	-67.32	0.028	67.4	67.3	4.7	-67.39	*Fully Open/*No Adj. Made
GUDEW109	11:10	12/28/2017	45.2	38.9	0.5	15.4	-57.17	-56.76	-0.002	60	60.2	0	-56.75	*Fully Open/*No Adj. Made
GUDEW109	11:13	1/30/2018	53.3	42.1	0.0	4.6	-71.93	-71.96	-0.035	53.9	53.9	0	-71.65	*Fully Open
GUDEW109	14:15	2/22/2018	47.9	40.2	0.0	11.9	-70.79	-70.78	0.033	63.2	63.2	5	-70.92	*Fully Open/*No Adj. Made
GUDEW109	11:46	3/21/2018	53.9	43.3	0.4	2.4	-77.05	-77.04	0.036	61.3	61.3	5.2	-76.98	*Fully Open/*No Adj. Made
GUDEW109	16:16	4/23/2018	46.4	40.0	0.1	13.5	-63.22	-63.2	0.05	71.9	71.6	6.2	-62.13	*Fully Open/*No Adj. Made
GUDEW110	15:44	11/27/2017	20.6	23.7	5.2	50.5	-43.39	-16.68	-0.005	78.4	76.9	0	-67.87	*Barely Open/*Dec. Flow/Vac.
GUDEW110	11:14	12/28/2017	55.2	38.5	0.1	6.2	-5.07	-5.05	-0.003	45.9	46	0	-57.09	*Barely Open/*No Adj. Made
GUDEW110	11:21	1/30/2018	57.8	42.1	0.1	0.0	-5.32	-5.46	-0.37	56	56	0	-71.73	*Fully Open
GUDEW110	14:20	2/22/2018	55.2	38.3	0.6	5.9	-5.03	-8.53	-0.001	57.1	56	0	-70.77	*Inc. Flow/Vac.
GUDEW110	11:51	3/21/2018	48.4	42.5	0.0	9.1	-14.25	-14.25	0.013	50.9	51.2	3.4	-76.81	*Barely Open/*No Adj. Made
GUDEW110	16:23	4/23/2018	44.6	40.1	0.0	15.3	-12.99	-12.99	-0.001	67.3	67.2	0	-63.2	*No Adj. Made
GUDEW110	12:29	4/27/2018	51.5	44.2	0.0	4.3	-18.4	-20.08	0.015	55.8	55.8	3.6	-65.85	*Inc. Flow/Vac.
GUDEW111	15:46	11/27/2017	36.5	33.1	2.7	27.7	-67.41	-67.42	0.008	67.1	66.6	2.4	-67.55	*No Adj. Made
GUDEW111	11:37	12/28/2017	38.8	34.4	2.3	24.5	-48.38	-48.38	3.526	31.3	31.1	55.3	-56.14	*Barely Open/*No Adj. Made
GUDEW111	11:24	1/30/2018	40.3	36.1	2.3	21.3	-71.32	-71.32	-0.009	54.3	54.3	0	-70.95	No Change in Valve Position
GUDEW111	14:25	2/22/2018	40.7	34.2	2.3	22.8	-70.08	-70.08	0.003	55.7	55.7	1.5	-70.03	*No Adj. Made
GUDEW111	11:54	3/21/2018	43.5	37.6	2.1	16.8	-76.48	-76.49	0.004	39.5	39.4	1.8	-76.69	*No Adj. Made
GUDEW111	16:27	4/23/2018	42.8	34.8	1.6	20.8	-62.67	-62.66	0.011	75.3	75.1	3	-61.8	*No Adj. Made
GUDEW112	15:51	11/27/2017	43.1	36.2	1.9	18.8	-66.99	-66.99	0.494	81.2	81.2	19.3	-67.75	*Fully Open/*No Adj. Made
GUDEW112	11:36	12/28/2017	42.1	35.6	1.4	20.9	-55.95	-55.93	-0.34	38.8	38.6	0	-56.11	*No Adj. Made
GUDEW112	11:28	1/30/2018	45.0	38.6	0.5	15.9	-72.29	-72.87	-1.752	56.8	56.8	0	-72.89	*Fully Open
GUDEW112	14:27	2/22/2018	43.4	36.1	1.2	19.3	-69.92	-69.92	0.293	78.3	78.4	14.8	-70.43	*No Adj. Made
GUDEW112	11:56	3/21/2018	47.8	41.0	0.7	10.5	-76.6	-76.57	0.059	65.8	65.8	6.6	-76.54	*No Adj. Made
GUDEW112	16:30	4/23/2018	44.0	37.2	0.8	18.0	-61.25	-61.24	0.304	81.9	81.9	15.2	-62.1	*No Adj. Made
GUDEW113	15:54	11/27/2017	36.3	29.4	1.0	33.3	-67.41	-67.42	0.04	68.4	68.4	5.6	-67.51	*Fully Open/*No Adj. Made
GUDEW113	11:33	12/28/2017	33.0	28.7	2.4	35.9	-55.93	-55.92	0.072	38.6	38.5	7.8	-55.93	*Barely Open/*No Adj. Made
GUDEW113	11:32	1/30/2018	38.8	31.9	1.3	28.0	-71.83	-71.96	-1.62	53.5	53.5	0	-71.97	*Fully Open
GUDEW113	14:29	2/22/2018	37.6	30.2	1.4	30.8	-70.21	-70.18	0.1	71	70.9	8.8	-70.23	*Barely Open/*No Adj. Made
GUDEW113	11:59	3/21/2018	44.0	35.7	1.0	19.3	-76.67	-76.66	0.012	45.9	45.7	3.1	-76.59	*Barely Open/*No Adj. Made
GUDEW113	16:32	4/23/2018	37.4	31.5	0.9	30.2	-62.4	-62.4	0.104	81.7	81.7	8.9	-61.65	*No Adj. Made
GUDEW114	15:57	11/27/2017	13.1	16.4	10.1	60.4	-1.71	-1.2	-0.008	65.7	64.5	0	-67.74	*Barely Open/*Dec. Flow/Vac.
GUDEW114	11:31	12/28/2017	58.0	41.1	0.5	0.4	-0.29	-1.33	0.011	36.7	34.1	3.3	-56.08	*Barely Open/*Inc. Flow/Vac.
GUDEW114	11:34	1/30/2018	7.2	14.2	12.5	66.1	-11.49	-11.39	-1.923	52.9	52.9	0	-70.26	No Change in Valve Position
GUDEW114	11:36	1/30/2018	7.5	14.0	12.7	65.8	-9.75	-9.85	-1.396	52.9	52.9	0	-70.83	*Dec. Flow/Vac.
GUDEW114	14:31	2/22/2018	4.9	10.7	12.0	72.4	-7.28	-7.28	0.014	59.3	58.9	3.5	-70.25	*Barely Open/*No Adj. Made
GUDEW114	12:03	3/21/2018	5.5	12.0	11.7	70.8	-7.97	-5.39	0.001	45.6	45.9	1.1	-76.96	*Barely Open/*Dec. Flow/Vac.
GUDEW114	16:34	4/23/2018	7.8	13.1	9.4	69.7	-2.86	-2.88	-0.001	77.4	77.1	0	-61.61	*Barely Open/*No Adj. Made

Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H <sub>2</sub> O)	Adjusted Static Press. (in. H <sub>2</sub> O)	Adjusted Diff. Press. (in. H <sub>2</sub> O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Adjusted Flow (scfm)	Available Vacuum (in. H <sub>2</sub> O)	Comments
GUDEW115	16:00	11/27/2017	0.7	17.9	2.6	78.8	-0.84	-0.46	0	67.7	65.5	0	-67.71	*Barely Open/*Dec. Flow/Vac.
GUDEW115	11:28	12/28/2017	0.2	21.1	1.6	77.1	-0.16	-0.16	0.017	42	41.9	3.9	-56.71	*Barely Open/*No Adj. Made
GUDEW115	11:39	1/30/2018	0.9	12.9	9.7	76.5	-2.12	-2.17	-1.784	50.4	50.4	0	-70.62	No Change in Valve Position
GUDEW115	14:33	2/22/2018	0.0	0.2	20.2	79.6	-0.21	-0.21	0.004	63.7	63.6	1.8	-69.98	*No Adj. Made
GUDEW115	12:05	3/21/2018	0.0	16.9	8.3	74.8	-0.23	-0.23	0.003	42.6	42.5	1.7	-76.89	*Barely Open/*No Adj. Made
GUDEW115	16:37	4/23/2018	4.5	14.3	5.0	76.2	-0.17	-0.17	0.012	77.9	77.9	3.2	-61.54	*Barely Open/*No Adj. Made
GUDEW116	16:03	11/27/2017	12.6	22.9	0.2	64.3	-0.43	-0.44	0.008	61.7	61.5	2.6	-67.8	*Barely Open/*No Adj. Made
GUDEW116	11:27	12/28/2017	11.6	23.3	1.1	64.0	-0.36	-0.36	0.023	35.5	34.8	4.7	-56.46	*Barely Open/*No Adj. Made
GUDEW116	11:41	1/30/2018	11.0	22.4	0.1	66.5	-1.58	-1.7	-1.293	51	51	0	-70.74	No Change in Valve Position
GUDEW116	14:36	2/22/2018	11.7	22.7	0.5	65.1	-0.46	-0.46	-0.017	56.9	56.8	0	-70.12	*Barely Open/*No Adj. Made
GUDEW116	12:07	3/21/2018	12.0	23.9	1.3	62.8	-0.52	-0.52	0.017	36	35.8	4	-76.74	*Barely Open/*No Adj. Made
GUDEW116	16:39	4/23/2018	11.9	21.3	0.9	65.9	-0.25	-0.26	0.011	75.3	75.1	3.1	-61.64	*Barely Open/*No Adj. Made
GUDEW117	14:04	11/27/2017	0.3	3.7	17.2	78.8	-0.24	-0.25	0.003	73.3	73.3	1.5	-66.13	*No Adj. Made
GUDEW117	17:23	12/27/2017	0.0	3.8	17.8	78.4	-0.38	-0.38	0.014	32.9	32.8	3.7	-58.78	*Fully Closed/*No Adj. Made
GUDEW117	12:46	1/25/2018	0.1	3.1	17.2	79.6	-0.47	-0.47	-0.008	59.8	59.7	0	-68.67	*Fully Closed/*No Adj. Made
GUDEW117	13:19	2/22/2018	0.1	2.8	18.2	78.9	-0.35	-0.34	-0.029	67.9	67.8	0	-70.99	*Fully Closed/*No Adj. Made
GUDEW117	10:33	3/21/2018	0.0	2.6	18.4	79.0	-0.6	-0.56	0.008	44.2	45.3	2.7	-77.08	*Fully Closed/*Dec. Flow/Vac.
GUDEW117	15:14	4/23/2018	0.4	3.3	11.8	84.5	-0.18	-0.17	-0.011	83.2	83.1	0	-63.63	*No Adj. Made
GUDEW118	14:08	11/27/2017	0.3	0.5	18.7	80.5	-1.07	-1.08	0.004	72.2	72.1	2	-66.44	*Barely Open/*No Adj. Made
GUDEW118	17:26	12/27/2017	0.1	0.6	17.8	81.5	-1.36	-1.35	0.016	42	41.5	3.9	-58.14	*Barely Open/*No Adj. Made
GUDEW118	12:50	1/25/2018	0.2	0.5	19.3	80.0	-1.26	-1.25	0.007	56.9	56.6	2.5	-68.94	*Fully Closed/*No Adj. Made
GUDEW118	13:23	2/22/2018	0.2	0.4	17.6	81.8	-0.57	-0.56	-0.001	63.6	63.4	0	-71.07	*No Adj. Made
GUDEW118	10:37	3/21/2018	0.1	0.5	20.8	78.6	-0.57	-0.57	0.003	38.4	38.4	1.6	-77.38	*Barely Open/*No Adj. Made
GUDEW118	15:21	4/23/2018	12.9	4.3	11.9	70.9	-0.09	-5.15	-0.002	80.2	77.1	0	-63.24	*Inc. Flow/Vac.
GUDEW119	14:13	11/27/2017	31.4	30.7	2.3	35.6	-21.32	-21.31	0.019	68	67.7	4	-66.28	*Barely Open/*No Adj. Made
GUDEW119	17:32	12/27/2017	28.7	30.2	3.3	37.8	-20.6	-20.62	0.011	30.1	29.7	3.1	-57.76	*Barely Open/*No Adj. Made
GUDEW119	12:54	1/25/2018	27.2	28.2	4.2	40.4	-22.63	-17.13	0.001	47.6	45.5	1.1	-69.02	*Barely Open/*Dec. Flow/Vac.
GUDEW119	13:29	2/22/2018	49.9	34.2	0.3	15.6	-5.73	-5.73	-0.008	55.9	55.8	0	-71.18	*No Adj. Made
GUDEW119	10:43	3/21/2018	52.5	38.2	0.1	9.2	-7.27	-7.28	0.002	47.6	47.7	1.4	-77.4	*No Adj. Made
GUDEW119	15:25	4/23/2018	54.2	35.5	0.1	10.2	-5.36	-15.24	0.002	80.1	80.4	1.5	-63.44	*Inc. Flow/Vac.
GUDEW120	14:26	11/27/2017	0.2	6.3	13.3	80.2	-0.08	-0.08	-0.004	68.9	68.8	0	-65.94	*Barely Open/*No Adj. Made
GUDEW120	10:21	12/28/2017	0.1	6.6	13.7	79.6	-0.15	-0.15	0.012	32.3	31.9	3.4	-56.07	*Fully Closed/*No Adj. Made
GUDEW120	10:40	1/30/2018	0.4	8.9	14.3	76.4	0.43	0.43	-0.08	47.4	47.4	0	-71.29	No Change in Valve Position
GUDEW120	13:37	2/22/2018	0.1	5.2	14.5	80.2	-0.03	-0.03	-0.025	60.9	60.6	0	-70.92	*Barely Open/*No Adj. Made
GUDEW120	11:01	3/21/2018	0.0	4.4	16.5	79.1	-0.58	-0.59	0.005	41.4	40.9	2.2	-77.41	*Barely Open/*No Adj. Made
GUDEW120	15:33	4/23/2018	0.1	4.6	14.6	80.7	-0.2	-0.21	-0.009	73.5	73.4	0	-62.93	*Barely Open/*No Adj. Made
GUDEW121	14:36	11/27/2017	0.2	2.7	17.7	79.4	-0.16	-0.06	0.09	61.5	61.3	9.1	-66.32	*Barely Open/*Dec. Flow/Vac.
GUDEW121	10:34	12/28/2017	0.1	3.3	17.4	79.2	-0.09	-0.08	0.004	28.7	28.5	2.1	-56.54	*Barely Open/*No Adj. Made
GUDEW121	10:47	1/30/2018	0.2	8.8	15.3	75.7	0.49	0.48	0.007	44.7	44.7	2.5	-71.48	No Change in Valve Position
GUDEW121	13:46	2/22/2018	0.1	3.1	17.4	79.4	0.07	0.07	-0.006	60.4	60.1	0	-70.66	*Fully Closed/*No Adj. Made

Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H <sub>2</sub> O)	Adjusted Static Press. (in. H <sub>2</sub> O)	Adjusted Diff. Press. (in. H <sub>2</sub> O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Adjusted Flow (scfm)	Available Vacuum (in. H <sub>2</sub> O)	Comments
GUDEW121	11:13	3/21/2018	0.0	3.4	18.3	78.3	-0.03	-0.04	0.008	37.3	37.3	2.8	-77.17	*Barely Open/*No Adj. Made
GUDEW121	15:42	4/23/2018	0.2	3.4	16.3	80.1	-0.19	-0.19	0	74.5	74.4	0	-63.38	*Barely Open/*No Adj. Made
GUDEW122	15:41	11/27/2017	40.9	34.4	0.5	24.2	-67.41	-67.42	-0.01	70.1	68.6	0	-67.42	*Fully Open/*No Adj. Made
GUDEW122	11:12	12/28/2017	42.5	35.9	0.4	21.2	-56.79	-56.79	-0.009	45.7	45.7	0	-56.66	*Fully Open/*No Adj. Made
GUDEW122	11:15	1/30/2018	47.1	40.3	0.2	12.4	-71.96	-71.94	0.07	55.6	55.6	7.4	-71.83	*Fully Open
GUDEW122	14:17	2/22/2018	30.3	23.2	8.5	38.0	-71.02	-71.02	-0.001	59.4	59.1	0	-70.87	*Fully Open/*No Adj. Made
GUDEW122	11:49	3/21/2018	32.4	33.3	0.9	33.4	-76.9	-76.91	-0.007	43.6	43.5	0	-76.87	*Fully Open/*No Adj. Made
GUDEW122	16:19	4/23/2018	56.9	38.9	0.0	4.2	-63	-62.96	0.068	76.4	76.4	7.4	-62.72	*Fully Open/*No Adj. Made
GUDEW122	12:26	4/27/2018	57.5	42.4	0.1	0.0	-65.81	-66	0.025	54.9	54.9	4.6	-65.82	*Fully Open/*Inc. Flow/Vac.
GUDEW123	14:42	11/27/2017	0.2	2.8	17.9	79.1	-0.18	-0.07	0.001	65.4	62.8	1.1	-66.54	*Barely Open/*Dec. Flow/Vac.
GUDEW123	10:40	12/28/2017	0.3	5.7	16.2	77.8	-0.04	-0.04	0.015	34.1	34	3.7	-56.45	*Barely Open/*No Adj. Made
GUDEW123	10:51	1/30/2018	0.5	5.7	17.9	75.9	-0.04	-0.04	-0.037	46	46	0	-71.93	No Change in Valve Position
GUDEW123	13:49	2/22/2018	0.8	7.7	13.0	78.5	-0.08	-0.07	-0.025	59.6	59.5	0	-70.58	*Barely Open/*No Adj. Made
GUDEW123	11:20	3/21/2018	2.9	8.5	13.5	75.1	-0.12	-0.12	0.02	36.2	36.1	4.4	-77.07	*Barely Open/*No Adj. Made
GUDEW123	15:46	4/23/2018	3.8	13.3	9.5	73.4	-0.17	-0.17	-0.008	75.9	75.7	0	-62.38	*Barely Open/*No Adj. Made
GUDEW124	14:47	11/27/2017	0.4	5.4	14.5	79.7	-0.1	-0.09	0.005	65.6	65.5	2.1	-66.84	*Barely Open/*No Adj. Made
GUDEW124	10:44	12/28/2017	0.2	7.6	13.1	79.1	-0.05	-0.05	0.012	31.7	31.7	3.4	-56.73	*No Adj. Made
GUDEW124	10:58	1/30/2018	1.2	12.0	14.4	72.4	-0.06	-0.08	-0.023	44.2	44.2	0	-71.79	No Change in Valve Position
GUDEW124	13:56	2/22/2018	23.4	28.8	0.4	47.4	0.04	-0.06	-0.002	60.1	58.4	0	-70.19	*Barely Open/*Inc. Flow/Vac.
GUDEW124	13:58	2/22/2018	18.0	28.3	0.1	53.6	-0.16	-0.16	-0.008	55.1	55.1	0	-70.46	*No Adj. Made
GUDEW124	11:26	3/21/2018	0.8	6.9	13.4	78.9	-0.19	-0.2	0.021	37.3	36.9	4.5	-77.09	*Barely Open/*No Adj. Made
GUDEW124	15:54	4/23/2018	0.9	7.1	12.9	79.1	-0.15	-0.16	0.009	74.2	74.1	2.8	-62.65	*Barely Open/*No Adj. Made
GUDEW125	14:40	11/27/2017	0.1	3.0	17.6	79.3	-0.35	-0.35	-0.002	71.9	71.8	0	-66.1	*Barely Open/*No Adj. Made
GUDEW125	10:38	12/28/2017	0.1	4.0	17.5	78.4	-0.29	-0.3	0	37.9	37.9	0.6	-56.3	*No Adj. Made
GUDEW125	11:00	1/30/2018	25.9	19.9	2.6	51.6	-0.19	-0.15	-0.052	48	48	0	-72.51	No Change in Valve Position
GUDEW125	13:51	2/22/2018	0.0	2.2	18.4	79.4	-0.24	-0.25	-0.006	57.9	57.8	0	-70.21	*No Adj. Made
GUDEW125	11:18	3/21/2018	4.7	9.6	10.4	75.3	-0.23	-0.23	0.004	36.6	36.5	2	-77.1	*Barely Open/*No Adj. Made
GUDEW125	15:52	4/23/2018	8.1	17.5	1.9	72.5	-0.07	-0.07	0.01	73.5	73.5	3	-62.86	*Barely Open/*No Adj. Made
GUDEW126	14:46	11/27/2017	44.4	34.0	3.6	18.0	-4.5	-3.26	-0.005	64.7	63.8	0	-66.91	*Dec. Flow/Vac.
GUDEW126	10:41	12/28/2017	45.6	34.4	4.2	15.8	-4.08	-4.09	0.009	31.5	31.4	3.1	-56.33	*Barely Open/*No Adj. Made
GUDEW126	10:57	1/30/2018	18.9	20.6	4.7	55.8	-0.02	-0.03	0.022	47.1	47.1	4.5	-71.88	No Change in Valve Position
GUDEW126	13:53	2/22/2018	46.9	34.7	3.5	14.9	-4.17	-4.17	-0.008	57.3	57.3	0	-70.27	*Barely Open/*Dec. Flow/Vac.
GUDEW126	11:22	3/21/2018	57.4	41.7	0.9	0.0	-0.07	-0.07	0.006	38.1	38.1	2.4	-77.18	*No Adj. Made
GUDEW126	15:50	4/23/2018	51.2	36.0	2.1	10.7	-2.4	-4.66	0.013	75.4	74.8	3.4	-62.31	*Inc. Flow/Vac.
GUDEW127	14:49	11/27/2017	25.6	27.8	0.3	46.3	-28.91	-28.92	0.079	66.6	66.5	8.2	-66.94	*Barely Open/*No Adj. Made
GUDEW127	10:46	12/28/2017	24.6	27.2	1.6	46.6	-13.67	-13.66	0.074	42.2	42.4	8.2	-56.74	*Barely Open/*No Adj. Made
GUDEW127	11:02	1/30/2018	17.9	21.9	2.3	57.9	-33.23	-33.23	-0.086	48.3	48.3	0	-69.83	No Change in Valve Position
GUDEW127	13:59	2/22/2018	18.7	24.5	0.3	56.5	-55.81	-53.89	0	56.4	56	0	-70.63	*Barely Open/*No Adj. Made
GUDEW127	11:29	3/21/2018	9.0	10.0	17.3	63.7	-77.15	-77.15	0.008	42.1	42.2	2.5	-77.14	*Fully Closed/*Dec. Flow/Vac.
GUDEW127	15:58	4/23/2018	3.2	2.9	17.8	76.1	-57.62	-57.62	0.002	75.1	75	1.3	-62.66	*Barely Open/*No Adj. Made

Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H <sub>2</sub> O)	Adjusted Static Press. (in. H <sub>2</sub> O)	Adjusted Diff. Press. (in. H <sub>2</sub> O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Adjusted Flow (scfm)	Available Vacuum (in. H <sub>2</sub> O)	Comments
GUDEW128	14:54	11/27/2017	0.4	3.6	17.3	78.7	-0.28	-0.16	0.251	65.8	65.9	15.1	-67.29	*Dec. Flow/Vac.
GUDEW128	10:51	12/28/2017	0.2	3.1	17.4	79.3	-0.08	-0.09	0.032	37.7	37.6	5.5	-56.92	*Barely Open/*No Adj. Made
GUDEW128	11:07	1/30/2018	0.9	8.8	17.0	73.3	-0.23	-0.22	-0.015	44.9	44.9	0	-71.7	No Change in Valve Position
GUDEW128	14:03	2/22/2018	1.4	7.1	12.7	78.8	-0.25	-0.24	0.022	58.1	58	4.4	-70.48	*Barely Open/*No Adj. Made
GUDEW128	11:34	3/21/2018	7.8	11.9	10.2	70.1	-0.3	-0.31	0.039	39.2	39.1	6.1	-77.11	*Barely Open/*No Adj. Made
GUDEW128	16:06	4/23/2018	9.3	11.4	9.9	69.4	-0.12	-0.13	0.027	73.9	73.8	4.9	-62.43	*No Adj. Made
GUDEW129	15:36	11/27/2017	18.3	25.0	0.7	56.0	-55.04	-34.58	0.103	65.3	63.9	9.2	-67.31	*Dec. Flow/Vac.
GUDEW129	11:07	12/28/2017	15.6	25.5	0.2	58.7	-20.78	-20.78	0.099	45.4	45.5	9.3	-56.74	*Barely Open/*No Adj. Made
GUDEW129	11:10	1/30/2018	12.7	22.7	0.4	64.2	-25.91	-25.89	-0.143	48.7	48.7	0	-71.78	No Change in Valve Position
GUDEW129	14:11	2/22/2018	11.8	22.0	0.9	65.3	-34.52	-15.5	-0.009	57	56	0	-70.83	*Dec. Flow/Vac.
GUDEW129	11:41	3/21/2018	53.2	30.6	0.2	16.0	-2.66	-11.83	>>>>	39.8	36.6	N/A	-75.51	*Barely Open/*Inc. Flow/Vac.
GUDEW129	16:14	4/23/2018	23.7	25.0	0.3	51.0	-50.12	-50.1	0.028	72.4	72.1	4.7	-62.97	*No Adj. Made
GUDEW130	15:33	11/27/2017	62.8	31.1	0.7	5.4	-67.18	-67.18	0.01	65.8	65.7	3	-67.22	*Fully Open/*No Adj. Made
GUDEW130	11:20	12/28/2017	43.5	28.3	0.1	28.1	-57	-57	0.019	35.4	35.4	4.1	-57.02	*Fully Open/*No Adj. Made
GUDEW130	11:18	1/30/2018	50.0	30.3	0.1	19.6	-71.86	-71.87	0.007	54.1	54.1	2.4	-71.86	*Fully Open
GUDEW130	14:13	2/22/2018	66.6	31.2	0.2	2.0	-70.71	-70.71	0.009	55	54.9	2.8	-70.87	*Fully Open/*No Adj. Made
GUDEW130	11:44	3/21/2018	65.6	33.5	0.5	0.4	-76.89	-76.89	0.028	34.6	34.6	5	-76.92	*Fully Open/*No Adj. Made
GUDEW130	12:10	4/27/2018	63.3	36.4	0.3	0.0	-32.58	-32.58	0.145	57	57	11.7	-32.27	*No Adj. Made
GUDEW131	17:08	11/27/2017	23.3	21.7	0.0	55.0	-1.08	-1.08	-0.002	58.3	58.2	0	-36.04	*Barely Open/*No Adj. Made
GUDEW131	17:18	12/27/2017	20.1	21.8	0.2	57.9	-1.01	-1.01	-4.949	37.7	37.5	0	-37.89	*Barely Open/*No Adj. Made
GUDEW131	12:19	1/31/2018	20.2	19.5	0.5	59.8	-0.46	-0.38	-0.033	57.6	57.6	0	-41.54	No Change in Valve Position
GUDEW131	13:05	2/23/2018	55.0	22.6	0.1	22.3	0.15	-2.04	0.07	60.8	56.7	8.7	-45.04	*Inc. Flow/Vac.
GUDEW131	10:29	3/21/2018	4.0	8.7	12.0	75.3	-13.25	-13.25	0.056	49.8	50.5	7.1	-54.55	*Barely Open/*Dec. Flow/Vac.
GUDEW131	8:07	4/24/2018	4.8	10.9	10.3	74.0	-9.2	-5.49	0.023	60.1	59.4	4.6	-34.7	*Barely Open/*Dec. Flow/Vac.
GUDEW132	17:00	11/27/2017	37.5	22.9	0.1	39.5	-1.24	-1.24	0	64.4	64.1	0	-35.87	*Barely Open/*No Adj. Made
GUDEW132	17:20	12/27/2017	28.9	22.1	0.2	48.8	-1.47	-1.47	0.014	32.4	32.3	3.8	-37.85	*Barely Open/*No Adj. Made
GUDEW132	12:21	1/31/2018	20.6	17.0	6.2	56.2	-0.82	-0.82	-0.036	56.2	56.2	0	-41.45	No Change in Valve Position
GUDEW132	13:03	2/23/2018	39.1	22.9	0.2	37.8	-5.1	-5.09	-0.015	63.6	63.1	0	-46.01	
GUDEW132	10:31	3/21/2018	32.0	21.3	0.2	46.5	-8.91	-8.91	0.004	38.7	38.5	1.9	-54.73	*No Adj. Made
GUDEW132	8:04	4/24/2018	39.6	22.8	0.3	37.3	-17.22	-17.21	0.019	60.7	60.5	4.3	-34.74	*Barely Open/*No Adj. Made
GUDEW133	14:28	11/27/2017	9.0	14.7	9.7	66.6	-3.36	-1.72	0.009	66.5	65.3	2.8	-65.99	*Dec. Flow/Vac.
GUDEW133	10:23	12/28/2017	0.1	5.2	16.7	78.0	-0.89	-0.88	0.002	40.6	40.4	1.4	-56.04	*Fully Closed/*No Adj. Made
GUDEW133	10:42	1/30/2018	0.2	5.8	17.9	76.1	-0.5	-0.52	-0.006	45.1	45.1	0	-70.21	No Change in Valve Position
GUDEW133	13:38	2/22/2018	5.0	12.7	11.3	71.0	-0.86	-0.85	-0.011	62.3	62.1	0	-70.67	*Barely Open/*No Adj. Made
GUDEW133	11:02	3/21/2018	30.0	32.7	0.8	36.5	-1.82	-1.82	0.013	37.7	37.7	3.5	-77.55	*No Adj. Made
GUDEW133	15:35	4/23/2018	26.4	26.5	6.5	40.6	-0.97	-0.97	-0.007	73.4	73.3	0	-63.31	*No Adj. Made
GUDEW134	14:17	11/27/2017	0.4	4.0	15.8	79.8	-0.03	-0.03	0.008	69	68.9	2.6	-66.25	*Barely Open/*No Adj. Made
GUDEW134	10:17	12/28/2017	0.1	3.5	16.6	79.8	-0.09	-0.09	0.02	34.7	34.6	4.4	-55.74	*No Adj. Made
GUDEW134	12:58	1/25/2018	0.3	3.2	16.2	80.3	-0.02	-0.02	0.015	61.2	61.1	3.8	-68.91	*No Adj. Made
GUDEW134	13:32	2/22/2018	0.2	3.5	16.0	80.3	-0.01	-0.01	-0.002	61.8	61.7	0	-70.34	*No Adj. Made

Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H <sub>2</sub> O)	Adjusted Static Press. (in. H <sub>2</sub> O)	Adjusted Diff. Press. (in. H <sub>2</sub> O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Adjusted Flow (scfm)	Available Vacuum (in. H <sub>2</sub> O)	Comments
GUDEW134	10:55	3/21/2018	0.2	2.9	18.6	78.3	-0.51	-0.51	0.005	46.4	46.3	2.1	-77.68	*Barely Open/*No Adj. Made
GUDEW134	15:28	4/23/2018	0.2	4.5	14.1	81.2	-0.13	-0.13	-0.005	76.8	76.7	0	-63.17	*No Adj. Made
GUDEW135	13:51	11/27/2017	6.8	9.3	13.5	70.4	-24.38	-24.41	0.011	71.1	70.9	3.1	-67.44	*Barely Open/*No Adj. Made
GUDEW135	17:10	12/27/2017	3.1	8.2	13.4	75.3	-27.72	-27.7	0.038	37.7	37.5	5.8	-72.9	
GUDEW135	12:38	1/25/2018	8.8	17.8	8.8	64.6	-44.12	-44.12	-0.037	56.9	56.6	0	-69.35	No Change in Valve Position
GUDEW135	11:38	2/22/2018	7.7	15.1	10.6	66.6	-64.46	-64.44	-0.011	56.9	56.8	0	-72.33	*Barely Open/*No Adj. Made
GUDEW135	10:19	3/21/2018	8.5	8.7	13.4	69.4	-58.32	-56.96	-0.003	52.9	51.5	0	-77.39	*Barely Open/*No Adj. Made
GUDEW135	15:05	4/23/2018	9.0	10.4	3.3	77.3	-0.32	-4.24	0.005	84.2	82.7	2.1	-63.67	*Barely Open/*Inc. Flow/Vac.
GUDEW137	15:48	11/28/2017	26.9	29.9	0.2	43.0	-30.67	-30.66	0.297	70	69.2	15.6	-40.86	*Barely Open/*No Adj. Made
GUDEW137	14:37	12/28/2017	12.8	21.0	0.9	65.3	-31.07	-31.07	>>>>	39.6	39.6	N/A	-44.65	*No Adj. Made
GUDEW137	12:26	1/31/2018	16.6	27.0	0.1	56.3	-29.42	-29.43	>>>>	55.9	55.9	N/A	-42.46	No Change in Valve Position
GUDEW137	11:32	2/22/2018	18.2	27.1	0.5	54.2	-33.31	-33.31	-0.565	58.7	58.7	0	-47.14	*No Change in Valve Position
GUDEW137	15:29	3/27/2018	21.3	29.0	0.5	49.2	-39.82	-39.82	0.206	50.5	50.3	13	-46.87	*Barely Open/*No Adj. Made
GUDEW137	12:02	4/24/2018	33.6	31.6	0.3	34.5	-31.82	-29.7	0.039	70.7	70.5	5.7	-34.12	*No Adj. Made
GUDEW138	14:53	11/28/2017	54.8	40.7	0.0	4.5	-28.28	-28.21	-0.106	72.7	72.6	0	-40.34	*No Adj. Made
GUDEW138	14:30	12/28/2017	46.9	35.4	0.0	17.7	-2.48	-2.47	-3.398	36.4	36.4	0	-5.1	*No Adj. Made
GUDEW138	12:02	1/31/2018	49.9	40.8	0.0	9.3	-31.37	-31.28	0.069	68.4	68.4	7.7	-42.04	No Change in Valve Position
GUDEW138	11:27	2/22/2018	53.6	40.6	0.1	5.7	-33.9	-33.89	0.046	58.9	58.8	6.4	-45.24	*No Change in Valve Position
GUDEW138	15:12	3/27/2018	53.9	39.5	0.0	6.6	-33.04	-35.03	-0.141	70.5	70.6	0	-45.71	*Inc. Flow/Vac.
GUDEW138	11:50	4/24/2018	57.1	39.6	0.0	3.3	-28.47	-29.67	-0.107	71.4	71.3	0	-32.15	*Inc. Flow/Vac.
GUDEW139	14:58	11/28/2017	7.1	5.7	17.3	69.9	-0.52	-0.52	-0.007	73.7	73.7	0	-37.47	*Barely Open/*No Adj. Made
GUDEW139	14:27	12/28/2017	46.4	36.6	0.1	16.9	-25.54	0.23	-0.012	32.5	31.7	0	-5.09	*No Adj. Made
GUDEW139	11:59	1/31/2018	4.8	6.6	18.1	70.5	-0.79	-0.75	-0.004	51.7	51.7	0	-33.29	No Change in Valve Position
GUDEW139	11:30	2/22/2018	47.2	23.9	6.6	22.3	-0.32	-0.3	-0.038	58.5	58.7	0	-33.31	*Fully Closed/*No Change in Valve Position
GUDEW139	15:26	3/27/2018	65.8	32.1	0.6	1.5	1.98	-2.69	-0.001	54	49.7	0	-22.72	*Barely Open/*Inc. Flow/Vac.
GUDEW139	12:00	4/24/2018	33.2	25.5	8.1	33.2	-32.25	-32.25	-0.019	70.5	70.3	0	-32.19	*Barely Open/*No Adj. Made
GUDEW140	14:45	11/28/2017	37.9	33.3	0.0	28.8	-2.88	-2.34	0.001	70.9	71.1	1.1	-40.46	*Dec. Flow/Vac.
GUDEW140	14:23	12/28/2017	32.0	26.6	6.9	34.5	-0.33	-0.33	-0.326	41.9	41.9	0	-44.28	*No Adj. Made
GUDEW140	11:45	1/31/2018	46.5	37.0	0.0	16.5	-0.69	-0.78	-0.486	49.6	49.6	0	-42.11	No Change in Valve Position
GUDEW140	11:24	2/22/2018	46.3	35.3	0.5	17.9	-1.11	-1.1	-0.024	60.1	60.4	0	-45.25	*No Change in Valve Position
GUDEW140	15:21	3/27/2018	47.6	35.9	0.1	16.4	-0.62	-0.63	-0.005	55.2	55	0	-45	*No Adj. Made
GUDEW140	11:58	4/24/2018	46.1	34.0	0.3	19.6	-0.38	-0.38	-0.022	71.8	71.6	0	-32.71	*Barely Open/*No Adj. Made
GUDEW141	14:35	11/28/2017	53.4	39.6	0.4	6.6	-39.09	-39.09	-0.026	70.9	70.8	0	-40.61	*No Adj. Made
GUDEW141	14:11	12/28/2017	40.9	38.2	0.4	20.5	-43.07	-43.07	>>>>	39.2	39.2	N/A	-44	*No Adj. Made
GUDEW141	11:34	1/31/2018	57.3	42.0	0.0	0.7	-41.47	-42.01	0.001	50.2	50.2	0.8	-42.12	*Inc. Flow/Vac.
GUDEW141	11:17	2/22/2018	48.8	38.9	0.3	12.0	-45.48	-45.45	-0.028	59.6	59.5	0	-44.73	*No Change in Valve Position
GUDEW141	15:15	3/27/2018	58.9	40.9	0.2	0.0	-45.99	-45.99	-0.009	53.6	53	0	-45.99	*Inc. Flow/Vac.
GUDEW141	11:52	4/24/2018	58.7	39.6	0.1	1.6	-32.7	-32.66	-0.029	67.9	67.1	0	-32.43	*Inc. Flow/Vac.
GUDEW142	14:41	11/28/2017	31.1	26.8	8.5	33.6	-13.5	-8.39	0.005	70.9	71.1	11.3	-39.96	*Barely Open/*Dec. Flow/Vac.



Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H <sub>2</sub> O)	Adjusted Static Press. (in. H <sub>2</sub> O)	Adjusted Diff. Press. (in. H <sub>2</sub> O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Adjusted Flow (scfm)	Available Vacuum (in. H <sub>2</sub> O)	Comments
GUDEW142	14:14	12/28/2017	40.1	34.5	0.5	24.9	-0.02	-0.02	0.048	39	39.1	6.9	-43.55	*No Adj. Made
GUDEW142	11:37	1/31/2018	33.9	27.4	7.8	30.9	-0.19	-0.12	-0.222	50.3	50.3	0	-42.4	No Change in Valve Position
GUDEW142	11:21	2/22/2018	23.8	19.2	12.1	44.9	-14.72	-0.24	-0.3	55.9	55.6	0	-45.54	*No Change in Valve Position
GUDEW142	15:19	3/27/2018	58.0	39.9	0.4	1.7	-0.06	-0.23	0.001	57.6	58.2	1.1	-45.26	*Inc. Flow/Vac.
GUDEW142	11:56	4/24/2018	32.8	24.3	8.9	34.0	-0.1	-0.1	-0.021	73.5	73.5	0	-32.79	*Barely Open/*No Adj. Made
GUDEW143	14:19	11/28/2017	56.8	42.5	0.0	0.7	-40.49	-40.49	-0.037	72.2	72.1	0	-40.49	*Fully Open/*No Adj. Made
GUDEW143	14:06	12/28/2017	62.9	35.7	0.6	0.8	-0.18	-0.15	-0.09	37.7	37.7	0	0.62	*No Adj. Made
GUDEW143	11:50	1/31/2018	57.0	42.2	0.8	0.0	-42.17	-42.18	-0.016	50.8	50.8	0	-42.18	No Change in Valve Position/*Fully Open
GUDEW143	11:11	2/22/2018	56.7	43.3	0.0	0.0	-47.32	-45.28	-0.033	59.6	59.6	0	-45.43	*Fully Closed/*No Change in Valve Position
GUDEW143	15:06	3/27/2018	57.8	41.9	0.3	0.0	-46.15	-46.13	-0.037	61	60.9	0	-45.93	*Fully Open/*No Adj. Made
GUDEW143	11:46	4/24/2018	57.9	41.5	0.0	0.6	-32.17	-32.19	-0.04	67.7	67.6	0	-32.21	*Fully Open/*No Adj. Made
GUDEW144	13:54	11/28/2017	43.3	33.1	4.2	19.4	-0.17	-0.16	0.017	72.5	72.5	4	-32.72	*Barely Open/*No Adj. Made
GUDEW144	13:57	12/28/2017	29.7	27.5	9.1	33.7	-0.21	-0.16	-0.025	38	38	0	-39.49	*No Adj. Made
GUDEW144	11:31	1/31/2018	57.7	41.9	0.4	0.0	0.12	0.15	-0.021	48.2	48.2	0	-35.13	No Change in Valve Position/*Fully Closed
GUDEW144	11:06	2/22/2018	57.4	37.5	3.2	1.9	-0.11	-0.1	-0.027	60.2	60.3	0	-39.19	*No Change in Valve Position
GUDEW144	14:55	3/27/2018	57.8	41.9	0.3	0.0	0.51	-0.27	0.014	58.9	56.3	3.7	-39.27	*Barely Open/*Inc. Flow/Vac.
GUDEW144	11:38	4/24/2018	57.8	40.3	0.0	1.9	0.38	-1.14	0.488	67.7	65.7	21.7	-30.69	*Barely Open/*Inc. Flow/Vac.
GUDEW145	13:52	11/28/2017	57.9	41.0	0.3	0.8	-32.62	-32.63	2.427	69.9	69.9	46.2	-35.15	*Fully Open/*No Adj. Made
GUDEW145	13:53	12/28/2017	52.7	46.3	0.3	0.7	-41.64	-41.68	>>>>	37.8	37.8	N/A	1.33	*No Adj. Made
GUDEW145	11:28	1/31/2018	50.5	39.9	0.9	8.7	-35.15	-35.01	-1.248	49.6	49.6	0	-34.99	No Change in Valve Position/*Fully Open
GUDEW145	11:03	2/22/2018	53.2	39.9	0.1	6.8	-40.37	-39.54	-1.814	58.6	58.6	0	-40.78	*Fully Open/*No Change in Valve Position
GUDEW145	14:57	3/27/2018	56.9	40.8	0.1	2.2	-36.84	-36.85	3.411	64.2	64.3	54.6	-38.04	*Fully Open/*No Adj. Made
GUDEW145	11:39	4/24/2018	57.9	40.8	0.1	1.2	-30.06	-30.09	2.801	66.2	66.1	50	-30.15	*Fully Open/*No Adj. Made
GUDEW146	12:29	11/28/2017	33.8	27.5	8.0	30.7	-2.17	-2.16	0.001	63.8	63.8	1	-32.37	*Barely Open/*No Adj. Made
GUDEW146	13:49	12/28/2017	54.2	45.7	0.1	0.0	0.03	0.05	-0.039	37.8	37.8	0	0.02	*No Adj. Made
GUDEW146	11:23	1/31/2018	55.1	45.0	0.0	N/A	0.36	0.37	0.301	48.4	48.4	17	0.06	No Change in Valve Position
GUDEW146	10:58	2/22/2018	7.4	20.2	0.3	72.1	0	-0.01	0.027	61.4	61.4	4.9	-40.12	*No Change in Valve Position
GUDEW146	14:53	3/27/2018	17.9	14.3	13.0	54.8	-3.27	-1.29	-0.001	64	63.5	0	-23.17	*Barely Open/*Dec. Flow/Vac.
GUDEW146	11:33	4/24/2018	3.4	3.0	16.0	77.6	0.24	-0.03	>>>>	74.5	62.5	N/A	-15.87	*Inc. Flow/Vac.
GUDEW146	11:36	4/24/2018	45.7	36.1	2.4	15.8	-13.44	-11.74	0.009	60.1	60.1	2.8	-16.14	*Barely Open/*Surging/*No Adj. Made
GUDEW147	12:18	11/28/2017	9.7	19.5	0.5	70.3	-0.11	-0.11	-0.03	78.1	78.1	0	-37.7	*Barely Open/*No Adj. Made
GUDEW147	13:46	12/28/2017	8.4	8.9	17.6	65.1	-0.15	-0.11	-0.037	37.7	37.7	0	-40.56	*No Adj. Made
GUDEW147	11:20	1/31/2018	35.5	27.9	2.9	33.7	0.95	1.45	0.745	44.7	44.7	27	-28.35	No Change in Valve Position
GUDEW147	10:55	2/22/2018	6.2	19.0	0.6	74.2	-0.62	-0.62	-0.035	60.6	60.6	0	-40.27	*Fully Closed/*No Change in Valve Position
GUDEW147	14:49	3/27/2018	15.4	27.0	0.0	57.6	0.23	-0.01	2.081	59.5	62.8	42.7	-42.57	*Barely Open/*Inc. Flow/Vac.
GUDEW147	11:30	4/24/2018	5.2	19.5	0.0	75.3	-0.01	-0.02	3.408	101.2	101.6	52.7	-31.84	*Barely Open/*No Adj. Made
GUDEW148	12:12	11/28/2017	17.2	23.7	0.2	58.9	-0.83	-0.82	0.896	71.1	71.1	28.1	-38.39	*Barely Open/*No Adj. Made
GUDEW148	13:38	12/28/2017	31.6	28.9	0.2	39.3	-1.42	-1.43	-0.945	38.1	38.2	0	-41.02	*No Adj. Made
GUDEW148	11:16	1/31/2018	26.7	25.8	0.0	47.5	-1.14	-1.13	-0.864	49.2	49.2	0	-28.37	No Change in Valve Position
GUDEW148	10:50	2/22/2018	17.9	22.9	0.3	58.9	-2.06	-2.06	-0.92	59.3	59.3	0	-40.23	*No Change in Valve Position
GUDEW148	14:42	3/27/2018	14.3	24.4	0.3	61.0	-0.18	-0.18	0.899	65.3	65.3	28.1	-43.32	*Barely Open/*No Adj. Made

Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H <sub>2</sub> O)	Adjusted Static Press. (in. H <sub>2</sub> O)	Adjusted Diff. Press. (in. H <sub>2</sub> O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Adjusted Flow (scfm)	Available Vacuum (in. H <sub>2</sub> O)	Comments
GUDEW148	11:25	4/24/2018	31.1	25.7	0.1	43.1	-0.21	-0.2	0.771	67.4	67.4	26.8	-32	*Barely Open/*No Adj. Made
GUDEW149	12:15	11/28/2017	41.4	25.2	1.4	32.0	-4.06	-4.15	0.186	70.7	70.5	13.4	-37.74	*Inc. Flow/Vac.
GUDEW149	13:41	12/28/2017	6.9	7.0	18.1	68.0	-37.75	-34.84	-0.031	38.3	38.2	0	-40.57	*Dec. Flow/Vac.
GUDEW149	11:18	1/31/2018	35.3	25.7	2.9	36.1	-4.76	-4.74	-0.088	48.8	48.8	0	-28.09	No Change in Valve Position
GUDEW149	10:53	2/22/2018	27.1	24.0	3.9	45.0	-2.83	-4.17	-0.082	59.6	59.6	0	-39.73	*No Change in Valve Position
GUDEW149	14:45	3/27/2018	12.8	24.0	2.1	61.1	-4.02	-2.69	0.007	51.5	50.7	2.5	-43.22	*Barely Open/*Dec. Flow/Vac.
GUDEW149	11:27	4/24/2018	44.8	25.5	2.2	27.5	-0.37	-0.36	-0.011	69.6	69.5	0	-31.84	*Barely Open/*No Adj. Made
GUDEW150	16:54	11/27/2017	24.3	22.3	1.0	52.4	-30.32	-30.32	-0.007	62.3	61.9	0	-35.84	*Barely Open/*No Adj. Made
GUDEW150	14:25	12/28/2017	15.9	21.6	2.5	60.0	-33.5	-33.49	-0.017	39.5	39	0	-44.32	*No Adj. Made
GUDEW150	13:32	1/31/2018	12.5	19.1	1.3	67.1	-29.8	-29.8	>>>>	53.3	53.3	N/A	-40.58	No Change in Valve Position
GUDEW150	13:30	2/22/2018	11.9	10.3	13.8	64.0	-40.46	-40.05	-0.021	57.8	57.8	0	-44.57	*Fully Closed/*No Change in Valve Position
GUDEW150	15:50	3/27/2018	56.7	25.9	3.7	13.7	-18.89	-23.07	0	52.5	50.7	0	-44.92	*Inc. Flow/Vac.
GUDEW150	8:09	4/24/2018	51.5	23.8	4.9	19.8	-34.72	-34.72	0.004	60.6	60.4	2	-34.85	*No Adj. Made
GUDEW151	16:49	11/27/2017	53.7	36.9	0.0	9.4	-1.51	-5.32	0.375	65.1	61.2	19	-36.26	*Inc. Flow/Vac.
GUDEW151	14:16	12/28/2017	9.3	20.9	1.9	67.9	-13.39	-10.23	0.083	36.3	34.1	8.7	-44.39	*Dec. Flow/Vac.
GUDEW151	13:39	1/31/2018	0.9	5.6	17.7	75.8	0.02	0.02	-0.013	52.1	52.1	0	-40.8	No Change in Valve Position/*Fully Closed
GUDEW151	13:36	2/22/2018	0.9	5.3	18.4	75.4	-0.04	-0.04	0.014	58.5	58.5	3.5	-44.51	*Fully Closed/*No Change in Valve Position
GUDEW151	15:52	3/27/2018	6.1	4.9	17.3	71.7	0.03	-0.06	2.818	53.5	53.1	51.7	-44.73	*Barely Open/*Inc. Flow/Vac.
GUDEW151	15:58	3/27/2018	0.0	0.1	20.4	79.5	-41.09	-36.51	-0.018	42.1	42.2	0	-44.82	*Fully Closed/*Dec. Flow/Vac.
GUDEW151	8:15	4/24/2018	0.3	0.8	19.3	79.6	0.41	-3.83	4.296	60.2	59.7	63	-34.7	*Barely Open/*Inc. Flow/Vac.
GUDEW151	8:18	4/24/2018	28.1	19.7	10.8	41.4	-34.31	-34.29	0.063	53.7	53.7	7.4	-34.8	*Barely Open/*No Adj. Made
GUDEW152	16:37	11/27/2017	57.6	38.6	0.7	3.1	-6.19	-8.12	-8.353	67.3	65.1	0	-36.76	*Inc. Flow/Vac.
GUDEW152	13:57	12/28/2017	17.8	13.6	13.7	54.9	-18.97	-16.87	>>>>	40	38.6	N/A	-44.07	*Barely Open/*Dec. Flow/Vac.
GUDEW152	14:06	1/31/2018	30.2	22.2	8.5	39.1	-7.94	-7.93	-0.015	44.6	44.6	0	-41	No Change in Valve Position/*Fully Closed
GUDEW152	14:05	2/22/2018	5.1	12.7	14.9	67.3	-7.47	-7.47	-0.019	61.6	61.6	0	-34.65	*Fully Closed/*No Change in Valve Position
GUDEW152	16:33	3/27/2018	59.2	38.5	0.7	1.6	-4.61	-4.61	-4.778	58.9	58.7	0	-37.48	*No Adj. Made
GUDEW152	17:36	4/23/2018	55.5	36.8	1.4	6.3	-5.01	-6.34	-6.263	73.5	72.1	0	-32.58	*Inc. Flow/Vac.
GUDEW153	16:35	11/27/2017	62.0	37.3	0.7	0.0	0.11	-12.78	0.188	70.7	69.2	13.5	-36.87	*Barely Open/*Inc. Flow/Vac.
GUDEW153	13:58	12/28/2017	12.9	8.2	15.8	63.1	-42.88	-38.54	0.006	45.5	45.5	2.2	-44.2	*Barely Open/*Dec. Flow/Vac.
GUDEW153	14:09	1/31/2018	13.8	9.2	17.0	60.0	-38.35	-38.81	-0.015	50.8	50.8	0	-41.05	No Change in Valve Position
GUDEW153	14:06	2/22/2018	7.4	6.7	18.4	67.5	-29.89	-29.9	-0.004	61	61	0	-29.91	*No Change in Valve Position
GUDEW153	16:35	3/27/2018	6.9	4.6	16.9	71.6	-31.62	-31.61	-0.015	54.2	53.9	0	-37.79	*Barely Open/*No Adj. Made
GUDEW153	17:38	4/23/2018	9.2	5.1	16.5	69.2	-16.71	-12.46	0.011	73.5	72.7	3.1	-33.16	*Dec. Flow/Vac.
GUDEW154	14:38	11/28/2017	11.7	19.0	3.8	65.5	-0.13	-0.13	0.05	71.3	71.3	13.5	-40.28	*Barely Open/*No Adj. Made
GUDEW154	14:17	12/28/2017	9.4	18.1	6.4	66.1	-0.08	-0.08	0.032	40	40	11.1	-44.37	*No Adj. Made
GUDEW154	11:40	1/31/2018	11.4	18.2	5.4	65.0	0.07	0.08	-0.005	48.7	48.7	<<<>	-42.19	No Change in Valve Position
GUDEW154	11:19	2/22/2018	44.4	29.2	0.4	26.0	-0.4	-0.4	0.298	59.1	59.1	35.7	-45.58	*No Change in Valve Position
GUDEW154	15:17	3/27/2018	51.8	33.8	0.6	13.8	-0.1	-0.31	0.296	55.4	56.7	35.8	-45.79	*Inc. Flow/Vac.
GUDEW154	11:54	4/24/2018	3.4	9.2	12.8	74.6	-0.05	-0.05	0.238	70.8	70.8	30.2	-32.75	*Barely Open/*No Adj. Made

Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H <sub>2</sub> O)	Adjusted Static Press. (in. H <sub>2</sub> O)	Adjusted Diff. Press. (in. H <sub>2</sub> O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Adjusted Flow (scfm)	Available Vacuum (in. H <sub>2</sub> O)	Comments
GUDEW156	14:44	11/27/2017	13.2	16.3	10.8	59.7	-11.47	-7.7	-0.004	63.7	62.9	0	-67.03	*Dec. Flow/Vac.
GUDEW156	10:43	12/28/2017	12.6	20.5	6.9	60.0	-4.98	-4.03	0.006	30.2	27.9	2.3	-56.56	*Dec. Flow/Vac.
GUDEW156	10:54	1/30/2018	25.3	26.1	2.0	46.6	-2.48	-2.5	-0.017	44.3	44.3	0	-72.12	No Change in Valve Position
GUDEW156	13:55	2/22/2018	27.2	29.2	0.3	43.3	-1.75	-1.75	0	59	58.9	0	-70.59	*Barely Open/*No Adj. Made
GUDEW156	11:25	3/21/2018	37.0	34.4	0.1	28.5	-1.91	-1.91	-0.001	35	34.9	0	-76.9	*No Adj. Made
GUDEW156	15:48	4/23/2018	41.7	35.5	0.1	22.7	-1.23	-2.31	0.003	78	76.4	1.6	-62.5	*Inc. Flow/Vac.
GUDEW157	14:21	11/27/2017	29.2	32.6	0.7	37.5	-48.82	-48.86	0.003	65.1	64.6	1.4	-65.93	*Barely Open/*No Adj. Made
GUDEW157	10:19	12/28/2017	17.4	27.4	3.7	51.5	-46.81	-46.81	0.01	27.4	27.3	2.9	-56.17	*Barely Open/*No Adj. Made
GUDEW157	10:37	1/30/2018	21.1	24.5	3.7	50.7	-57.85	-57.89	-0.015	49.5	49.5	0	-71.39	No Change in Valve Position
GUDEW157	13:35	2/22/2018	21.9	27.8	3.0	47.3	-57.13	-57.13	-0.012	58.6	58.5	0	-70.81	*No Adj. Made
GUDEW157	10:59	3/21/2018	26.6	29.7	2.6	41.1	-57.96	-59.82	-0.051	44.2	44.2	0	-77.52	*Surging/*No Adj. Made
GUDEW157	15:31	4/23/2018	26.3	30.0	1.7	42.0	-57.31	-52.89	-0.159	72.4	72	0	-63.34	*Surging/*No Adj. Made
GUDEW158	15:31	11/27/2017	54.9	33.7	2.5	8.9	-26.56	-26.56	0	71.6	71.3	0	-26.39	*Inc. Flow/Vac.
GUDEW158	11:05	12/28/2017	41.3	26.7	6.5	25.5	-38.85	-38.9	-0.008	33.1	32.9	<<>	-38.81	*Barely Open/*No Adj. Made
GUDEW158	12:00	1/30/2018	61.8	38.0	0.2	0.0	-36.32	-37.99	>>>>	54.1	54.1	N/A	-37.59	No Change in Valve Position
GUDEW158	14:08	2/22/2018	27.3	15.5	12.6	44.6	-16.71	-16.75	-0.019	56.7	56.6	<<>	-16.47	*Barely Open/*No Adj. Made
GUDEW158	11:38	3/21/2018	55.1	32.8	3.3	8.8	-40.21	-40.21	0.013	37.5	37.3	6.9	-39.96	*No Adj. Made
GUDEW158	16:12	4/23/2018	49.2	25.7	5.0	20.1	-16.8	-16.82	0.001	75.3	75.2	1.8	-16.93	*No Adj. Made
GUDEW159	11:39	11/28/2017	33.1	28.1	0.1	38.7	-7.87	-7.87	0.017	71.5	71.5	7.9	-37.95	*Barely Open/*No Adj. Made
GUDEW159	11:29	12/28/2017	62.8	37.2	0.0	0.0	1.03	1.11	-1.095	34.2	33.7	<<>	1.06	*No Adj. Made
GUDEW159	10:50	1/31/2018	55.0	34.5	0.0	10.5	1.11	1.11	0.018	44.8	44.8	8.7	1.1	No Change in Valve Position
GUDEW159	10:23	2/22/2018	8.6	18.4	4.7	68.3	-20.51	-21.1	-0.01	70.4	71.1	<<>	-26.95	*No Change in Valve Position
GUDEW159	10:24	2/22/2018	8.1	17.4	4.8	69.7	-20.35	-17.44	0.005	70.4	70.4	4.1	-27.4	*Dec. Flow/Vac.
GUDEW159	15:48	3/21/2018	66.7	32.7	0.6	0.0	1.38	-0.12	1.983	38.2	37.6	100.1	-28.22	*Barely Open/*Inc. Flow/Vac.
GUDEW159	8:53	4/24/2018	55.3	21.6	4.6	18.5	-29.2	-29.75	0.014	59.1	59	7.5	-29.62	*Inc. Flow/Vac.
GUDEFLAR	7:29	11/2/2017	36.1	29.4	3.2	31.3	-74.95	-74.93	>>>>	64.8	64.9	514	N/A	
GUDEFLAR	14:18	11/2/2017	35.8	28.5	3.0	32.7	-71.26	-71.3	>>>>	88.7	88.7	500	N/A	
GUDEFLAR	11:09	11/27/2017	27.2	21.9	7.8	43.1	-70.9	-70.91	>>>>	64.6	64.6	491	N/A	
GUDEFLAR	12:10	11/27/2017	36.5	29.5	3.5	30.5	-71.99	-71.99	>>>>	66.8	66.8	493	N/A	
GUDEFLAR	13:26	11/27/2017	37.3	29.0	3.4	30.3	-68.27	-68.26	>>>>	68.8	68.8	533	N/A	
GUDEFLAR	17:15	11/27/2017	36.6	29.4	3.4	30.6	-70.51	-70.52	>>>>	57.6	57.1	515	N/A	
GUDEFLAR	10:40	11/28/2017	35.3	28.5	3.5	32.7	-72.54	-72.54	>>>>	71.2	71.1	504	N/A	
GUDEFLAR	9:21	11/29/2017	36.2	28.6	3.6	31.6	-74.17	-74.19	>>>>	60.5	60.4	489	-74.21	
GUDEFLAR	11:50	12/22/2017	33.5	24.3	7.7	34.5	-61.94	-61.94	>>>>	62.6	62.6	595	N/A	
GUDEFLAR	12:19	12/22/2017	46.2	32.6	2.5	18.7	-65.15	-65.17	>>>>	65.8	65.7	588	N/A	
GUDEFLAR	12:45	12/22/2017	45.3	32.3	2.8	19.6	-66	-65.99	>>>>	60.6	60.8	576	N/A	
GUDEFLAR	17:02	12/27/2017	30.1	24.5	6.7	38.7	-74.14	-74.16	>>>>	47.5	47.7	510	N/A	
GUDEFLAR	8:56	12/28/2017	30.8	25.3	5.8	38.1	-77.94	-77.98	>>>>	47	46.9	490	N/A	
GUDEFLAR	10:03	12/28/2017	30.0	26.2	5.9	37.9	-75.71	-75.74	>>>>	31.1	31.6	521	N/A	
GUDEFLAR	12:28	1/25/2018	35.4	27.8	3.9	32.9	-71.1	-71.11	>>>>	70.8	70.4	524	N/A	
GUDEFLAR	10:01	1/30/2018	36.1	27.8	3.9	32.2	7.03	7.02	-6.44	33	N/A	2539	N/A	
GUDEFLAR	13:18	1/31/2018	35.7	27.3	4.0	33.0	-73.16	-73.19	>>>>	35	35	499.9	N/A	
GUDEFLAR	11:18	2/22/2018	36.6	28.0	3.5	31.9	-73.6	-73.72	>>>>	65.3	65.2	496	N/A	
GUDEFLAR	12:20	2/23/2018	38.4	29.1	3.0	29.5	-75.38	-75.35	>>>>	61.7	61.8	501	N/A	
GUDEFLAR	14:44	3/15/2018	38.0	27.7	3.9	30.4	-73.14	-73.16	>>>>	70	70	465	N/A	

Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H <sub>2</sub> O)	Adjusted Static Press. (in. H <sub>2</sub> O)	Adjusted Diff. Press. (in. H <sub>2</sub> O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Adjusted Flow (scfm)	Available Vacuum (in. H <sub>2</sub> O)	Comments
GUDEFLAR	10:13	3/21/2018	39.1	27.8	4.3	28.8	-78.37	-78.37	>>>>	36.5	36.1	429	N/A	
GUDEFLAR	13:51	3/27/2018	35.3	27.5	3.9	33.3	-77.05	-77.06	>>>>	61.4	61.5	464	N/A	
GUDEFLAR	14:14	4/23/2018	39.4	28.7	3.4	28.5	-71.35	-73.26	>>>>	82.7	82.8	445	N/A	
GUDEFLAR	7:51	4/24/2018	39.5	28.4	3.4	28.7	-71.27	-70.84	>>>>	68.6	68.6	507	N/A	
GUDEPLNT	8:53	10/12/2016	38.1	23.9	2.4	35.6	-26.54	-26.54	>>>>	67.4	67.4	409	N/A	
GUDEPLNT	8:39	10/13/2016	36.8	28.2	3.2	31.8	-20.26	-20.26	>>>>	72.3	72.2	370	N/A	
GUDEPLNT	12:34	10/13/2016	36.8	28.0	3.3	31.9	-20.1	-20.11	>>>>	81.7	81.7	368	N/A	
GUDEPLNT	14:55	10/25/2016	36.8	29.1	2.8	31.3	-18.12	-18.13	>>>>	67.7	67.7	365	N/A	
GUDEPLNT	17:00	10/25/2016	37.4	29.4	2.6	30.6	-18.91	-18.93	>>>>	73.8	73.8	355	N/A	
GUDEPLNT	8:12	10/26/2016	34.4	27.4	3.5	34.7	-24	-24.02	>>>>	62.5	62.5	393	N/A	
GUDEPLNT	12:46	11/3/2016	39.4	29.5	2.3	28.8	-18.9	-18.91	>>>>	75.7	75.8	348	N/A	
GUDEPLNT	8:56	11/4/2016	36.4	28.6	2.6	32.4	-24.09	-24.1	>>>>	68.7	68.7	373	N/A	
GUDEPLNT	13:59	11/10/2016	39.0	29.5	2.3	29.2	-23.15	-23.15	>>>>	74.5	74.4	352	N/A	
GUDEPLNT	11:07	11/15/2016	38.6	29.1	2.5	29.8	-22.33	-22.35	>>>>	80.5	80.5	355	N/A	
GUDEPLNT	16:22	11/15/2016	39.4	29.6	2.6	28.4	-22.19	-22.19	>>>>	73.4	73.4	349	N/A	
GUDEPLNT	8:54	11/22/2016	34.3	27.6	3.6	34.5	-30.04	-30.05	>>>>	59.6	59.7	402	N/A	
GUDEPLNT	8:59	11/23/2016	34.0	27.8	3.2	35.0	-24.14	-24.14	>>>>	66.6	66.7	360	N/A	
GUDEPLNT	13:12	12/28/2016	36.9	28.6	2.4	32.1	-28.26	-29.4	>>>>	75.2	75.2	369	N/A	
GUDEPLNT	10:50	12/29/2016	40.8	30.2	1.9	27.1	-22.88	-22.91	>>>>	66.4	66.4	333	N/A	
GUDEPLNT	8:30	1/24/2017	40.1	28.9	3.1	27.9	-21.59	-21.6	>>>>	62.5	62.5	342	N/A	
GUDEPLNT	13:54	1/30/2017	35.6	26.8	4.3	33.3	-25.29	-25.31	>>>>	71.1	71	384	N/A	
GUDEPLNT	11:20	2/20/2017	34.8	27.4	3.2	34.6	-35.24	-35.2	>>>>	74.3	74.2	416	N/A	
GUDEPLNT	11:11	2/21/2017	34.9	27.2	3.4	34.5	-33.94	-33.9	>>>>	72.5	72.5	411	N/A	
GUDEPLNT	9:22	3/17/2017	33.1	26.5	4.3	36.1	-33.09	-33.07	>>>>	66.4	66.2	406	N/A	
GUDEPLNT	14:50	3/27/2017	36.9	27.9	3.4	31.8	-23.16	-23.16	>>>>	80.1	79.3	362	N/A	
GUDEPLNT	13:23	3/28/2017	43.2	30.5	3.0	23.3	-15.78	-15.81	>>>>	72.9	72.9	340	N/A	
GUDEPLNT	15:27	3/28/2017	42.8	30.9	1.4	24.9	-18.47	-18.45	>>>>	81.1	81.2	321	N/A	
GUDEPLNT	16:38	3/28/2017	43.8	31.2	1.7	23.3	-20.18	-20.18	>>>>	84.1	84.1	322	N/A	
GUDEPLNT	10:49	4/18/2017	39.7	29.7	1.9	28.7	-27.03	-27.03	>>>>	73.7	73.7	346	N/A	
GUDEPLNT	10:48	4/24/2017	40.7	29.8	1.7	27.8	-24.88	-24.87	>>>>	75.2	75.1	364	N/A	
GUDEPLNT	14:38	4/27/2017	41.9	29.4	1.7	27.0	-23.3	-23.29	>>>>	84	84.1	335	N/A	
GUDEPLNT	16:23	5/15/2017	42.8	29.9	1.4	25.9	-21.07	-21.07	>>>>	78.3	78.4	323	N/A	
GUDEPLNT	7:59	5/26/2017	48.9	32.6	1.0	17.5	-20.46	-20.46	>>>>	70.6	70.7	341	N/A	

Pressure ≥ 0

Oxygen ≥ 5%

Temperature ≥ 131°F

**Gas Extraction Wells**  
January 2019

Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H2O)	Adjusted Static Press. (in. H2O)	Initial Diff. Press. (in. H2O)	Adjusted Diff. Press. (in. H2O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Initial Flow (scfm)	Adjusted Flow (scfm)	Available Vacuum (in. H2O)	Comments
GUDEDS02	10:43	1/7/2019	56.9	41.2	0	1.9	-58.03	-57.99	-0.014	-0.018	84.8	84.6	0	0	-57.98	*Fully Open/*Inc. Flow/Vac.
GUDEW001	14:16	1/21/2019	59.6	40	0.4	0	-46.24	-46.78	0.017	0.018	23.8	24.7	20.9	21.5	-47.1	*Inc. Flow/Vac.
GUDEW002	14:03	1/21/2019	0.4	3.3	23	73.3	-0.23	-0.25	-0.111	-0.022	64.6	64.8	<<<>	<<<>	-46.2	*Fully Closed/*Dec. Flow/Vac.
GUDEW003	13:36	1/21/2019	0.6	5.8	20.1	73.5	-47.22	-47.09	>>>>	>>>>	64.3	64.1	N/A	N/A	-46.69	*Fully Closed/*Dec. Flow/Vac.
GUDEW004	14:42	1/7/2019	66.4	20.7	3.7	9.2	-22.32	-23.1	0.03	0.03	86.7	87	29.6	29.6	-22.62	*No Adj. Made
GUDEW005	13:46	1/28/2019	0	0.4	21.7	77.9	-13.45	-13.04	0.165	0.156	61.4	61.4	24.2	24.3	-26.16	*Fully Closed/*Dec. Flow/Vac.
GUDEW006	13:40	1/28/2019	25	21.8	0	53.2	-0.08	-0.09	0.007	0.007	61.2	61.2	1	1	-2.44	*No Adj. Made
GUDEW010	14:36	1/7/2019	23.1	10.1	15	51.8	-9.28	-9.23	0.029	0.027	86.4	86.4	27	26.1	-8.42	*Barely Open/*No Adj. Made
GUDEW011	14:30	1/7/2019	21	23.7	0	55.3	-0.32	-0.42	0.027	0.029	87.1	87.2	2.1	2.2	-4.74	*Barely Open/*Inc. Flow/Vac.
GUDEW012	14:28	1/7/2019	11.3	20.2	0.3	68.2	0	-0.04	0.022	0.133	84.6	86	8.6	22	-0.27	*Inc. Flow/Vac.
GUDEW015	13:37	1/28/2019	25.1	21.4	0	53.5	-0.14	-0.14	0.008	0.008	60.6	60.6	5.3	5.3	-0.13	*No Adj. Made
GUDEW016	13:33	1/28/2019	47.1	22.4	0	30.5	-1.75	-3.6	1.719	3.941	63.2	63.2	89.1	135.6	-19.23	*Inc. Flow/Vac.
GUDEW017	13:27	1/28/2019	49.9	25.2	0.3	24.6	-14.89	-13.77	>>>>	>>>>	55.5	55.6	N/A	N/A	-21	*No Adj. Made
GUDEW018	13:25	1/28/2019	54.1	31.4	1.9	12.6	-19.6	-19.14	0.037	0.033	56	56	2.6	2.5	-21.52	*No Adj. Made
GUDEW021	11:57	1/26/2019	62.6	36.5	0.9	0	-32.36	-32.39	-0.002	0.001	50.6	50.5	<<<>	2.2	-32.26	*Inc. Flow/Vac.
GUDEW022	12:16	1/26/2019	55.7	30.5	2.7	11.1	-34.56	-34.56	0.043	0.039	52.5	52.5	13.1	12.4	-34.21	*No Adj. Made
GUDEW023	12:24	1/26/2019	56.6	43.1	0.3	0	-30.56	-30.48	1.576	3.988	52.1	52	80	128.7	-26.7	*Fully Open/*No Adj. Made
GUDEW024	12:42	1/26/2019	60.1	40	0	N/A	-0.21	-0.18	0.513	0.649	53.5	53.5	47.6	53.7	-15.14	*No Adj. Made
GUDEW025	13:09	1/28/2019	58.4	40.4	0.2	1	-8.99	-7.7	8.78	7.39	57.1	57	198.3	182	-10.43	*Inc. Flow/Vac.
GUDEW026	14:20	1/21/2019	36.6	19	11.9	32.5	-1.28	-1.27	0.026	0.022	64.8	65.3	10.2	9.4	-1.22	*Fully Closed/*No Adj. Made
GUDEW027	12:54	1/26/2019	1	6.7	15.8	76.5	-4.34	-3.84	-0.005	-0.009	51.8	51.8	<<<>	<<<>	-3.79	*Fully Closed/*Dec. Flow/Vac.
GUDEW028	13:51	1/28/2019	42.4	24.9	4.8	27.9	-13.69	-13.7	>>>>	>>>>	59.8	59.8	N/A	N/A	-31.13	*Fully Closed/*No Adj. Made
GUDEW029	12:57	1/26/2019	38.6	25	8.7	27.7	-26.78	-26.83	0.204	0.212	52.1	52.2	28.4	29	-26.86	*Fully Closed/*Dec. Flow/Vac.
GUDEW030	12:55	1/28/2019	58.4	41.1	0.5	0	-31.43	-31.38	>>>>	>>>>	55.3	55.3	N/A	N/A	-31.36	*Fully Open/*Inc. Flow/Vac.
GUDEW031	12:57	1/28/2019	60	39.9	0.1	0	-30.39	-30.31	0.04	0.029	55.5	55.5	12.3	10.6	-30.3	*Fully Open/*No Adj. Made
GUDEW032	13:05	1/28/2019	74.9	25	0.1	0	69.9	17.83	<<<<	<<<<	55.7	56.6	N/A	N/A	-8.35	*Inc. Flow/Vac.
GUDEW034	13:14	1/28/2019	50.4	35.6	0.3	13.7	-23.45	-23.45	0.051	0.051	56.9	56.9	14	14	-26.08	*No Adj. Made
GUDEW035	13:11	1/28/2019	69.6	29.9	0	0.5	8.24	-11.85	-8.466	>>>>	57	57.1	<<<>	N/A	-11.79	*Inc. Flow/Vac.
GUDEW036	13:49	1/28/2019	65.7	28.9	0.9	4.5	-29.76	-29.84	0.016	0.015	60.6	60.5	20.9	20.2	-29.85	*Fully Open/*Inc. Flow/Vac.
GUDEW037	13:17	1/28/2019	58.7	36.5	0	4.8	-21.56	-23.85	0.065	0.053	56.4	56.3	42.3	38.2	-24.52	*Inc. Flow/Vac.
GUDEW038	13:20	1/28/2019	46.6	22.4	3.3	27.7	-1.17	-1.06	0.921	0.646	56	56	65.1	54.3	-24.66	*Fully Closed/*No Adj. Made
GUDEW039	13:43	1/28/2019	0.3	4.2	17.9	77.6	-0.66	-0.2	-0.099	-0.063	62.1	62.1	<<<>	<<<>	-22.54	*Fully Closed/*Dec. Flow/Vac.
GUDEW050	14:09	1/21/2019	42.1	29.5	6.4	22	-0.96	-0.93	0.028	0.021	71.5	70.7	27.1	23.4	-46.85	*Fully Closed/*No Adj. Made
GUDEW051	13:59	1/21/2019	46.1	23.5	7.4	23	-3.87	-2.72	3.343	2.06	60.3	59.6	123.6	96.8	-47.95	*Fully Closed/*Dec. Flow/Vac.
GUDEW052	13:51	1/21/2019	58.3	41.7	0	0	-46.74	-46.99	>>>>	>>>>	72	71.1	N/A	N/A	-47.05	*Inc. Flow/Vac.
GUDEW054	14:24	1/21/2019	22.6	12	15.4	50	-1.31	-1.03	0.016	0.006	79.5	80.3	7.7	4.5	-1.21	*Fully Closed/*Dec. Flow/Vac.
GUDEW057	13:53	1/28/2019	5.2	9.6	14.6	70.6	-32	-30.33	>>>>	>>>>	60.2	60.6	N/A	N/A	-32.25	*Fully Closed/*Dec. Flow/Vac.
GUDEW062	13:45	1/28/2019	0	0.8	21.6	77.6	-24.62	-23.25	0.223	0.216	62	62	28.7	28.3	-25.22	*Fully Closed/*Dec. Flow/Vac.
GUDEW070	14:12	1/21/2019	0.5	3.9	22.4	73.2	-38.26	-37.67	-0.17	-0.169	29	29	<<<>	<<<>	-47.37	*Fully Closed/*No Adj. Made
GUDEW071	13:54	1/21/2019	62.3	37.6	0.1	0	-47.18	-46.58	0.016	-0.194	64.5	61.8	7.6	<<<>	-46.57	*Inc. Flow/Vac.
GUDEW072	13:48	1/21/2019	56.8	43	0.2	0	-46.08	-46.93	>>>>	>>>>	79.2	78.5	N/A	N/A	-46.73	*Inc. Flow/Vac.
GUDEW073	13:40	1/21/2019	59.5	40.3	0.2	0	-37.94	-37.86	0.021	0.012	62.9	63.2	8.6	6.5	-38.09	*Fully Open/*Inc. Flow/Vac.
GUDEW074	12:52	1/26/2019	16.8	14.7	13.4	55.1	-11.15	-11.11	0.201	0.304	51.9	51.9	28.2	34.8	-24.13	*Dec. Flow/Vac.

Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H <sub>2</sub> O)	Adjusted Static Press. (in. H <sub>2</sub> O)	Initial Diff. Press. (in. H <sub>2</sub> O)	Adjusted Diff. Press. (in. H <sub>2</sub> O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Initial Flow (scfm)	Adjusted Flow (scfm)	Available Vacuum (in. H <sub>2</sub> O)	Comments
GUDEW075	12:50	1/28/2019	57.5	37.2	1.2	4.1	-32.57	-32.71	>>>>	>>>>	54.3	54.4	N/A	N/A	-32.48	*Inc. Flow/Vac.
GUDEW076	12:52	1/28/2019	58.1	41.3	0.3	0.3	-32.5	-32.48	0.044	0.043	54.6	54.6	33.6	33.4	-32.13	*Fully Open/*No Adj. Made
GUDEW100	9:51	1/7/2019	20.8	17.2	13.1	48.9	-57.9	-57.94	-0.063	-0.049	91.7	91.5	0	0	-57.95	*Barely Open/*No Adj. Made
GUDEW101	9:54	1/7/2019	53.9	35.1	1.3	9.7	-57.8	-57.89	-0.06	0.044	89.6	89.2	0	5.9	-57.91	*Inc. Flow/Vac.
GUDEW102	9:57	1/7/2019	60.3	39.6	0	0.1	-57.93	-57.7	-0.015	-0.034	89.9	90	0	0	-57.24	*Fully Open/*No Adj. Made
GUDEW103	10:05	1/7/2019	56.7	38.2	0.1	5	-57.55	-57.56	-0.046	-0.043	89.6	89.6	0	0	-57.54	*Fully Open/*Inc. Flow/Vac.
GUDEW104	10:09	1/7/2019	29.2	16.4	12.6	41.8	-57.29	-57.87	-0.073	-0.06	89.2	89.3	0	0	-57.85	*Barely Open/*No Adj. Made
GUDEW105	10:28	1/7/2019	3.5	9	10.3	77.2	-53.09	-53.12	-0.024	-0.024	80.2	80.4	0	0	-58.02	*Barely Open/*No Adj. Made
GUDEW106	10:40	1/7/2019	19.9	24.1	0.1	55.9	-12.17	-13.13	-0.032	-0.031	85.6	85.7	0	0	-57.99	*Barely Open/*Inc. Flow/Vac.
GUDEW107	10:50	1/7/2019	2.5	12	12.2	73.3	-5.46	-5.46	-0.02	-0.021	86.1	86.2	0	0	-58.2	*Fully Closed/*No Adj. Made
GUDEW108	11:07	1/7/2019	27.9	35.5	1.7	34.9	-44.43	-43.76	-0.039	-0.039	85.2	85.3	0	0	-57.89	*Barely Open/*No Adj. Made
GUDEW109	11:18	1/7/2019	45.6	41.3	0.4	12.7	-58.08	-58	-0.04	-0.042	90.4	90.4	0	0	-58	*Fully Open/*No Adj. Made
GUDEW110	11:25	1/7/2019	29	32.7	2.6	35.7	-38.52	-40.52	-0.027	-0.028	90.4	90.4	0	0	-57.58	*Inc. Flow/Vac.
GUDEW111	11:28	1/7/2019	48.5	36.4	3.2	11.9	-57.93	-57.81	-0.065	-0.039	91	91.1	0	0	-57.8	*Dec. Flow/Vac.
GUDEW112	11:31	1/7/2019	51.7	41.3	0.2	6.8	-57.46	-57.14	-0.02	-0.023	91.4	91.3	0	0	-57.15	*No Adj. Made
GUDEW113	11:33	1/7/2019	54.2	41.7	0.2	3.9	-57.78	-57.8	-0.033	-0.034	91.5	91.5	0	0	-57.8	*Fully Open/*No Adj. Made
GUDEW114	11:35	1/7/2019	37.7	34.6	0	27.7	-0.32	-2.42	-0.032	-0.028	91.4	91.4	0	0	-57.61	*Inc. Flow/Vac.
GUDEW115	11:37	1/7/2019	1.7	21.3	1.6	75.4	-0.13	-3.48	-0.026	-0.024	91	91.1	0	0	-57.65	*Barely Open/*Inc. Flow/Vac.
GUDEW116	11:41	1/7/2019	9.8	22.1	2.1	66	-0.48	-0.55	-0.025	-0.026	77.3	80.3	0	0	-57.79	*Barely Open/*Inc. Flow/Vac.
GUDEW117	10:03	1/7/2019	0.3	7.4	14.2	78.1	-0.13	-0.13	-0.021	-0.022	89.9	89.9	0	0	-57.4	*Fully Closed/*No Adj. Made
GUDEW118	10:07	1/7/2019	15	17.9	11	56.1	-16.17	-15.46	-0.015	-0.02	89	88.7	0	0	-58.48	*Barely Open/*Dec. Flow/Vac.
GUDEW119	10:12	1/7/2019	54.9	39.1	0.1	5.9	-57.28	-57.65	-0.039	-0.037	89.6	89.5	0	0	-57.05	*Inc. Flow/Vac.
GUDEW120	10:37	1/7/2019	0.3	4.6	18	77.1	-0.51	-0.5	-0.034	-0.032	85.6	85.6	0	0	-57.97	*Fully Closed/*No Adj. Made
GUDEW121	10:46	1/7/2019	1.4	6.2	17.6	74.8	-0.1	-0.09	-0.02	-0.021	86	86.2	0	0	-58.25	*Barely Open/*No Adj. Made
GUDEW122	11:20	1/7/2019	47.4	36.4	0	16.2	-57.94	-57.86	-0.042	-0.031	90.6	90.7	0	0	-57.87	*No Adj. Made
GUDEW123	10:55	1/7/2019	2.2	6.9	16.3	74.6	-0.12	-0.09	-0.016	-0.02	85.8	85.9	0	0	-58.2	*Fully Closed/*No Adj. Made
GUDEW124	11:02	1/7/2019	0.8	9.9	15.6	73.7	-49.96	-37.34	-0.042	-0.04	85.8	85.8	0	0	-57.73	*Barely Open/*Dec. Flow/Vac.
GUDEW125	10:52	1/7/2019	16.5	12.4	12.7	58.4	-3.97	-2.7	-0.034	-0.034	87	87	0	0	-57.93	*Barely Open/*No Adj. Made
GUDEW126	10:58	1/7/2019	64.3	35.6	0	0.1	8.72	-24.9	-0.042	-1.451	85.1	85.1	0	0	-55.84	*Inc. Flow/Vac.
GUDEW127	11:05	1/7/2019	17	18.6	13.9	50.5	-57.85	-57.8	-0.022	-0.023	85.9	85.9	0	0	-57.8	*Fully Closed/*No Adj. Made
GUDEW128	11:11	1/7/2019	8.5	17.9	3.4	70.2	-6.59	-6.6	-0.038	-0.037	89	89.4	0	0	-57.54	*Fully Closed/*No Adj. Made
GUDEW129	11:13	1/7/2019	62.4	37.6	0	0	7.93	-30.82	-0.04	-0.071	91.4	91.6	0	0	-57.49	*Inc. Flow/Vac.
GUDEW130	11:16	1/7/2019	65.4	30.7	2	1.9	-57.89	-57.85	-0.033	-0.029	91.9	92	0	0	-57.85	*Fully Open/*No Adj. Made
GUDEW131	13:20	1/21/2019	34	20.2	0.5	45.3	-2.08	-2.09	-0.011	-0.011	71.6	71.6	0	0	-2.54	*Barely Open/*No Adj. Made
GUDEW132	13:24	1/21/2019	56.7	24.1	1.2	18	-45.59	-46.07	-0.021	-0.016	65.2	64.4	0	0	-45.5	*Inc. Flow/Vac.
GUDEW133	10:35	1/7/2019	0.9	7.1	19.4	72.6	-49.16	-46.54	-0.169	-0.155	86	85.9	0	0	-58.04	*Barely Open/*Dec. Flow/Vac.
GUDEW134	10:31	1/7/2019	0.1	2.3	22.5	75.1	-0.81	-0.33	-0.029	-0.028	84.8	84.8	0	0	-58.2	*Fully Closed/*No Adj. Made
GUDEW135	9:48	1/7/2019	31.5	18.3	10.8	39.4	-16.11	-16.04	-0.027	-0.028	89	89.1	0	0	-57.76	*Barely Open/*No Adj. Made
GUDEW137	11:59	1/26/2019	56.8	43.2	0	0	-38.08	-38.11	-0.06	-0.06	50.3	50.2	0	0	-38	*Fully Open/*Inc. Flow/Vac.
GUDEW138	12:02	1/26/2019	56.5	43.5	0	0	-27.65	-29.15	0.255	0.289	50.9	51	15.2	16.1	-31.68	*Inc. Flow/Vac.
GUDEW139	12:06	1/26/2019	57.8	41.7	0.5	0	-29.1	-30.5	-0.03	-0.198	50.7	50.7	0	0	-31.52	*Inc. Flow/Vac.
GUDEW140	13:01	1/26/2019	56.9	37.9	2.1	3.1	-29.43	-28.99	0.244	0.246	52.9	52.9	15	15.1	-29.84	*No Adj. Made
GUDEW141	12:08	1/26/2019	58.8	40.6	0.6	0	-36.26	-36.3	-0.011	-0.002	50.9	51	0	0	-36.3	*Fully Open/*No Adj. Made
GUDEW142	12:11	1/26/2019	56.9	43	0.1	0	1.93	-1.4	-0.001	-0.006	51.3	51.3	0	0	-33.48	*Inc. Flow/Vac.
GUDEW143	12:20	1/26/2019	56.3	43.7	0	0	-30.8	-30.8	0.063	0.055	52.3	52.3	7.5	7	-30.79	*Fully Open/*No Adj. Made
GUDEW144	12:27	1/26/2019	51.3	41.1	1.5	6.1	-1.4	-1.44	-0.284	-0.488	52.3	52.4	0	0	-22.5	*No Adj. Made
GUDEW145	12:29	1/26/2019	55.3	44.9	0	N/A	-29.18	-28.29	-1.827	-2.117	52.2	52.2	0	0	-29.89	*Inc. Flow/Vac.
GUDEW146	12:39	1/26/2019	57.2	34.8	0	8	0.65	0.18	-0.011	-0.033	52.6	52.8	0	0	-3.55	*Inc. Flow/Vac.
GUDEW147	12:44	1/26/2019	59.6	40.2	0.2	0	0.49	-0.11	-0.213	-0.587	53.5	53.5	0	0	-7.9	*Inc. Flow/Vac.
GUDEW148	12:45	1/26/2019	56.6	39.3	0	4.1	-0.31	-2.12	-0.883	-2.313	53.4	53.5	0	0	-7.25	*Inc. Flow/Vac.
GUDEW149	12:47	1/26/2019	52.3	26.2	3.3	18.2	-6.5	-5.46	-0.163	-0.363	53.9	53.9	0	0	-7.44	*Dec. Flow/Vac.
GUDEW150	13:27	1/21/2019	62.1	26.6	2.6	8.7	-32.52	-32.51	-0.009	-0.009	60.5	60.4	0	0	-46.75	*No Adj. Made
GUDEW151	13:31	1/21/2019	37.3	28.1	1.2	33.4	-29.69	-28.09	-0.018	-0.011	70.7	71.4	0	0	-46.34	*Barely Open/*Dec. Flow/Vac.
GUDEW152	14:45	1/7/2019	49	32.1	4.1	14.8	-3.21	-2.15	-2.028	-1.503	86.4	86.7	0	0	-22.14	*Dec. Flow/Vac.
GUDEW153	14:47	1/7/2019	30.7	18.5	12	38.8	-0.91	-0.37	-0.025	-0.025	87.2	87.1	0	0	-23.47	*Fully Closed/*Dec. Flow/Vac.

Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H2O)	Adjusted Static Press. (in. H2O)	Initial Diff. Press. (in. H2O)	Adjusted Diff. Press. (in. H2O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Initial Flow (scfm)	Adjusted Flow (scfm)	Available Vacuum (in. H2O)	Comments
GUDEW154	12:12	1/26/2019	14	12.9	14.4	58.7	-3.52	-3.51	3.542	3.538	51.9	51.9	122.8	122.7	-34.22	*Fully Closed/*No Adj. Made
GUDEW156	11:00	1/7/2019	34.6	32.7	1	31.7	-11.48	-13.19	-0.021	-0.019	85.6	85.8	0	0	-58.17	*Inc. Flow/Vac.
GUDEW157	10:33	1/7/2019	34.1	32.5	2.4	31	-58.43	-58.39	-0.04	-0.038	85.3	85.3	0	0	-57.64	*Barely Open/*No Adj. Made
GUDEW158	14:37	1/7/2019	21.9	10.1	15.3	52.7	-8.88	-8.83	0.027	0.026	86.5	86.5	9.9	9.7	-8.79	*Fully Closed/*No Adj. Made
GUDEW159	13:00	1/28/2019	47.4	19.3	5.2	28.1	-8.66	-8.62	0.004	-0.001	55.3	55.4	4.1	<<>>	-8.59	*Barely Open/*Dec. Flow/Vac.
GUDEFLAR	9:40	1/7/2019	37.4	26.7	4.7	31.2	-78.98	-78.64	>>>>	>>>>	64.3	64.2	431.8	431.8	N/A	
GUDEFLAR	17:48	1/17/2019	57.2	36.7	1.7	4.4	-37.99	-37.93	>>>>	>>>>	41	41.1	598	598	N/A	
GUDEFLAR	9:26	1/18/2019	42.1	30.6	3.7	23.6	-56.79	-57.57	>>>>	>>>>	67.5	67.5	426	426	N/A	
GUDEFLAR	15:37	1/18/2019	44.6	31.2	3.5	20.7	-48.33	-48.94	>>>>	>>>>	52.6	52.6	489.7	489.7	N/A	
GUDEFLAR	12:28	1/21/2019	41.9	31.2	4.1	22.8	-12.33	-14.51	>>>>	>>>>	48.6	47.9	389.4	389.4	N/A	
GUDEFLAR	18:24	1/22/2019	44	33.4	3.2	19.4	-0.49	-2.17	0.352	1.912	35.9	37.3	354	354	N/A	
GUDEFLAR	10:07	1/26/2019	58.6	41.3	0.1	0	-23.1	-23.73	>>>>	>>>>	38.8	38.8	534.2	534.2	N/A	
GUDEFLAR	17:07	1/28/2019	42.6	30.3	3.3	23.8	-59.62	-59.66	>>>>	>>>>	57.2	57.3	734.2	734.2	N/A	

Pressure ≥ 0

Oxygen ≥ 5%

Temperature ≥ 131° F

**Gas Extraction Wells**

February 2019

Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H2O)	Adjusted Static Press. (in. H2O)	Initial Diff. Press. (in. H2O)	Adjusted Diff. Press. (in. H2O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Initial Flow (scfm)	Adjusted Flow (scfm)	Available Vacuum (in. H2O)	Comments
GUEDS02	12:25	2/4/2019	54.7	39.4	0	5.9	-56.54	-56.54	0.001	0.004	73.7	73.7	0.9	1.9	-56.55	*Fully Open/*No Adj. Made
GUDEW001	12:33	2/22/2019	60.1	39.7	0.1	0.1	-34.7	-34.8	4.755	0.228	48	48	429	92	-34.75	*No Adj. Made
GUDEW002	12:34	2/22/2019	59.4	40.5	0	0.1	-34.8	-34.8	-0.563	-0.574	48	48	<<>>	<<>>	-34.42	*No Adj. Made
GUDEW003	12:36	2/22/2019	59.4	40.2	0.2	0.2	-34.9	-34.8	0.569	0.577	50	55	22	22	-34.78	*No Adj. Made
GUDEW004	14:19	2/11/2019	51.1	17.7	7.1	24.1	-34.01	-33.98	-0.007	-0.017	53.7	53.9	<<>>	<<>>	-33.83	*Barely Open/*Dec. Flow/Vac.
GUDEW005	12:42	2/8/2019	23.1	13	14.1	49.8	-2.47	-2.05	0.002	-0.005	67.3	67.5	2.6	<<>>	-31.82	*Dec. Flow/Vac.
GUDEW006	12:17	2/8/2019	27.3	22.4	0	50.3	-0.2	-0.2	0.006	0.007	69.7	69.7	1	1	-18.87	*Barely Open/*No Adj. Made
GUDEW010	12:13	2/8/2019	13.2	20.7	0.4	65.7	-1.49	-1.47	0.014	0.012	69.3	69.3	17.8	16.8	-6.96	*Barely Open/*No Adj. Made
GUDEW011	12:11	2/8/2019	13.7	22.1	0	64.2	-1.35	-1.39	0.018	0.013	69.6	69.6	1.7	1.4	-4.99	*Barely Open/*No Adj. Made
GUDEW012	12:09	2/8/2019	10.2	22	0	67.8	-2.67	-3.64	0.027	0.017	69.5	69.6	9.7	7.7	-9.58	*Barely Open/*Inc. Flow/Vac.
GUDEW015	12:21	2/8/2019	69.7	30	0.4	N/A	-31.95	-32.04	>>>>	>>>>	69.6	69.6	N/A	N/A	-32.24	*Inc. Flow/Vac.
GUDEW016	12:23	2/8/2019	43.3	21.8	0	34.9	-6.03	-6.06	3.535	3.531	69.7	69.7	126.2	126.2	-31.94	*No Adj. Made
GUDEW017	12:27	2/8/2019	40.3	25.1	0	34.6	-21.7	-21.71	>>>>	>>>>	69.4	69.4	N/A	N/A	-31.24	*No Adj. Made
GUDEW018	12:32	2/8/2019	37.3	22.3	9.1	31.3	-30.78	-28.89	-0.046	-0.034	69.4	69.4	<<>>	<<>>	-31.34	*Dec. Flow/Vac.
GUDEW021	12:00	2/11/2019	61.7	36	1.4	0.9	-42.23	-42.26	0.023	0.022	62.5	62.5	9.3	9	-42.26	*No Adj. Made
GUDEW022	17:01	2/4/2019	49.2	25.4	5.5	19.9	-47.86	-46.7	-0.016	-0.004	76.5	76.3	<<>>	<<>>	-47.94	*Dec. Flow/Vac.
GUDEW023	12:32	2/11/2019	55.4	44.6	0	0	-42.49	-40.33	3.011	0.853	55.4	55.4	108.7	57.1	-39.83	*Fully Open/*No Adj. Made
GUDEW024	12:42	2/11/2019	60.4	39.5	0.1	0	-1.14	-2.56	0.016	0.004	53.9	53.8	8	4.1	-39.53	*Inc. Flow/Vac.
GUDEW025	13:30	2/8/2019	58.3	40.6	0.2	0.9	-19.95	-19.98	0.016	-0.011	63.2	63.2	7.6	<<>>	-18.86	*Inc. Flow/Vac.
GUDEW026	12:28	2/22/2019	57.7	42	0.1	0.2	-32.9	-32.4	0.091	-0.641	49	50	19	<<>>	-32.95	*No Adj. Made
GUDEW027	13:52	2/8/2019	63.2	36.8	0	0	0.76	-4.4	0.003	-0.006	62.8	63	3.6	<<>>	-32.58	*Inc. Flow/Vac.
GUDEW028	14:11	2/11/2019	60.1	39.6	0.2	0.1	-37.18	-39.55	0.105	0.554	54.2	54.5	52.7	122.7	-39.44	*Inc. Flow/Vac.
GUDEW029	13:57	2/8/2019	63	37	0	0	50.16	-1.2	0.009	0.007	63.3	63.4	6.5	5.4	-31.96	*Inc. Flow/Vac.
GUDEW030	13:42	2/8/2019	58.2	40.1	0.8	0.9	-32.97	-32.95	0.014	0.006	61.7	61.7	18.7	11.7	-32.95	*Fully Open/*No Adj. Made
GUDEW031	13:39	2/8/2019	58.5	41.5	0	0	-32.62	-31.35	0.033	0.013	62	61.9	11.1	6.8	-32.64	*Inc. Flow/Vac.
GUDEW032	13:34	2/8/2019	34.9	15.4	11	38.7	-30.52	-30.39	>>>>	>>>>	64.1	64.1	N/A	N/A	-30.75	*Barely Open/*Dec. Flow/Vac.
GUDEW034	13:23	2/8/2019	50.3	34.3	1.7	13.7	-29.71	-29.7	0.031	0.03	62.6	62.6	10.6	10.5	-32.35	*No Adj. Made
GUDEW035	13:26	2/8/2019	31	14.3	11.9	42.8	-30.13	-27.36	0.003	0.005	63	63	9	11.1	-30.52	*Dec. Flow/Vac.
GUDEW036	13:13	2/8/2019	65.1	28.4	2	4.5	-32.48	-32.49	0.022	0.019	70	69.9	24.3	22.7	-32.48	*No Adj. Made
GUDEW037	13:16	2/8/2019	63.8	36.2	0	0	-30.96	-31.72	0.048	0.053	68.2	68	36	37.6	-32.08	*Inc. Flow/Vac.
GUDEW038	13:20	2/8/2019	62.9	23.5	2.9	10.7	-1.14	-19.09	0.044	2.671	65.5	65.3	14.2	112.1	-30.23	*Inc. Flow/Vac.
GUDEW039	12:37	2/8/2019	0.3	1.2	21.6	76.9	-1.44	-1.41	-0.025	-0.031	68.4	68.4	<<>>	<<>>	-19.03	*Fully Closed/*Dec. Flow/Vac.
GUDEW050	12:38	2/22/2019	16.3	11.6	14.3	57.8	-31.04	-31.04	0.006	0.004	65	65	<<>>	<<>>	-33.94	*No Adj. Made
GUDEW051	12:40	2/22/2019	56.3	43.6	0	0.1	-25.92	-25.51	0.033	0.029	65	65	10.7	10	-31.01	*No Adj. Made
GUDEW052	12:43	2/22/2019	56.4	43.5	0	0.1	-31.3	-31.36	0.078	-0.001	67	67	17.1	<<>>	-31.22	*No Adj. Made
GUDEW054	12:47	2/11/2019	67.8	32.1	0.1	0	-0.27	-24.26	0.037	-0.011	53.4	53.5	12.9	<<>>	-40.5	*Barely Open/*Inc. Flow/Vac.
GUDEW057	14:07	2/11/2019	63.5	34.2	1.4	0.9	-7.28	-11.48	0.02	-0.002	53.8	53.8	9.1	<<>>	-35.84	*Inc. Flow/Vac.
GUDEW062	12:40	2/8/2019	68.2	31.2	0.7	N/A	0.92	-0.14	0.01	0.008	67.8	67.6	6.5	5.7	-31.68	*Inc. Flow/Vac.
GUDEW070	12:45	2/22/2019	30.1	33.1	1.3	35.5	-3.5	-3.6	0.107	0.028	69	69	20	10	-26.75	*No Adj. Made
GUDEW071	12:48	2/22/2019	51.9	31.8	2.4	13.9	-32.4	-32.4	0.048	0.042	68	67	13.1	12.2	-32.65	*No Adj. Made
GUDEW072	12:50	2/22/2019	22.5	24.5	0	53	-11.4	-11.3	7.383	7.943	66	66	523	543	-31.48	*No Adj. Made
GUDEW073	12:51	2/22/2019	1.5	10.3	13.8	74.4	-2.4	-2.5	-0.601	-0.6	66	66	<<>>	<<>>	-31.26	*No Adj. Made
GUDEW074	14:04	2/11/2019	63.9	34.6	1.3	0.2	-8.86	-8.86	0.038	0.025	53.6	53.6	12.7	10.2	-39.59	*No Adj. Made






Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H2O)	Adjusted Static Press. (in. H2O)	Initial Diff. Press. (in. H2O)	Adjusted Diff. Press. (in. H2O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Initial Flow (scfm)	Adjusted Flow (scfm)	Available Vacuum (in. H2O)	Comments
GUDEW152	12:58	2/22/2019	31.9	22.2	7.5	38.4	-16.8	-16.9	-0.052	-0.034	66	66	<<>>	<<>>	-17.06	*No Adj. Made
GUDEW153	13:03	2/22/2019	54.5	37.9	0	7.6	-2.6	-2.6	-6.132	-4.224	65	66	<<>>	<<>>	-28.24	*No Adj. Made
GUDEW154	12:17	2/11/2019	32.7	22.3	4.6	40.4	-0.26	-0.24	-0.027	-0.029	58.4	58.4	<<>>	<<>>	-43.64	*Barely Open/*No Adj. Made
GUDEW156	13:12	2/4/2019	33.6	31.4	2.1	32.9	-21.5	-21.49	0.01	0.011	78.3	78.3	2.9	3.1	-56.23	*No Adj. Made
GUDEW157	13:07	2/22/2019	53.8	37.1	0.2	8.9	-2.7	-2.7	-0.012	-0.004	67	68	<<>>	<<>>	-28.43	*No Adj. Made
GUDEW158	14:14	2/8/2019	68.7	28.3	0.7	2.3	-0.36	-9.78	0.014	-0.001	65.1	64.9	7.9	<<>>	-8.43	*Inc. Flow/Vac.
GUDEW159	13:37	2/8/2019	68.2	21.9	2.5	7.4	-27.7	-27.57	-0.008	-0.009	61.9	61.9	<<>>	<<>>	-26.71	*No Adj. Made
GUDEFLAR	15:36	2/2/2019	49.7	33.1	2.8	14.4	-68.78	-68.81	>>>>	>>>>	60.4	60.4	620.4	620.4	N/A	
GUDEFLAR	11:18	2/11/2019	41.8	29.1	2.9	26.2	-44.9	-44.91	>>>>	>>>>	84.9	84.7	471.8	471.8	N/A	
GUDEFLAR	11:25	2/8/2019	40.6	29.7	3.1	26.6	-37	-37.07	>>>>	>>>>	78.2	78.1	427.3	427.3	N/A	
GUDEFLAR	11:12	2/4/2019	39.8	31.3	3.4	25.5	-82.93	-82.98	>>>>	>>>>	57.5	57.5	412.8	412.8	N/A	
GUDEFLAR	17:56	2/4/2019	37.8	27.7	5.2	29.3	-36.06	-36.15	>>>>	>>>>	67	67	424	424	N/A	
GUDEFLAR	12:21	2/22/2019	40.9	29.5	3.2	26.4	-36.4	-36.3	29.926	>>>>	70	69	408	408	N/A	
GUDEFLAR	11:25	2/23/2019	40.2	29.6	2.7	27.5	-32.53	-32.53	>>>>	>>>>	50.2	50.1	448.2	448.2	N/A	
GUDEFLAR	18:01	2/5/2019	41.7	28.7	3.2	26.4	-35.51	-35.51	>>>>	>>>>	72.9	72.9	430.8	430.8	N/A	
GUDEFLAR	8:05	2/6/2019	40.4	28.7	3.4	27.5	-37.68	-37.71	>>>>	>>>>	61.6	61.6	438	438	N/A	

Pressure ≥ 0

Oxygen ≥ 5%

Temperature ≥ 131°F



**APTIM**  
Gude Landfill  
Rockville, MD  
Gas Extraction Wells  
March 2019

Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H <sub>2</sub> O)	Adjusted Static Press. (in. H <sub>2</sub> O)	Initial Diff. Press. (in. H <sub>2</sub> O)	Adjusted Diff. Press. (in. H <sub>2</sub> O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Initial Flow (scfm)	Adjusted Flow (scfm)	Available Vacuum (in. H <sub>2</sub> O)	Comments
GUDEDS02	13:07	3/23/2019	59.3	38.9	0.4	1.4	-33.39	-33.4	-0.01	-0.01	56.6	56.6	0	0	-33.41	*Fully Open/*No Adj. Made
GUDEFLAR	9:30	3/5/2019	40.5	30.2	3.3	26	-38.73	-38.77	>>>>	>>>>	50.8	50.8	422	422	N/A	
GUDEFLAR	14:37	3/5/2019	42.3	31.4	2.7	23.6	-27.75	-27.76	>>>>	>>>>	63.8	64	423	423	N/A	
GUDEFLAR	13:46	3/23/2019	38	27.6	3.3	31.1	-34.32	-34.36	>>>>	>>>>	59.9	60	394.8	394.8	N/A	
GUDEFLAR	14:29	3/25/2019	40.9	29.5	3.4	26.2	-29.24	-29.23	>>>>	>>>>	74.7	74.6	402.5	402.5	N/A	
GUDEFLAR	11:25	3/29/2019	39.9	29.1	3.3	27.7	-27.18	-27.18	>>>>	>>>>	72.3	72.3	403.6	403.6	N/A	
GUDEW001	13:01	3/25/2019	54.8	35.6	2.4	7.2	-28.72	-28.61	0.456	0.227	75.4	75.4	110.3	77.2	-27.04	*No Adj. Made
GUDEW002	13:10	3/25/2019	67.9	32.1	0	0	-28.35	-28.39	0.523	0.529	72.9	72.9	123.8	124.5	-27.27	*Fully Open/*No Adj. Made
GUDEW003	13:41	3/25/2019	0.4	4	20.6	75	-0.88	-0.32	-0.016	-0.007	72.3	72.4	0	0	-28.24	*Fully Closed/*Dec. Flow/Vac.
GUDEW004	10:25	3/25/2019	10.7	5.1	16.7	67.5	-21.28	-16.71	0.011	0.011	68.1	68	16	16.1	-21.74	*Dec. Flow/Vac.
GUDEW005	10:28	3/25/2019	62.8	37.1	0.2	N/A	-19.87	-19.85	0.022	0.02	70.4	70.5	9.1	8.8	-19.69	*No Adj. Made
GUDEW006	10:38	3/25/2019	19.7	19.1	0	61.2	0.11	0.12	0.018	0.018	73	73.1	1.7	1.7	-13.38	*Fully Closed/*No Adj. Made
GUDEW010	14:08	3/23/2019	0	1.3	19.4	79.3	0.11	0.11	0.11	0.032	60.1	60.1	53.6	28.8	-8.04	*Fully Closed/*No Adj. Made
GUDEW011	14:07	3/23/2019	13.9	19.9	0	66.2	-1	-1	0.018	0.017	61.1	61.1	1.7	1.7	-8.01	*Barely Open/*No Adj. Made
GUDEW012	14:04	3/23/2019	11.5	18.9	0.7	68.9	-1.77	-2.32	0.388	0.204	60.2	60.2	39	28.1	-3.13	*Barely Open/*No Adj. Made
GUDEW015	10:41	3/25/2019	61.7	26.7	2.8	8.8	-27.23	-27.23	0.03	0.028	72.1	72.1	11	10.5	-27.1	*No Adj. Made
GUDEW016	10:52	3/25/2019	50.4	21.7	0.1	27.8	-3.88	-8.52	3.159	6.971	76	76.5	120.8	179.6	-26.18	*Inc. Flow/Vac.
GUDEW017	10:48	3/25/2019	38.1	22.8	0.6	38.5	-18.16	-19	>>>>	>>>>	73.5	73.5	N/A	N/A	-26.05	*No Adj. Made
GUDEW018	10:45	3/25/2019	0	0.4	20.2	79.4	-22.59	-21.13	-2.351	-5.982	71.9	71.9	<<<>	<<<>	-25.45	*No Adj. Made
GUDEW021	12:58	3/25/2019	55.1	31.6	3.4	9.9	-26.61	-26.54	0.581	0.469	74.6	74.5	48.5	43.5	-26.55	*Dec. Flow/Vac.
GUDEW022	12:37	3/25/2019	34.2	18.2	10.4	37.2	-23.26	-21.67	0.556	0.58	75.3	75	46.9	48.1	-27.42	*Fully Closed/*Dec. Flow/Vac.
GUDEW023	12:30	3/25/2019	66.9	32.7	0.3	0.1	-26.07	-26.06	0.197	0.27	79.1	79.1	28.6	33.6	-26.02	*Fully Open/*No Adj. Made
GUDEW024	12:12	3/25/2019	53.2	37.1	0.2	9.5	-1.8	-2.81	0.016	0.009	78.9	78.9	7.7	5.8	-24.34	*Inc. Flow/Vac.
GUDEW025	11:39	3/25/2019	57.9	40.3	0.3	1.5	-12.73	-12.67	0.016	0.012	79	80.1	7.7	6.5	-12.67	*No Adj. Made
GUDEW026	13:23	3/25/2019	67.7	31	0.9	0.4	-25.85	-25.26	0.724	0.425	76.6	76.7	56.1	42.8	-24.61	*No Adj. Made
GUDEW027	11:25	3/25/2019	7.8	5.7	17.7	68.8	-10.97	-8.6	0.019	0.009	79.8	80.2	8.1	5.5	-25.88	*Barely Open/*No Adj. Made
GUDEW028	11:15	3/25/2019	62.5	37.2	0.3	0	-19.34	-19.3	0.343	0.612	80.1	79.9	97.5	130.9	-19.05	*Fully Open/*No Adj. Made
GUDEW029	12:01	3/25/2019	39.3	24.8	8	27.9	-25.78	-25.36	0.02	0.011	82.1	82.2	8.4	6.1	-25.55	*Barely Open/*Dec. Flow/Vac.
GUDEW030	11:58	3/25/2019	57.5	39.1	1	2.4	-25.68	-25.68	0.024	0.021	79.7	80	24.4	22.6	-25.26	*Fully Open/*No Adj. Made
GUDEW031	11:54	3/25/2019	57.7	37.7	1.3	3.3	-22.02	-22.02	0.033	0.03	82.1	82.1	10.9	10.4	-25.64	*No Adj. Made
GUDEW032	11:52	3/25/2019	73.1	24.2	0.2	2.5	-12.55	-13.08	>>>>	>>>>	86.6	86.7	N/A	N/A	-24.25	*Inc. Flow/Vac.
GUDEW034	11:01	3/25/2019	48.9	34.8	0.7	15.6	-24.55	-24.55	0.305	0.305	78.8	78.8	34.1	34.1	-24.54	*No Adj. Made
GUDEW035	11:34	3/25/2019	71.5	27.1	0	1.4	20.2	-16.33	0.055	0.031	77.9	77.9	42.8	30.5	-22.96	*Inc. Flow/Vac.
GUDEW036	11:11	3/25/2019	58.2	26.6	3.3	11.9	-19.13	-18.97	0.097	0.019	79.3	81.7	52.1	22.4	-18.84	*Dec. Flow/Vac.
GUDEW037	11:03	3/25/2019	61.5	36	0.1	2.4	-25.61	-25.73	0.066	0.066	79.9	79.8	41.7	41.7	-25.76	*Fully Open/*Inc. Flow/Vac.
GUDEW038	10:58	3/25/2019	57.9	21.4	3.6	17.1	-0.93	-0.48	0.06	0.057	79.7	79.7	16.3	15.8	-26.39	*Barely Open/*Dec. Flow/Vac.
GUDEW039	10:33	3/25/2019	12.5	6.3	14.7	66.5	0.13	0.13	0.008	0.008	73.4	73.4	5.3	5.3	-12.93	*Fully Closed/*No Adj. Made
GUDEW050	13:07	3/25/2019	61.9	37.8	0.4	N/A	-0.43	-1.43	0.397	-0.14	73.7	73.4	107.9	<<<>	-24.59	*Inc. Flow/Vac.
GUDEW051	13:14	3/25/2019	68.7	31.3	0	0	0.58	-2.38	0.16	0.055	72.9	73.1	27	15.6	-25.09	*Inc. Flow/Vac.
GUDEW052	13:16	3/25/2019	61	38.8	0.2	0	-28.71	-28.69	0.825	0.537	73.5	73.5	150.1	120.8	-28.57	*Fully Open/*No Adj. Made
GUDEW054	13:26	3/25/2019	8	5.5	18.8	67.7	-25.99	-24.57	1.485	0.352	74.3	73.6	75.2	36.1	-23.5	*Dec. Flow/Vac.
GUDEW057	11:18	3/25/2019	35.7	20.2	9.2	34.9	-13.13	-13.09	0.032	0.026	79.8	79.8	11	9.9	-19.1	*Barely Open/*No Adj. Made
GUDEW062	10:31	3/25/2019	66.9	33	0.1	0	0.26	-16.63	0.02	-0.729	73.6	73.7	9.1	<<<>	-18.66	*Inc. Flow/Vac.
GUDEW070	13:05	3/25/2019	46.6	20.6	7.5	25.3	-6.29	-6.28	0.345	0.214	74.2	74.3	38.6	30.2	-27.58	*Barely Open/*No Adj. Made



Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H2O)	Adjusted Static Press. (in. H2O)	Initial Diff. Press. (in. H2O)	Adjusted Diff. Press. (in. H2O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Initial Flow (scfm)	Adjusted Flow (scfm)	Available Vacuum (in. H2O)	Comments
GUDEW143	12:34	3/25/2019	56.7	40.2	0.1	3	-26.52	-26.1	-0.261	-0.258	78.2	78.2	0	0	-25.36	*No Adj. Made
GUDEW144	12:24	3/25/2019	57.4	42.6	0	0	3.93	-1.37	-0.598	-0.711	76.2	75.9	0	0	-18.9	*Inc. Flow/Vac.
GUDEW145	12:27	3/25/2019	58.2	41.4	0	0.4	-20.1	-19.76	-1.252	-1.145	76.1	76.2	0	0	-19.4	*Fully Open/*No Adj. Made
GUDEW146	12:18	3/25/2019	60.1	39.8	0.2	N/A	-3.75	-3.72	-9.649	-9.182	77.4	77.4	0	0	-8.09	*No Adj. Made
GUDEW147	12:16	3/25/2019	3.7	19.4	0.2	76.7	-0.92	-0.92	-1.024	-1.018	78.1	78.1	0	0	-23.17	*Barely Open/*No Adj. Made
GUDEW148	12:05	3/25/2019	23.7	25.5	0	50.8	-7.24	-7.27	-5.431	-5.429	79.1	79	0	0	-24.6	*No Adj. Made
GUDEW149	12:07	3/25/2019	1	0.8	20.7	77.5	0.19	0.19	-0.013	-0.012	78.5	78.5	0	0	-24.51	*Fully Closed/*No Adj. Made
GUDEW150	13:52	3/25/2019	68.7	31.3	0	0	27.72	-3.8	-0.025	-0.118	71.2	70.9	0	0	-27.5	*Inc. Flow/Vac.
GUDEW151	13:55	3/25/2019	63.8	36.2	0	0	3.4	-7.08	-0.029	-0.082	70.7	70.3	0	0	-27.58	*Inc. Flow/Vac.
GUDEW152	10:15	3/25/2019	61.3	38.5	0.2	0	-2.51	-4.29	-0.039	0.032	65	64.9	0	5.6	-21.84	*Inc. Flow/Vac.
GUDEW153	10:17	3/25/2019	66	33.9	0.1	0	0.37	-10.72	-0.035	-0.033	65.1	65.4	0	0	-21.62	*Inc. Flow/Vac.
GUDEW154	12:42	3/25/2019	28.3	20.2	4.3	47.2	1.98	2.49	-1.457	-1.933	74.4	74.5	<<<>	<<<>	-27.22	*Fully Closed/*No Adj. Made
GUDEW156	13:20	3/23/2019	37	31.2	2.2	29.6	-16.62	-16.64	-0.016	-0.014	57.2	57.3	0	0	-33.58	*No Adj. Made
GUDEW157	12:58	3/23/2019	52.6	35.4	0.1	11.9	-33.74	-33.73	-0.022	-0.021	55.5	55.5	0	0	-33.71	*Fully Open/*No Adj. Made
GUDEW158	14:16	3/23/2019	18.2	7.1	15.8	58.9	-8.13	-8.27	-2.681	-2.353	59	59	<<<>	<<<>	-8.25	*Fully Closed/*Dec. Flow/Vac.
GUDEW159	11:42	3/25/2019	76.1	23.8	0	0.1	-18.18	-18.56	0.009	0.011	82.2	82.1	6.1	6.8	-18.73	*Fully Open/*Inc. Flow/Vac.

Pressure ≥ 0

Oxygen ≥ 5%

Temperature ≥ 131° F

**Gas Extraction Wells**

April 2019

Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H <sub>2</sub> O)	Adjusted Static Press. (in. H <sub>2</sub> O)	Initial Diff. Press. (in. H <sub>2</sub> O)	Adjusted Diff. Press. (in. H <sub>2</sub> O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Initial Flow (scfm)	Adjusted Flow (scfm)	Available Vacuum (in. H <sub>2</sub> O)	Comments
GUEDS02	11:51	4/2/2019	58.7	41.2	0.1	0	-26.92	-26.9	-0.022	-0.021	65.1	65.1	0	0	-26.58	*Fully Open/*No Adj. Made
GUDEFLAR	10:44	4/2/2019	37.7	27.8	3.8	30.7	-28.16	-28.16	>>>>	>>>>	65.1	65	414.9	414.9	N/A	
GUDEFLAR	10:09	4/8/2019	40.2	28.5	3.6	27.7	-26.09	-26.05	>>>>	>>>>	76.4	76.4	411.9	411.9	N/A	
GUDEFLAR	10:22	4/12/2019	38.4	28.2	3.3	30.1	-25.55	-25.58	>>>>	>>>>	69.9	69.9	410.6	410.6	N/A	
GUDEFLAR	12:17	4/25/2019	40.2	28.7	3.3	27.8	-19.67	-19.67	>>>>	>>>>	84.8	84.7	400	400	N/A	
GUDEFLAR	13:39	4/25/2019	41.1	28.9	3.2	26.8	-27.64	-27.67	>>>>	>>>>	82.1	82.1	400	400	N/A	
GUDEFLAR	13:26	4/26/2019	42.1	28.8	2.8	26.3	-32.81	-32.67	>>>>	>>>>	84.3	84.2	431.1	431.1	N/A	
GUDEW001	10:53	4/12/2019	53	34	3	10	-24.22	-23.98	0.036	0.032	73.5	73.5	30.4	30.4	-24.02	*Dec. Flow/Vac.
GUDEW002	10:43	4/12/2019	67.6	32	0.3	0.1	-24.46	-24.42	0.042	0.039	76.4	76.4	34.2	33.2	-24.39	*Fully Open/*No Adj. Made
GUDEW003	13:21	4/2/2019	0.3	4.2	20.7	74.8	-2.3	-1.84	-0.016	-0.015	67.2	67.2	0	0	-25.65	*Dec. Flow/Vac.
GUDEW003	10:32	4/12/2019	0.5	5.6	17.9	76	-2.33	-1.62	-0.014	-0.013	73.5	73.1	0	0	-23.94	*Barely Open/*Dec. Flow/Vac.
GUDEW004	13:09	4/2/2019	76.6	23.3	0.1	0	4.92	-14.29	0.032	0.026	65.9	65.7	32.9	28.8	-25.66	*Inc. Flow/Vac.
GUDEW005	13:04	4/2/2019	0	1	21.9	77.1	-11.15	-11.1	2.843	2.751	66.8	66.8	106.7	105	-22.31	*Fully Closed/*No Adj. Made
GUDEW006	12:59	4/2/2019	16.8	18.4	0	64.8	0	-0.02	0.452	0.385	66.4	66.4	9.2	8.5	-9.87	*No Adj. Made
GUDEW010	12:54	4/2/2019	10.4	19.5	0.4	69.7	-0.91	-0.92	0.037	0.034	66.9	66.9	30.2	29.2	-7.73	*No Adj. Made
GUDEW011	12:53	4/2/2019	10.7	20.2	0	69.1	-1.09	-1.08	0.033	0.031	66.7	66.7	2.3	2.3	-7.57	*No Adj. Made
GUDEW012	12:47	4/2/2019	10.3	18.6	2.5	68.6	-2.01	-2.74	2.657	2.612	65.9	65.9	103.3	102.2	-6.51	*No Adj. Made
GUDEW015	11:29	4/8/2019	34.4	15.4	9.9	40.3	-19.01	-17.24	-0.026	-0.043	86.8	87.3	<<>>	<<>>	-18.93	*Dec. Flow/Vac.
GUDEW016	11:49	4/8/2019	51.2	20.8	0.4	27.6	-6.44	-8.79	5.554	7.725	85.8	86	159.6	188.2	-18.45	*Inc. Flow/Vac.
GUDEW017	11:37	4/8/2019	42.8	22.8	0.1	34.3	-13.15	-13.17	>>>>	>>>>	86.7	86.7	N/A	N/A	-16.57	*No Adj. Made
GUDEW018	11:32	4/8/2019	61.4	30.9	1.4	6.3	-17.89	-18.1	0	-0.005	86.4	86.2	<<>>	<<>>	-18.11	*Inc. Flow/Vac.
GUDEW021	10:56	4/12/2019	34.3	20.1	9.3	36.3	-22.26	-22.02	0.95	0.932	75	75.6	61.5	60.9	-22.27	*Barely Open/*Dec. Flow/Vac.
GUDEW022	11:05	4/12/2019	67.4	32.6	0	0	2.9	-23.59	-0.075	0.785	77.9	77.6	<<>>	58.3	-24.05	*Barely Open/*Inc. Flow/Vac.
GUDEW023	12:59	4/8/2019	66.4	31	0.7	1.9	-18.58	-18.58	0.008	0.007	93.5	93.5	5.6	5.1	-18.57	*Fully Open/*No Adj. Made
GUDEW024	12:48	4/8/2019	54	37.6	0	8.4	-2.3	-4.08	-0.001	-0.011	93.9	93.8	<<>>	<<>>	-17.16	*Inc. Flow/Vac.
GUDEW025	12:09	4/8/2019	58.6	40.9	0	0.5	-8.68	-8.6	-0.002	-0.008	88.8	89	<<>>	<<>>	-10.04	*No Adj. Made
GUDEW026	10:41	4/8/2019	68.3	31	0.3	0.4	-21.09	-20.98	0.01	-0.005	85.2	85.2	6.3	<<>>	-20.74	*Fully Open/*No Adj. Made
GUDEW027	10:50	4/8/2019	7.8	5.6	17.1	69.5	-1.84	-1.24	-0.004	-0.012	86.6	86.7	<<>>	<<>>	-20.31	*Dec. Flow/Vac.
GUDEW028	11:10	4/8/2019	59.4	34.2	0.7	5.7	-20.08	-20.03	-0.001	0.218	86.5	86.3	<<>>	77.1	-20.02	*No Adj. Made
GUDEW029	12:31	4/8/2019	25.8	14.6	11.6	48	-17.9	-16.22	-0.008	-0.016	90.9	91	<<>>	<<>>	-18.56	*Fully Closed/*Dec. Flow/Vac.
GUDEW030	12:24	4/8/2019	56.9	39.3	0.9	2.9	-19.13	-19.12	-0.011	-0.01	88.6	88.6	<<>>	<<>>	-18.97	*No Adj. Made
GUDEW031	12:19	4/8/2019	59	39.1	0.6	1.3	-15.85	-15.84	-0.004	-0.006	90.5	90.3	<<>>	<<>>	-18.76	*No Adj. Made
GUDEW032	12:15	4/8/2019	37.2	15.5	9.6	37.7	-15.42	-14.41	>>>>	>>>>	91.8	92.7	N/A	N/A	-14.35	*Dec. Flow/Vac.
GUDEW034	12:01	4/8/2019	49.1	35.1	0.5	15.3	-17.89	-17.87	0.504	0.503	89.4	89.5	44.1	44	-18.97	*No Adj. Made
GUDEW035	12:05	4/8/2019	43.6	18.1	7.6	30.7	-15.52	-10.58	0.025	0.005	89.8	89.6	25.6	10.9	-16.07	*Dec. Flow/Vac.
GUDEW036	11:15	4/8/2019	66.9	29.7	0.8	2.6	-19.99	-20.01	-0.004	-0.015	84.1	84	<<>>	<<>>	-20.05	*Fully Open/*No Adj. Made
GUDEW037	11:59	4/8/2019	62.1	35.5	0	2.4	-18.73	-18.72	0.053	0.048	88	88	37.5	35.6	-18.64	*No Adj. Made
GUDEW038	11:53	4/8/2019	60.9	20.4	3.9	14.8	-1.27	-1.24	0.063	0.064	88	88	16.7	16.8	-19.16	*Barely Open/*No Adj. Made
GUDEW039	11:25	4/8/2019	59.1	20	0	20.9	0.57	-0.01	0.007	0.024	84.4	85.1	5.4	10.2	-0.08	*Inc. Flow/Vac.
GUDEW050	10:49	4/12/2019	18.7	12	14.3	55	-1.75	-1.09	0.091	0.076	74	73.7	49.1	44.8	-20.87	*Fully Closed/*Dec. Flow/Vac.
GUDEW051	10:41	4/12/2019	70.7	29.3	0	0	-0.11	-0.19	0.033	0.024	76.8	77.2	12.1	10.2	-21.53	*Inc. Flow/Vac.
GUDEW052	10:38	4/12/2019	60.8	38.3	0.6	0.3	-24.48	-24.47	0.029	0.028	74.5	74.6	27.3	26.7	-24.48	*Fully Open/*No Adj. Made
GUDEW054	10:44	4/8/2019	70.3	29.7	0	0	0.19	-18.26	-0.004	-0.009	85.1	84.5	<<>>	<<>>	-20.77	*Inc. Flow/Vac.
GUDEW057	11:08	4/8/2019	37.1	21	8.3	33.6	-13.37	-9.88	0.008	-0.004	88	88.1	5.4	<<>>	-19.95	*Dec. Flow/Vac.
GUDEW062	13:02	4/2/2019	0	1.2	21.7	77.1	-22.52	-22.51	2.749	2.744	66.6	66.7	103.4	103.3	-22.27	*Dec. Flow/Vac.
GUDEW070	10:47	4/12/2019	39.2	17.9	8.8	34.1	-3.19	-2.64	0.277	0.264	75.5	75.2	34.2	33.4	-21.02	*Dec. Flow/Vac.
GUDEW071	10:35	4/12/2019	55.1	31	3	10.9	-24.47	-24.31	0.038	0.018	73.5	73.2	12.1	8.2	-24.22	*Dec. Flow/Vac.
GUDEW072	10:37	4/8/2019	63.3	36.6	0	0.1	30.86	-4.9	0.067	-0.013	79.7	83.2	45.2	<<>>	-23.64	*Inc. Flow/Vac.



Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H <sub>2</sub> O)	Adjusted Static Press. (in. H <sub>2</sub> O)	Initial Diff. Press. (in. H <sub>2</sub> O)	Adjusted Diff. Press. (in. H <sub>2</sub> O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Initial Flow (scfm)	Adjusted Flow (scfm)	Available Vacuum (in. H <sub>2</sub> O)	Comments
GUDEW150	13:31	4/2/2019	46.7	22	6.7	24.6	-25.79	-24.35	-0.044	-0.019	64.4	64.3	0	0	-25.49	*Barely Open*/Dec. Flow/Vac.
GUDEW151	13:26	4/2/2019	28.4	24.3	1.8	45.5	-24.4	-24.39	-0.029	-0.027	66	66	0	0	-25.64	*No Adj. Made
GUDEW152	13:18	4/2/2019	21.9	14.6	13.4	50.1	-11.71	-10.51	>>>>	-10.037	67	67	N/A	0	-25.83	*Dec. Flow/Vac.
GUDEW153	13:15	4/2/2019	8.4	4.7	19.4	67.5	-6.47	-4.58	-0.039	-0.028	66.2	66.2	0	0	-25.68	*Barely Open*/Dec. Flow/Vac.
GUDEW154	11:17	4/12/2019	32	21.9	4.1	42	-0.09	-0.09	-0.027	-0.027	76.8	76.7	<<<>	<<<>	-23.88	*Fully Closed*/No Adj. Made
GUDEW156	12:06	4/2/2019	39.1	33.5	1.6	25.8	-13.9	-13.88	-0.03	-0.027	66.5	66.5	0	0	-26.31	*No Adj. Made
GUDEW157	11:43	4/2/2019	47.1	34.7	1.9	16.3	-27.23	-27.18	0.158	-0.021	67.3	67.3	11.8	0	-27.01	*No Adj. Made
GUDEW157	12:58	4/22/2019	47	34.9	2	16.1	-23.03	-23	-0.053	-0.042	77.8	77.6	0	0	-23.02	*Fully Open*/Inc. Flow/Vac.
GUDEW158	13:12	4/2/2019	13.8	6	17.6	62.6	-10.55	-10.03	0.035	0.028	65.8	65.8	11.5	10.3	-10.48	*Barely Open*/Dec. Flow/Vac.
GUDEW159	12:10	4/8/2019	74.8	25.2	0	0	-10.18	-10.21	0.022	0.013	90.1	90.1	9.7	7.4	-10.45	*Fully Open*/No Adj. Made

Pressure ≥ 0

Oxygen ≥ 5%

Temperature ≥ 131° F



**Gas Extraction Wells**

June 2019

Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H <sub>2</sub> O)	Adjusted Static Press. (in. H <sub>2</sub> O)	Initial Diff. Press. (in. H <sub>2</sub> O)	Adjusted Diff. Press. (in. H <sub>2</sub> O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Initial Flow (scfm)	Adjusted Flow (scfm)	Available Vacuum (in. H <sub>2</sub> O)	Comments
GUEDS02	12:26	6/3/2019	57.4	42.6	0	0	-27.99	-27.92	0.019	0.015	80.8	80.8	4.1	3.6	-27.75	*Fully Open/**No Adj. Made
GUDEW001	14:30	6/6/2019	54.9	32.5	2.2	10.4	-32.1	-32.11	0.087	0.086	96.6	96.7	46.5	46.4	-34.33	*No Adj. Made
GUDEW002	14:16	6/6/2019	68.7	27.2	0.1	4	57.94	57.96	0.005	0.002	98.1	98.1	12.2	7.2	-34.14	*Fully Closed/**No Adj. Made
GUDEW003	13:50	6/6/2019	0.2	1.4	20.2	78.2	-1.94	-1.35	-0.027	0.006	93	92.8	0	2.3	-34.4	*Dec. Flow/Vac.
GUDEW004	14:56	6/24/2019	28.3	20.2	4.3	47.2	-29.17	-29.15	-0.004	-0.004	72.3	72.3	<<>>	<<>>	-31.8	*Fully Closed/**No Adj. Made
GUDEW005	14:14	6/24/2019	0.5	5.6	17.9	76	-27.38	-27.46	>>>>	>>>>	72.4	72.6	N/A	N/A	-31.6	*Fully Closed/**No Adj. Made
GUDEW006	12:35	6/7/2019	25.6	17	0.2	57.2	-0.1	-0.09	0.013	0.011	92.7	92.7	1.5	1.4	-2.65	*No Adj. Made
GUDEW006	14:23	6/24/2019	38.4	32.3	0	29.3	-0.18	-0.15	0.059	0.053	75.7	75.7	3.3	3.1	-31.4	*No Adj. Made
GUDEW010	14:37	6/6/2019	2.6	5.8	12.8	78.8	0.08	0.07	-0.021	-0.021	97.2	97.2	<<>>	<<>>	-25.47	*Fully Closed/**No Adj. Made
GUDEW011	13:43	6/3/2019	16	19.9	0	64.1	-0.75	-0.72	0	-0.001	85.4	85.3	<<>>	<<>>	-18.18	*No Adj. Made
GUDEW012	13:40	6/3/2019	5.6	14	5.2	75.2	-2.77	-0.28	2.634	0.098	86.4	87.2	100.7	18.8	-19.22	*Dec. Flow/Vac.
GUDEW015	12:41	6/7/2019	50.6	22.1	4.7	22.6	-17.29	-15.67	0.04	0.01	93.1	93.2	12.5	6.1	-31.78	*Dec. Flow/Vac.
GUDEW016	12:53	6/7/2019	37.5	19.6	0.5	42.4	-15.08	-15.08	>>>>	>>>>	96.4	96.4	N/A	N/A	-31.88	*No Adj. Made
GUDEW017	12:50	6/7/2019	0	0.1	20.3	79.6	-0.07	-0.06	-0.001	-0.003	93.6	93.6	<<>>	<<>>	-31.74	*Fully Closed/**No Adj. Made
GUDEW018	12:43	6/7/2019	56.5	27.3	1.9	14.3	-31.49	-31.49	0.006	0.004	92.9	92.9	0.9	0.8	-31.51	*Fully Open/**No Adj. Made
GUDEW021	13:58	6/4/2019	65.1	32.4	0	2.5	56.12	56.14	-1.969	-1.969	90.4	90.4	<<>>	<<>>	-30.03	*Fully Closed/**No Adj. Made
GUDEW021	14:02	6/4/2019	68.6	31.4	0	0	-3.69	-3.73	0.425	0.431	89.7	89.7	43.5	43.8	-29.38	*Inc. Flow/Vac.
GUDEW022	13:28	6/4/2019	68.7	31.3	0	0	50.06	50.1	0.002	0.001	88	87.9	3.2	2	-32.04	*Fully Closed/**No Adj. Made
GUDEW023	13:19	6/4/2019	66.4	33.4	0.2	0	-30.32	-30.32	0.01	0.006	88.5	88.4	6.2	4.6	-30.32	*Fully Open/**No Adj. Made
GUDEW023	13:33	6/4/2019	71	29	0	0	-0.9	-1.88	0.019	0.005	88.9	89	9.1	4.3	-31.68	*Inc. Flow/Vac.
GUDEW024	14:59	6/24/2019	52.9	39.2	2.2	5.7	-2.84	-2.83	0.019	0.016	76.1	75.9	8.5	7.8	-31.6	*No Adj. Made
GUDEW025	13:12	6/7/2019	52.1	36.9	1.7	9.3	-19.72	-19.73	-0.002	-0.003	95.1	95.1	<<>>	<<>>	-32.77	*No Adj. Made
GUDEW026	14:41	6/24/2019	65.8	29.6	1.1	3.5	-29.86	-29.94	0.014	0.01	74.1	74.1	7.3	6	-31.6	*Fully Open/**No Adj. Made
GUDEW027	14:44	6/24/2019	66.9	33	0.1	0	3.29	-3.7	0.052	-0.019	73	73	15	<<>>	-32.3	*Inc. Flow/Vac.
GUDEW028	14:31	6/24/2019	60.4	39.6	0	0	-28.8	-28.76	0.235	-0.258	74.4	72.6	79	<<>>	-31.9	*Fully Open/**No Adj. Made
GUDEW029	13:43	6/7/2019	49.2	32.7	3.6	14.5	-33.54	-32.58	0.001	-0.007	93.9	94.4	1.7	<<>>	-33.2	*Dec. Flow/Vac.
GUDEW030	13:29	6/7/2019	57.5	39.5	0.4	2.6	-33.05	-33.06	0.008	0.005	96.3	96.3	13.2	10.3	-33.06	*Fully Open/**No Adj. Made
GUDEW031	13:25	6/7/2019	59	38	0.7	2.3	-27.34	-27.33	-0.002	-0.002	97.1	97.3	<<>>	<<>>	-32.91	*No Adj. Made
GUDEW032	13:20	6/7/2019	27.7	11.1	12.5	48.7	-32.28	-3.87	>>>>	3.758	94.9	95.7	N/A	125.7	-31.68	*Barely Open/**Dec. Flow/Vac.
GUDEW034	13:05	6/7/2019	47.9	30.8	2.6	18.7	-30	-28.06	1.274	1.938	94.1	94	69.8	86.7	-32.69	*Dec. Flow/Vac.
GUDEW035	13:09	6/7/2019	53.5	21.2	4.7	20.6	-31.95	-28.06	0.024	0.003	93.9	94	24.8	9.1	-31.89	*Dec. Flow/Vac.
GUDEW036	14:28	6/24/2019	33.1	26.8	4.2	35.9	-31.4	-31.4	-0.006	-0.004	74	74.1	<<>>	<<>>	-32.2	*No Adj. Made
GUDEW037	14:51	6/24/2019	12.5	6.3	14.7	66.5	-30.4	-30.37	8.368	8.364	76.7	76.7	459.9	459.8	-32.4	*Fully Closed/**No Adj. Made
GUDEW038	13:00	6/7/2019	1.7	9.2	11.7	77.4	-0.01	0	0.012	0.011	96.5	96.4	6.2	6	-32.83	*Fully Closed/**No Adj. Made
GUDEW039	14:19	6/24/2019	67.6	32	0.3	0.1	-0.04	-0.11	0.037	0.038	74	74	12.8	13.1	-32.1	*Inc. Flow/Vac.
GUDEW050	14:23	6/6/2019	61.9	38.1	0	0	5.91	5.93	-0.288	-0.295	96.8	96.8	<<>>	<<>>	-31.26	*Fully Closed/**No Adj. Made
GUDEW050	14:25	6/6/2019	62.1	37.4	0.3	0.2	-0.96	-0.93	0.069	0.067	96.2	96.2	43.5	42.6	-33.17	*Inc. Flow/Vac.
GUDEW051	14:11	6/6/2019	69.7	27.4	0	2.9	0.25	0.26	0.004	0.004	96.2	96.3	4.2	3.8	-32	*Fully Closed/**No Adj. Made
GUDEW051	14:12	6/6/2019	46.6	20.7	7.9	24.8	-31.96	-31.93	-0.008	-0.008	97.3	97.3	<<>>	<<>>	-31.92	*Inc. Flow/Vac.
GUDEW051	14:13	6/6/2019	42.6	19	8.1	30.3	-7.27	-6.48	-0.001	-0.002	97.4	97.5	<<>>	<<>>	-32.25	*Fully Closed/**Dec. Flow/Vac.
GUDEW052	14:06	6/6/2019	53.9	33.7	2.6	9.8	-34.41	-34.38	0.001	-0.002	94.5	94.6	3.8	<<>>	-34.38	*Fully Open/**No Adj. Made
GUDEW054	14:39	6/24/2019	68	31.8	0.2	0	-0.14	-31.4	0.013	-0.01	73.4	73.5	7.4	<<>>	29.8	*Inc. Flow/Vac.
GUDEW057	14:33	6/24/2019	24.1	12.8	13.8	49.3	-31.2	-30.9	0.001	-0.002	74	74.3	1.4	<<>>	-31.2	*Fully Closed/**No Adj. Made
GUDEW062	14:16	6/24/2019	1.7	1.4	21.6	75.3	-14.28	-14.9	>>>>	>>>>	73.1	73.1	N/A	N/A	-31.8	*Fully Closed/**No Adj. Made
GUDEW070	14:28	6/6/2019	17.9	8.2	14.7	59.2	-32.09	-18.14	1.719	1.09	96.1	96.3	80	64.6	-34.27	*Fully Closed/**Dec. Flow/Vac.
GUDEW071	14:09	6/6/2019	57.8	32	2.2	8	-33.21	-33.22	-0.003	-0.004	95.4	95.4	<<>>	<<>>	-33.96	*Fully Open/**No Adj. Made
GUDEW072	14:03	6/6/2019	54.5	38.1	1.9	5.5	-30.66	-30.65	-0.001	-0.003	95	95	<<>>	<<>>	-34.19	*No Adj. Made
GUDEW073	13:58	6/6/2019	58.4	35.6	1.6	4.4	-1.68	-10.66	0.008	-0.007	93	92.5	5.5	<<>>	-34.07	*Inc. Flow/Vac.



Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H2O)	Adjusted Static Press. (in. H2O)	Initial Diff. Press. (in. H2O)	Adjusted Diff. Press. (in. H2O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Initial Flow (scfm)	Adjusted Flow (scfm)	Available Vacuum (in. H2O)	Comments
GUDEW142	13:37	6/4/2019	56	44	0	0	0.03	0.03	-0.007	-0.005	89.2	89.2	0	0	-31.78	*No Adj. Made
GUDEW142	13:39	6/4/2019	56.1	43.9	0	0	-0.37	-0.37	-0.019	-0.016	89.5	89.5	0	0	-31.65	*Inc. Flow/Vac.
GUDEW143	13:23	6/4/2019	55.9	44.1	0	0	-30.45	-30.45	0.009	0.013	89.1	89	2.7	3.3	-30.43	*Fully Open/*No Adj. Made
GUDEW144	13:14	6/4/2019	57.3	42.7	0	0	0.53	-0.64	-0.258	-0.254	87.6	87.5	0	0	-30.18	*Inc. Flow/Vac.
GUDEW145	13:10	6/4/2019	56.6	43.2	0.2	0	-30.62	-30.6	-0.976	-0.975	88.7	88.7	0	0	-30.6	*Fully Open/*No Adj. Made
GUDEW146	13:00	6/4/2019	55.4	44.4	0.3	N/A	-24.41	-24.46	0.109	0.303	88.3	88.3	9.6	16	-25.09	*No Adj. Made
GUDEW147	13:02	6/4/2019	1.6	16	0.4	82	-1.24	-1.23	-0.32	-0.323	88.6	88.6	0	0	-21.47	*No Adj. Made
GUDEW148	13:05	6/4/2019	18	23	0	59	-4.29	-4.26	-2.628	-2.547	88.3	88.4	0	0	-28.1	*No Adj. Made
GUDEW149	13:07	6/4/2019	1.2	1.9	18.4	78.5	-0.24	-0.22	0	0.002	88.7	88.7	0	1.3	-27.89	*Fully Closed/*No Adj. Made
GUDEW150	13:43	6/6/2019	53	21.8	5	20.2	-34.44	-33.76	-0.028	-0.002	92.7	92.8	0	0	-34.54	*Dec. Flow/Vac.
GUDEW151	13:46	6/6/2019	39.7	27.1	1.5	31.7	-14.28	-14.29	-0.015	-0.014	92.4	92.4	0	0	-34.19	*No Adj. Made
GUDEW152	13:52	6/6/2019	38.4	24.2	7.6	29.8	2.84	2.84	2.847	2.851	93.1	93.1	51.3	51.3	-32.86	*Fully Closed/*No Adj. Made
GUDEW153	13:54	6/6/2019	66.6	33.1	0.3	0	0.08	0.09	-0.017	-0.016	93.8	93.8	0	0	-34.2	*Fully Closed/*No Adj. Made
GUDEW153	13:56	6/6/2019	65.9	33.9	0.1	0.1	-20.69	-20.73	-0.029	-0.03	93.5	93.5	0	0	-34.87	*Inc. Flow/Vac.
GUDEW154	13:41	6/4/2019	49.8	33.5	0.8	15.9	-0.01	0	-0.035	-0.047	89.9	89.7	<<>>	<<>>	-31.59	*No Adj. Made
GUDEW154	13:44	6/4/2019	50.3	34.3	0.8	14.6	-0.45	-0.45	0.463	0.462	89.3	89.3	43.3	43.3	-29.49	*Inc. Flow/Vac.
GUDEW156	12:45	6/3/2019	39.9	34.4	1.2	24.5	-13.78	-13.77	-0.007	-0.005	80.7	80.7	0	0	-27.91	*No Adj. Made
GUDEW157	12:15	6/3/2019	50.7	38.5	0.2	10.6	-27.94	-27.9	0.017	0.037	80.2	80.3	3.8	5.6	-27.86	*Fully Open/*No Adj. Made
GUDEW158	14:33	6/6/2019	74	25.9	0.2	N/A	16.03	16.11	-0.002	-0.003	96.3	96.3	<<>>	<<>>	-25.21	*Fully Closed/*No Adj. Made
GUDEW158	14:35	6/6/2019	73.1	26.8	0.1	0	-19.4	-19.42	0.011	0.009	96.3	96.3	6.5	6.1	-25.23	*Inc. Flow/Vac.
GUDEW159	13:15	6/7/2019	71.6	21.2	1.3	5.9	-32.4	-32.93	-0.648	1.434	95.4	95.3	<<>>	<<>>	80.6	*Fully Open/*Inc. Flow/Vac.
GUDEFLAR	11:21	6/3/2019	37.6	28	3.6	30.8	-24.69	-24.7	>>>>	>>>>	79.5	79.5	368.7	368.7	N/A	
GUDEFLAR	14:06	6/3/2019	37.6	28.2	4	30.2	-29.58	-29.66	>>>>	>>>>	89.2	89.2	416.5	416.5	N/A	
GUDEFLAR	11:51	6/4/2019	37.3	28	4.1	30.6	-34.71	-34.78	>>>>	>>>>	81.7	81.6	459.3	459.3	N/A	
GUDEFLAR	14:44	6/6/2019	40.3	28.1	2.9	28.7	-36.18	-36.17	>>>>	>>>>	98.5	98.5	438.6	438.6	N/A	
GUDEFLAR	10:51	6/7/2019	37.7	27.7	3.6	31	-39.34	-39.32	>>>>	>>>>	83.3	83.3	456.1	456.1	N/A	
GUDEFLAR	14:05	6/7/2019	38.1	27.7	3.3	30.9	-39.24	-39.25	>>>>	>>>>	96.2	96.1	451	451	N/A	

Pressure ≥ 0

Oxygen ≥ 5%

Temperature ≥ 131° F

**Gas Extraction Wells**

July 2019

Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H <sub>2</sub> O)	Adjusted Static Press. (in. H <sub>2</sub> O)	Initial Diff. Press. (in. H <sub>2</sub> O)	Adjusted Diff. Press. (in. H <sub>2</sub> O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Initial Flow (scfm)	Adjusted Flow (scfm)	Available Vacuum (in. H <sub>2</sub> O)	Comments
GUEDS02	11:02	7/3/2019	58.1	41.8	0.1	0	-34.15	-34.15	0.011	0.012	89.8	89.8	3.1	3.2	-34.15	*Fully Open/**No Adj. Made
GUDEW001	11:47	7/22/2019	56.6	36	1.1	6.3	-33.42	-33.42	1.751	1.749	100.6	100.6	212.8	212.7	-34.64	*No Adj. Made
GUDEW002	11:32	7/22/2019	71	28.6	0	0.4	50.24	50.25	0.01	0.008	100.6	100.5	17.9	15.6	-35.03	*Fully Closed/**No Adj. Made
GUDEW003	14:33	7/3/2019	0.1	1.2	19.3	79.4	-2.04	-1.99	0.001	0.002	96.8	96.8	1.1	1.4	-33.95	*No Adj. Made
GUDEW004	14:21	7/3/2019	77.3	22.5	0.1	0.1	1.99	-3.47	0.017	0.002	95.8	96.3	23.3	8.3	-33.48	*Inc. Flow/Vac.
GUDEW005	12:32	7/23/2019	66.1	33.7	0.2	0	1.72	1.72	0.009	0.008	80.9	80.9	5.9	5.7	-34.65	*Fully Closed/**No Adj. Made
GUDEW006	12:37	7/23/2019	0.3	1.1	20.8	77.8	-0.09	-0.08	-0.001	-0.003	82.7	82.7	<<>>	<<>>	-2.6	*Fully Closed/**No Adj. Made
GUDEW010	14:12	7/3/2019	0.1	1.3	19.3	79.3	-0.06	-0.05	<<<<	<<<<	95	95	N/A	N/A	-33.92	*No Adj. Made
GUDEW011	12:02	7/3/2019	16.3	19.2	0	64.5	-0.9	-0.89	0.019	0.012	95.1	95	1.7	1.4	-34.09	*No Adj. Made
GUDEW012	11:59	7/3/2019	0.1	1.8	18.3	79.8	0.01	0	0.009	0.009	94.8	95.1	5.4	5.4	-34.09	*Fully Closed/**No Adj. Made
GUDEW015	12:41	7/23/2019	33.1	17.5	4.1	45.3	-16.64	-14.16	>>>>	>>>>	83.4	83.5	N/A	N/A	-33.83	*Dec. Flow/Vac.
GUDEW016	12:43	7/23/2019	32.8	20.4	0.5	46.3	-13.71	-14.66	>>>>	>>>>	84.2	84.3	N/A	N/A	-34.13	*Inc. Flow/Vac.
GUDEW017	12:46	7/23/2019	33.8	21.4	0.1	44.7	-16.53	-16.52	>>>>	>>>>	84.8	84.8	N/A	N/A	-33.64	*No Adj. Made
GUDEW018	12:47	7/23/2019	0.3	1.6	18.7	79.4	-33.78	-33.76	>>>>	>>>>	84.9	84.8	N/A	N/A	-33.75	*No Adj. Made
GUDEW021	11:53	7/22/2019	31.5	18.1	10.9	39.5	-33.49	-30.51	0.91	3.031	100.1	100.3	57.8	107.1	-33.56	*Dec. Flow/Vac.
GUDEW022	12:06	7/22/2019	20.3	9.8	14.3	55.6	-34.75	-25.76	1.234	0.829	101.6	101.9	67	55.4	-34.13	*Fully Closed/**Dec. Flow/Vac.
GUDEW023	13:24	7/22/2019	64.8	30.2	0.9	4.1	-33.01	-33.01	0.009	0.009	101.5	101.4	5.6	5.6	-33.02	*Fully Open/**No Adj. Made
GUDEW024	14:30	7/22/2019	32	29.3	0.2	38.5	-7.19	-7.19	0.018	-0.05	100.4	100.4	7.7	<<>>	-30.5	*No Adj. Made
GUDEW025	14:10	7/23/2019	55.7	40.3	1	3	-20.98	-20.96	0.017	0.004	85.1	85	7.6	3.7	-20.96	*Fully Open/**No Adj. Made
GUDEW026	11:18	7/22/2019	67.4	31.1	0.3	1.2	-32.15	-32.15	0.013	0.01	103.3	103.2	6.8	6	-32.14	*Fully Open/**No Adj. Made
GUDEW027	14:31	7/23/2019	12.8	7.9	17.3	62	-11.18	-8.87	0.034	0.017	84.7	84.9	11	7.6	-34.96	*Fully Closed/**Dec. Flow/Vac.
GUDEW028	12:19	7/23/2019	61.7	37.4	0.9	0	-34.9	-34.9	0.18	0.179	80.2	80.2	68.4	68.3	-34.9	*Fully Open/**No Adj. Made
GUDEW029	14:29	7/23/2019	3.6	7	18.1	71.3	-21.76	-18.67	0.038	0.002	84.8	84.8	11.3	2.2	-35.06	*Fully Closed/**Dec. Flow/Vac.
GUDEW030	14:22	7/23/2019	50.6	35.2	2.8	11.4	-34.9	-34.9	0.014	0.011	84.8	84.9	17.9	16.2	-34.91	*Fully Open/**No Adj. Made
GUDEW031	14:20	7/23/2019	59.5	40.4	0.1	0	-30.42	-30.53	>>>>	>>>>	85.4	85.4	N/A	N/A	-30.53	*Fully Open/**No Adj. Made
GUDEW032	14:13	7/23/2019	74	26	0	0	69.34	69.36	<<<<	<<<<	85.3	85.4	N/A	N/A	-35.09	*Fully Closed/**No Adj. Made
GUDEW034	14:03	7/23/2019	45.2	34.5	0.8	19.5	-29.35	-29.35	0.016	0.017	83.7	83.7	7.3	7.5	-34.95	*No Adj. Made
GUDEW035	14:06	7/23/2019	70.7	28.7	0.6	0	-33.15	-33.79	0.001	0	84.3	84.5	5.8	2.8	-33.83	*No Adj. Made
GUDEW036	12:26	7/23/2019	64.8	30	1.7	3.5	-34.86	-34.84	0.048	0.036	81.4	81.4	34.3	30.9	-34.83	*No Adj. Made
GUDEW037	12:55	7/23/2019	46.2	31.5	1.9	20.4	-29.4	-29.39	0.034	0.034	83.3	83.3	28.9	28.8	-35.12	*No Adj. Made
GUDEW038	12:52	7/23/2019	0.2	5.8	15.1	78.9	-2.13	-2.11	0.405	0.402	83.9	83.9	39	38.8	-35.01	*Fully Closed/**No Adj. Made
GUDEW039	12:36	7/23/2019	34.1	20.8	2.3	42.8	-2.64	-2.64	0.017	0.016	81.9	81.9	8	7.8	-2.73	*No Adj. Made
GUDEW050	11:35	7/22/2019	61	35	0.3	3.7	3.12	-9.72	-0.185	0.707	100.5	100.6	<<>>	140.4	-9.72	*Inc. Flow/Vac.
GUDEW050	11:37	7/22/2019	47.8	30.1	4.6	17.5	-13.79	-1.12	1.061	0.12	100.8	100.9	168.4	56.4	-32.96	*Fully Closed/**Dec. Flow/Vac.
GUDEW051	11:28	7/22/2019	70.5	27.3	0.1	2.1	0.24	-0.13	0.031	0.009	100.7	100.7	11.4	6.2	-33.31	*Inc. Flow/Vac.
GUDEW051	11:30	7/22/2019	65.4	28	1.4	5.2	-0.5	-0.49	0.001	0.001	100.7	100.7	1.5	2.2	-33.33	*No Adj. Made
GUDEW052	11:26	7/22/2019	46.7	31.3	4.2	17.8	-35.22	-35.15	0.01	0.002	101.3	101.1	14.7	6	-34.97	*Dec. Flow/Vac.
GUDEW054	14:38	7/23/2019	35.5	17.6	10.2	36.7	-35.09	-0.08	0.258	-0.003	85.6	85.7	31	<<>>	-34.93	*Fully Closed/**Dec. Flow/Vac.
GUDEW057	12:23	7/23/2019	39	22.2	8.4	30.4	-32.14	-26.7	-0.005	-0.004	80.6	80.8	<<>>	<<>>	-34.73	*Dec. Flow/Vac.
GUDEW062	12:31	7/23/2019	65.3	34.7	0	0	0.7	0.74	0.01	0.009	81	81	6.3	6	-34.61	*Fully Closed/**No Adj. Made
GUDEW070	11:40	7/22/2019	69.6	30.4	0	0	3.52	-1.17	-0.226	0.164	101.1	101.1	<<>>	26.7	-4.01	*Inc. Flow/Vac.
GUDEW070	11:44	7/22/2019	51.9	23.4	5.1	19.6	-9.91	0.23	0.747	0.019	101.4	101.5	55.8	8.5	-34.98	*Fully Closed/**Dec. Flow/Vac.
GUDEW071	11:22	7/22/2019	39.5	23.1	7.2	30.2	-34.1	-33.25	0.007	0.002	102.2	101.9	4.7	2.3	-35.04	*Dec. Flow/Vac.
GUDEW072	14:30	7/3/2019	44.8	34.3	4.1	16.8	-28.75	-28.75	-0.003	-0.004	97	97	<<>>	<<>>	-33.98	*No Adj. Made
GUDEW073	12:16	7/23/2019	52.5	34.5	3.3	9.7	-34.62	-34.61	-0.894	-0.898	79.4	79.4	<<>>	<<>>	-38.5	*No Adj. Made
GUDEW074	14:35	7/23/2019	45.2	25.2	6.6	23	-9.27	-8.79	8.469	9.202	85.4	85.5	10.7	198.4	-35.06	*Dec. Flow/Vac.
GUDEW075	14:25	7/23/2019	57.4	42.6	0	0	-34.69	-34.68	0.093	0.09	84.8	84.8	18.1	17.9	-34.65	*Fully Open/**No Adj. Made
GUDEW076	14:24	7/23/2019	58.4	41	0.6	0	-34.83	-34.81	0.047	0.046	84.3	84.3	33.4	33.4	-34.47	*Fully Open/**No Adj. Made



Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H <sub>2</sub> O)	Adjusted Static Press. (in. H <sub>2</sub> O)	Initial Diff. Press. (in. H <sub>2</sub> O)	Adjusted Diff. Press. (in. H <sub>2</sub> O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Initial Flow (scfm)	Adjusted Flow (scfm)	Available Vacuum (in. H <sub>2</sub> O)	Comments
GUDEFLAR	16:40	7/1/2019	50.4	36.5	2.3	10.8	-22.13	-22.13	>>>>	>>>>	102.5	102.5	444.8	444.8	N/A	
GUDEFLAR	14:48	7/2/2019	41.1	28.9	3.2	26.8	-29.72	-29.8	>>>>	>>>>	96.8	97.2	438.2	438.2	N/A	
GUDEFLAR	10:04	7/3/2019	37	28.5	3.5	31	-30.68	-30.72	>>>>	>>>>	84	84	397.9	397.9	N/A	
GUDEFLAR	14:57	7/3/2019	36.5	28.4	3.2	31.9	-35.74	-35.74	>>>>	>>>>	98.6	98.6	434.4	434.4	N/A	
GUDEFLAR	9:37	7/22/2019	33.5	26.1	3.9	36.5	-35.46	-35.49	>>>>	>>>>	92.9	92.9	425.6	425.6	N/A	
GUDEFLAR	11:07	7/22/2019	35	28	3.2	33.8	-36.76	-36.78	>>>>	>>>>	98.7	98.6	422.5	422.5	N/A	
GUDEFLAR	14:47	7/22/2019	38.4	24	2.1	35.5	0.25	0.25	-0.024	0.001	104.2	104.5	417.2	417.2	N/A	
GUDEFLAR	11:56	7/23/2019	35.7	29.5	2.8	32	-40.29	-40.35	>>>>	>>>>	78.6	78.6	421.7	421.7	N/A	

Pressure  $\geq 0$

Oxygen  $\geq 5\%$

Temperature  $\geq 131^\circ F$

**Gas Extraction Wells**

August 2019

Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H <sub>2</sub> O)	Adjusted Static Press. (in. H <sub>2</sub> O)	Initial Diff. Press. (in. H <sub>2</sub> O)	Adjusted Diff. Press. (in. H <sub>2</sub> O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Initial Flow (scfm)	Adjusted Flow (scfm)	Available Vacuum (in. H <sub>2</sub> O)	Comments
GUEDS02	11:07	8/8/2019	54.9	41.3	0	3.8	-35.91	-35.92	-0.018	-0.014	95	95	0	0	-35.92	*No Adj. Made
GUDEW001	13:42	8/8/2019	60.7	39.3	0	0	-37.11	-37.09	0.103	0.034	101.9	101.9	50	28.2	-37.04	*Fully Open/*No Adj. Made
GUDEW002	13:25	8/8/2019	68.2	29.7	0	2.1	48.86	48.87	<<<<	<<<<	102.5	102.5	N/A	N/A	-37.86	*Fully Closed/*No Adj. Made
GUDEW003	11:26	8/7/2019	0.1	0.7	19.2	80	-4.15	0.1	-0.018	-0.008	100.7	100.8	0	0	-24.13	*Fully Closed/*Dec. Flow/Vac.
GUDEW004	11:15	8/7/2019	50.5	16.9	6	26.6	-16.31	-13.17	0.013	0.009	100	100.3	18.5	15.4	-24.01	*Dec. Flow/Vac.
GUDEW005	11:10	8/7/2019	63.7	35.8	0.4	0.1	-21.16	-21.16	>>>>	>>>>	99.1	99.1	N/A	N/A	-21.16	*Fully Open/*No Adj. Made
GUDEW006	10:33	8/7/2019	44.9	30	0	25.1	-0.05	-0.05	0.036	0.029	92.4	92.4	2.5	2.2	-0.53	*No Adj. Made
GUDEW010	12:39	8/8/2019	0.7	5.2	8.8	85.3	0.11	0.11	-0.024	-0.023	102.1	102.1	<<<>	<<<>	-37.48	*Fully Closed/*No Adj. Made
GUDEW011	12:35	8/8/2019	29.1	22.7	0	48.2	-0.07	-0.07	0.025	0.02	102.8	102.8	2	1.8	-37.57	*No Adj. Made
GUDEW012	12:33	8/8/2019	25.4	18.9	2	53.7	0.12	0.12	-0.005	-0.005	103.7	103.7	<<<>	<<<>	-37.72	*Fully Closed/*No Adj. Made
GUDEW015	10:35	8/7/2019	67.3	25.6	0.2	6.9	6.48	-2.72	0.004	0.003	95.9	99.4	4	3.4	-19.14	*Inc. Flow/Vac.
GUDEW015	10:37	8/7/2019	68.1	28.5	1	2.4	-8.35	-8.39	0.028	0.024	103.2	103.2	10.6	9.8	-19.2	*No Adj. Made
GUDEW016	10:39	8/7/2019	50	30.1	0	19.9	-8.54	-8.54	0.464	0.466	100.8	100.8	43	43.1	-19.38	*No Adj. Made
GUDEW017	10:42	8/7/2019	52.1	31.4	0	16.5	-10.8	-10.8	>>>>	>>>>	98.4	98.4	N/A	N/A	-17.03	*Fully Closed/*No Adj. Made
GUDEW018	10:45	8/7/2019	65.5	30	0.4	4.1	-19.34	-19.35	0	0.001	97.3	97.3	0.2	0.3	-19.35	*No Adj. Made
GUDEW021	13:49	8/8/2019	67.5	32.5	0	0	47.78	9.2	-0.213	-0.083	102.2	101.5	<<<>	<<<>	8.51	*Inc. Flow/Vac.
GUDEW021	13:52	8/8/2019	68.1	30.8	0	1.1	-10.05	-10.1	0.102	0.101	102	102	20.6	20.5	-35.94	*No Adj. Made
GUDEW022	13:34	8/9/2019	48.3	25.7	4.8	21.2	-7.37	-5.66	0.146	0.112	105.6	105.7	23.9	20.8	-25.56	*Dec. Flow/Vac.
GUDEW023	13:24	8/9/2019	65	29.8	0.4	4.8	-23.93	-23.93	0.014	0.012	106	106	7.3	6.6	-23.93	*Fully Open/*No Adj. Made
GUDEW023	12:32	8/23/2019	51.1	18.4	4.1	26.4	-36.46	-35.95	0.031	0.003	96.8	96.8	10.7	3	-35.92	*Dec. Flow/Vac.
GUDEW024	13:08	8/9/2019	42.5	32.2	0	25.3	-5.25	-3.63	0.02	0.038	104.8	104.9	8.3	11.7	-21.94	*Dec. Flow/Vac.
GUDEW025	12:45	8/9/2019	54.4	39.4	0.7	5.5	-12.28	-12.29	0.022	0.018	104.7	104.7	8.8	7.9	-22.17	*No Adj. Made
GUDEW026	11:47	8/7/2019	47.4	21	6.2	25.4	-22.09	-19.96	0.015	0.001	99.8	101.6	7.3	1	-22.02	*Dec. Flow/Vac.
GUDEW027	12:18	8/7/2019	66.3	33.7	0	0	2.79	-0.19	0.06	0.007	104	104.6	15.6	5.1	-22.21	*Inc. Flow/Vac.
GUDEW027	12:20	8/7/2019	26.2	12.8	13.2	47.8	-2.65	-0.51	0	0.003	104.5	104.5	<<<>	3	-22.22	*Fully Closed/*Dec. Flow/Vac.
GUDEW027	12:58	8/23/2019	68.2	31.5	0.3	0	0.64	-3.22	-1.019	3.042	94.5	94.5	<<<>	118.1	-36.1	*Inc. Flow/Vac.
GUDEW028	11:51	8/7/2019	59.3	37.5	0.2	3	-21.93	-21.91	0.005	0.006	105.4	105.4	11.2	11.9	-21.9	*Fully Open/*No Adj. Made
GUDEW029	12:58	8/9/2019	56.1	43.9	0	0	-10.87	-10.89	0.016	0.015	105	105	7.4	7.1	-22.18	*No Adj. Made
GUDEW030	12:55	8/9/2019	57.9	41	0.3	0.8	-22.44	-22.44	0.011	0.009	105	105	16.2	14.1	-22.36	*Fully Open/*No Adj. Made
GUDEW031	12:52	8/9/2019	59.9	36.8	0	3.3	-17.57	-17.58	0.409	0.413	104.7	104.7	39.8	40	-22.34	*No Adj. Made
GUDEW032	12:48	8/9/2019	74.7	18.2	4.8	2.3	69.5	69.53	<<<<	<<<<	104.7	104.7	N/A	N/A	-22.5	*Fully Closed/*No Adj. Made
GUDEW034	10:52	8/7/2019	41.1	30.2	0.1	28.6	-16.46	-11.85	0.054	0.033	96.3	96.3	13.9	10.9	-20.66	*Dec. Flow/Vac.
GUDEW035	12:42	8/9/2019	72.1	27.9	0	0	17.86	18.4	0.027	0.026	104.7	104.7	28.9	27.9	-22.14	*Fully Closed/*No Adj. Made
GUDEW036	11:59	8/7/2019	63.2	28.8	0.8	7.2	-21.9	-21.89	0.012	0.01	104.7	104.7	17.3	16.2	-21.89	*Fully Open/*No Adj. Made
GUDEW037	10:56	8/7/2019	41.9	32	0	26.1	-20.37	-19.15	0.331	0.07	97.1	98	91.1	41.2	-20.63	*Fully Closed/*No Adj. Made
GUDEW037	13:28	8/23/2019	35.6	29.2	0.4	34.8	-33.33	-27.87	0.567	-5.137	95.1	95.1	117.4	<<<>	-37.19	*Dec. Flow/Vac.
GUDEW038	10:49	8/7/2019	36.6	16.4	5.8	41.2	-0.4	-0.31	0.069	0.057	96.7	96.7	16.5	14.9	-20.5	*Dec. Flow/Vac.
GUDEW039	11:03	8/7/2019	33.5	21.2	1.7	43.6	-0.39	-0.4	0.031	0.03	98.9	98.9	10.6	10.5	-0.46	*No Adj. Made
GUDEW050	13:29	8/8/2019	61	36.1	0	2.9	11.34	-16.24	-0.037	0.054	102.3	102	<<<>	37.3	-36.05	*Inc. Flow/Vac.
GUDEW050	13:32	8/8/2019	53.4	35.3	1.9	9.4	-26.15	-24.36	0.145	0.145	100.7	100.6	60.2	60.1	-37.14	*Dec. Flow/Vac.
GUDEW050	12:24	8/23/2019	37.4	24.8	7.2	30.6	-20.4	-18.89	>>>>	>>>>	92.3	92.3	N/A	N/A	-37.06	*Dec. Flow/Vac.
GUDEW051	13:20	8/8/2019	70.3	29.7	0	0	0.18	-1.89	-0.085	-0.001	102.3	102.4	<<<>	<<<>	-36.24	*Inc. Flow/Vac.
GUDEW051	13:22	8/8/2019	65.8	28.2	0.7	5.3	-4.75	-4.73	0.015	0.011	103.1	103.1	7.8	6.6	-36.36	*No Adj. Made
GUDEW051	12:37	8/23/2019	20.5	9.4	14.8	55.3	-1.29	-0.69	0.897	0.387	92.1	92	60.1	39.1	-36.77	*Fully Closed/*Dec. Flow/Vac.
GUDEW052	13:14	8/8/2019	49.4	33.5	2.8	14.3	-38.04	-37.76	0.014	0	101	101.6	17.8	<<<>	-37.75	*Dec. Flow/Vac.
GUDEW054	12:07	8/7/2019	65.8	34.2	0	0	0.92	-4.53	0.047	0.017	104.3	104.3	13.7	8.2	-22.19	*Inc. Flow/Vac.
GUDEW054	12:09	8/7/2019	66.2	33.2	0.1	0.5	-19.48	-20.03	0.019	0.012	104.4	104.4	8.3	6.7	-22.18	*No Adj. Made
GUDEW057	11:56	8/7/2019	51.5	28.9	3.7	15.9	-6.56	-5.49	-0.004	0	104.6	104.6	<<<>	<<<>	-21.76	*Dec. Flow/Vac.





Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H2O)	Adjusted Static Press. (in. H2O)	Initial Diff. Press. (in. H2O)	Adjusted Diff. Press. (in. H2O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Initial Flow (scfm)	Adjusted Flow (scfm)	Available Vacuum (in. H2O)	Comments
GUDEW139	13:55	8/9/2019	36.5	28.1	7.9	27.5	-3.77	-1.92	-0.021	-0.01	104.4	104.4	0	0	-24.33	*Fully Closed*/Dec. Flow/Vac.
GUDEW140	13:44	8/9/2019	58.4	41.6	0	0	0.6	-0.03	-0.039	-0.023	105.9	105.7	0	0	-25.6	*Inc. Flow/Vac.
GUDEW140	13:47	8/9/2019	58.1	41.9	0	0	-0.75	-0.81	-0.048	-0.051	105.5	105.5	0	0	-25.54	*No Adj. Made
GUDEW141	13:36	8/9/2019	54.7	39.8	0	5.5	-25.85	-25.73	-0.017	-0.012	105.8	105.8	0	0	-25.66	*Fully Open*/No Adj. Made
GUDEW142	13:39	8/9/2019	48.3	37.6	2.3	11.8	0.08	0.06	-0.005	-0.003	105.9	105.9	0	0	-25.65	*No Adj. Made
GUDEW143	13:31	8/9/2019	56	44	0	0	-24.3	-24.3	-0.009	-0.004	105.9	105.9	0	0	-24.24	*Fully Open*/No Adj. Made
GUDEW144	13:21	8/9/2019	45.4	37.5	3.5	13.6	-0.64	-0.64	-0.195	-0.193	105.9	105.9	0	0	-23.74	*Barely Open*/No Adj. Made
GUDEW145	13:18	8/9/2019	55.6	44.4	0	0	-23.98	-23.98	-1.266	-1.268	106.4	106.4	0	0	-23.98	*Fully Open*/No Adj. Made
GUDEW146	13:15	8/9/2019	53.9	46.1	0	0	-18.44	-18.45	>>>>	>>>>	106	106	N/A	N/A	-18.44	*No Adj. Made
GUDEW147	13:10	8/9/2019	13.4	23.5	0	63.1	-0.78	-0.78	-1.093	-1.09	104.7	104.7	0	0	-22.34	*Barely Open*/No Adj. Made
GUDEW148	13:03	8/9/2019	25.2	29.2	0	45.6	-2.84	-2.85	-2.087	-2.093	104.7	104.6	0	0	-21.71	*No Adj. Made
GUDEW149	13:05	8/9/2019	0.6	0.7	20.4	78.3	0.17	0.16	-0.007	-0.005	104.6	104.5	0	0	-21.53	*Fully Closed*/No Adj. Made
GUDEW150	13:04	8/8/2019	47.7	23.7	2.5	26.1	-28.65	-27.42	-0.01	-0.006	101.9	101.5	0	0	-37.62	*Dec. Flow/Vac.
GUDEW151	13:09	8/8/2019	38.1	31.2	0.4	30.3	-10.79	-10.8	-0.024	-0.022	104.2	104.2	0	0	-37.76	*No Adj. Made
GUDEW152	11:21	8/7/2019	45.3	31	4.2	19.5	3.73	3.74	3.586	3.586	100.1	100.1	57.1	57.1	-24.14	*Fully Closed*/No Adj. Made
GUDEW153	11:22	8/7/2019	66	32.6	0	1.4	0.51	0.53	-0.021	-0.02	100	100	0	0	-23.85	*Fully Closed*/No Adj. Made
GUDEW154	13:40	8/9/2019	51.8	38.1	0.2	9.9	0.1	0.13	-0.009	-0.014	106	106	<<<>	<<<>	-17.61	*No Adj. Made
GUDEW156	11:27	8/8/2019	53.7	40.5	0.9	4.9	-0.49	-1.44	-0.008	0	96.2	96.3	0	0	-35.94	*Inc. Flow/Vac.
GUDEW156	11:29	8/8/2019	54	40.5	0.7	4.8	-3.92	-3.92	-0.002	-0.002	96.6	96.6	0	0	-35.89	*No Adj. Made
GUDEW157	10:55	8/8/2019	37.4	32.7	0	29.9	-35.44	-19.46	0.175	-0.049	91.6	92.7	11.8	0	-35.31	*Fully Closed*/No Adj. Made
GUDEW158	12:41	8/8/2019	72.1	27.9	0	0	-32.02	-32.06	>>>>	>>>>	101.6	101.7	N/A	N/A	-37.83	*Inc. Flow/Vac.
GUDEW158	12:43	8/8/2019	69.3	28.5	0.2	2	-34.34	-34.38	>>>>	>>>>	101.8	101.8	N/A	N/A	-37.77	*No Adj. Made
GUDEW159	12:46	8/9/2019	72.5	26.1	0	1.4	-22.38	-22.36	0.213	0.211	104.5	104.6	30.2	30.1	-22.33	*Fully Open*/No Adj. Made
GUDEFLAR	10:18	8/7/2019	51.7	36.2	1.7	10.4	6.61	-22.37	-6.689	>>>>	88.2	88.3	444.3	444.3	N/A	
GUDEFLAR	9:50	8/8/2019	34.7	28.1	3.5	33.7	-32.14	-32.14	>>>>	>>>>	76.1	76.2	387.8	387.8	N/A	
GUDEFLAR	14:15	8/8/2019	37.2	29.4	2	31.4	-39.36	-39.39	>>>>	>>>>	106.9	107	416.3	416.3	N/A	
GUDEFLAR	14:32	8/9/2019	38.6	28.9	2.7	29.8	-34.71	-34.78	>>>>	>>>>	104.3	104.3	442.6	442.6	N/A	
GUDEFLAR	13:19	8/21/2019	34.1	27.4	2.4	36.1	-42	-42	>>>>	>>>>	0	0	401.8	401.8	N/A	
GUDEFLAR	13:30	8/21/2019	34.2	27.9	2.1	35.8	-46.36	-46.33	>>>>	>>>>	437.2	0	437.2	437.2	N/A	
GUDEFLAR	13:24	8/22/2019	34.5	28.1	2.2	35.2	-48.99	-48.99	>>>>	>>>>	425	0	425	425	N/A	
GUDEFLAR	14:31	8/23/2019	35	29.3	2	33.7	-48.46	-48.54	>>>>	>>>>	96.2	96.2	446.1	446.1	N/A	

Pressure ≥ 0

Oxygen ≥ 5%

Temperature ≥ 131° F

**Gas Extraction Wells**

September 2019

Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H <sub>2</sub> O)	Adjusted Static Press. (in. H <sub>2</sub> O)	Initial Diff. Press. (in. H <sub>2</sub> O)	Adjusted Diff. Press. (in. H <sub>2</sub> O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Initial Flow (scfm)	Adjusted Flow (scfm)	Available Vacuum (in. H <sub>2</sub> O)	Comments
GUEDS02	10:57	9/27/2019	50.2	37	0.4	12.4	-64.89	-64.89	0.004	0.005	83.2	83.1	1.8	2	-64.89	*No Adj. Made
GUDEW001	14:38	9/27/2019	46.4	29.1	4.1	20.4	-61.99	-58.61	>>>>	>>>>	90.8	90.7	N/A	N/A	-62.74	*Dec. Flow/Vac.
GUDEW002	14:24	9/27/2019	71.4	28.4	0.2	0	40.7	40.72	0.014	0.014	92.8	92.8	21.2	20.9	-62.85	*No Adj. Made
GUDEW003	12:29	9/27/2019	0	0.6	18.7	80.7	-3.25	-3.25	0.004	0.004	90.4	90.4	1.9	1.9	-63.05	*No Adj. Made
GUDEW004	12:19	9/27/2019	76.5	23.5	0	0	4.25	4.28	0.011	0.012	93.3	93.3	18.5	19.6	-63.21	*No Adj. Made
GUDEW005	10:33	9/12/2019	67.2	32.7	0.1	0	0.15	0.16	0.014	0.013	87.6	87.6	7.4	7.1	-46.21	*Fully Closed/*No Adj. Made
GUDEW006	11:55	9/12/2019	20.8	19.6	0.3	59.3	-0.21	-0.21	0.007	0.007	97.9	97.9	1	1	-5.57	*No Adj. Made
GUDEW010	12:03	9/27/2019	45.9	27.1	4.7	22.3	-63.46	-63.44	>>>>	>>>>	90.1	90.4	N/A	N/A	-63.44	*Dec. Flow/Vac.
GUDEW011	11:59	9/27/2019	28.8	22.3	0	48.9	-0.57	-0.52	0.013	0.012	89.6	89.6	1.4	1.4	-63.38	*No Adj. Made
GUDEW012	11:55	9/27/2019	12.7	14.6	5.1	67.6	-63.46	-0.19	>>>>	0.026	89.3	89	N/A	9.5	-63.4	*Dec. Flow/Vac.
GUDEW015	11:59	9/12/2019	25.5	11.3	11.2	52	-50.74	-44.67	0.094	0.057	97.8	97.3	17.8	13.9	-53.24	*Fully Closed/*No Adj. Made
GUDEW016	11:06	9/12/2019	29.1	19	0.4	51.5	-20.84	-3.56	>>>>	3.134	93.1	92.9	N/A	113.7	-50.68	*Dec. Flow/Vac.
GUDEW017	11:01	9/12/2019	26.6	20.6	0.1	52.7	-45.42	-46.87	>>>>	>>>>	92.6	93.1	N/A	N/A	-46.88	*Fully Closed/*Dec. Flow/Vac.
GUDEW018	10:57	9/12/2019	50.4	27	3.1	19.5	-45.44	-45.34	0.078	0.002	92.1	92.2	3.6	0.5	-45.33	*Dec. Flow/Vac.
GUDEW021	10:09	9/30/2019	33	19.1	9.7	38.2	-66.4	-64.15	0.843	0.186	76.3	76.3	54.3	25.1	-64.14	*Dec. Flow/Vac.
GUDEW022	10:23	9/30/2019	66.4	33.5	0.1	0	17.18	17.21	-0.025	-0.027	77	77	<<<>	<<<>	-65.2	*Fully Closed/*No Adj. Made
GUDEW023	10:38	9/30/2019	9.5	10.2	11.9	68.4	-12.53	-12.52	4.702	4.689	80.7	80.6	126.6	126.4	-66.51	*No Adj. Made
GUDEW024	10:49	9/30/2019	61.3	37.8	0.7	0.2	-39.48	-44.09	0.752	5.604	79	78.8	54.1	149.5	-66.36	*No Adj. Made
GUDEW025	12:09	9/12/2019	53.7	36.8	1.2	8.3	-28.62	-28.62	0.012	0.011	99.3	99.3	6.3	6	-53.14	*No Adj. Made
GUDEW026	14:08	9/27/2019	66.6	29.5	0.4	3.5	-25.47	-25.49	0.005	0.003	92.7	92.7	4.4	3.1	-61.81	*Inc. Flow/Vac.
GUDEW027	10:01	9/30/2019	10.4	7.5	16.3	65.8	-17.46	-15.78	0.004	0.004	76	76	3.6	3.5	-65.17	*Dec. Flow/Vac.
GUDEW028	13:32	9/12/2019	56.3	33	1.3	9.4	-55.36	-55.36	3.233	3.237	100.1	100.1	284.1	284.2	-55.36	*Fully Open/*No Adj. Made
GUDEW029	10:03	9/30/2019	0	0.6	19.5	79.9	-8.11	-8.08	-0.002	-0.002	75.7	75.7	<<<>	<<<>	-65.18	*Fully Closed/*No Adj. Made
GUDEW030	12:28	9/12/2019	53	36.2	1.1	9.7	-53.2	-53.2	0.011	0.014	99.9	99.9	15.6	17.6	-53.2	*Fully Closed/*No Adj. Made
GUDEW031	12:25	9/12/2019	60.4	35.5	0.4	3.7	-28.39	-28.88	0.013	0.009	102.4	101	6.6	5.4	-52.4	*Inc. Flow/Vac.
GUDEW032	12:15	9/12/2019	76.3	23.6	0.1	0	64.42	51.1	<<<<	<<<<	97.2	97.4	N/A	N/A	-53	*Inc. Flow/Vac.
GUDEW032	12:18	9/12/2019	78	21.5	0.5	0	-0.64	-1.13	0.509	1.048	98	98	50.3	72.7	-53.17	*No Adj. Made
GUDEW034	10:48	9/12/2019	36.7	28	1.7	33.6	-19.97	-18.85	0.027	0.021	90.3	90.3	9.7	8.6	-47.43	*Dec. Flow/Vac.
GUDEW035	12:05	9/12/2019	65.3	25.7	1.7	7.3	-10	-9.94	0.015	0.014	100.1	100.1	20.6	19.4	-49.54	*No Adj. Made
GUDEW036	13:26	9/12/2019	57	26.5	2.7	13.8	-55.34	-55.22	0.015	0.007	100.4	100.2	18.9	12.9	-55.2	*Dec. Flow/Vac.
GUDEW037	10:46	9/12/2019	34.8	28.7	0.6	35.9	-27.86	-19.7	0.052	0.028	90.1	90.1	35	25.8	-46.97	*Dec. Flow/Vac.
GUDEW038	10:52	9/12/2019	65.4	23.9	1.4	9.3	-1.17	-41.57	0.126	7.407	91.1	91.1	23.8	179.9	-41.58	*Fully Closed/*No Adj. Made
GUDEW038	10:54	9/12/2019	45.3	18.2	6.2	30.3	-45.1	-0.25	8.208	0.008	91.2	91.3	182	5.4	-44.44	*Fully Closed/*Dec. Flow/Vac.
GUDEW039	10:41	9/12/2019	20.2	13.2	7	59.6	-2.32	-2.1	0.028	0	88.6	88.8	10.1	<<<>	-5.46	*Dec. Flow/Vac.
GUDEW050	14:29	9/27/2019	65.2	34.6	0.1	0.1	16.8	-12.55	-0.024	-0.019	92.9	92.9	<<<>	<<<>	-62.17	*Inc. Flow/Vac.
GUDEW050	14:31	9/27/2019	56.7	35.5	1.1	6.7	-37.02	-37.08	0.136	0.135	93.4	93.5	58.2	57.9	-64.78	*No Adj. Made
GUDEW051	14:27	9/27/2019	70.8	28.7	0	0.5	-0.01	-7.88	0.013	0.001	92.6	92.7	7.4	1.9	-62.62	*Inc. Flow/Vac.
GUDEW052	14:12	9/27/2019	42	28.5	5.3	24.2	-62.4	-59.07	0.008	0.009	93.5	93.6	12.6	13.5	-62.61	*Dec. Flow/Vac.
GUDEW054	9:57	9/30/2019	41.4	23.4	7.3	27.9	-64.75	-64.25	>>>>	>>>>	75.8	75.9	N/A	N/A	-64.25	*Dec. Flow/Vac.
GUDEW057	13:29	9/12/2019	53.2	28.3	3.1	15.4	-3.87	-3.87	-0.004	0	99.9	99.9	<<<>	<<<>	-55.26	*No Adj. Made
GUDEW062	10:36	9/12/2019	0.2	1.4	18.5	79.9	0.44	0.45	-0.004	-0.004	87.6	87.6	<<<>	<<<>	-46.13	*Fully Closed/*No Adj. Made
GUDEW070	14:34	9/27/2019	70.7	29.2	0.1	0	3.66	3.67	0.004	0.004	92.3	92.2	4	3.8	-62.65	*No Adj. Made
GUDEW071	14:21	9/27/2019	31.9	19.8	8.5	39.8	-51.45	-49.01	0.013	0.011	93.6	93.6	6.4	5.9	-62.71	*Dec. Flow/Vac.
GUDEW072	14:03	9/27/2019	49.3	35.1	2.7	12.9	-45.55	-44.57	0.03	0.032	91.9	92	26.2	27.1	-62.59	*Dec. Flow/Vac.
GUDEW073	14:01	9/27/2019	60.2	17.3	2.7	19.8	-45.32	-45.34	0.02	0.019	91.7	91.7	8.7	8.5	-62.32	*No Adj. Made
GUDEW074	9:54	9/30/2019	41	22.6	7.4	29	-62.73	-60.98	-0.006	-0.002	75.9	75.9	<<<>	<<<>	-64.67	*Dec. Flow/Vac.
GUDEW075	12:41	9/12/2019	54.1	34.2	1.6	10.1	-53.11	-53.09	0.021	0.018	99.6	99.6	8.3	7.6	-53.09	*Fully Open/*No Adj. Made
GUDEW076	12:38	9/12/2019	54.2	38.2	0.4	7.2	-52.89	-52.9	>>>>	0.58	99.9	99.9	N/A	116.8	-52.9	*No Adj. Made



Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H2O)	Adjusted Static Press. (in. H2O)	Initial Diff. Press. (in. H2O)	Adjusted Diff. Press. (in. H2O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Initial Flow (scfm)	Adjusted Flow (scfm)	Available Vacuum (in. H2O)	Comments
GUDEW158	12:11	9/27/2019	62	37.1	0.1	0.8	-61.93	-61.92	0.009	0.009	99.2	99.3	5.2	5.3	-61.91	*Fully Open/*No Adj. Made
GUDEW159	12:12	9/12/2019	73.5	23.4	0.6	2.5	-53.49	-53.41	0.01	0.002	97.4	97.3	6.1	2.6	-53.36	*Fully Open/*No Adj. Made
GUDEFLAR	10:18	9/12/2019	30.9	25.3	3.3	40.5	-52.11	-52.16	>>>>	>>>>	82.7	82.8	413.2	413.2	N/A	
GUDEFLAR	13:20	9/13/2019	32.4	29.7	3.1	34.8	-60.26	-60.3	>>>>	>>>>	78.4	78.4	382.6	382.6	N/A	
GUDEFLAR	12:01	9/30/2019	35.8	26.9	3.8	33.5	-71.05	-71.09	>>>>	>>>>	73.8	73.7	431.4	431.4	N/A	

Pressure ≥ 0

Oxygen ≥ 5%

Temperature ≥ 131° F

**Gas Extraction Wells**

October 2019

Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H <sub>2</sub> O)	Adjusted Static Press. (in. H <sub>2</sub> O)	Initial Diff. Press. (in. H <sub>2</sub> O)	Adjusted Diff. Press. (in. H <sub>2</sub> O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Initial Flow (scfm)	Adjusted Flow (scfm)	Available Vacuum (in. H <sub>2</sub> O)	Comments
GUEDS02	12:26	10/3/2019	51.9	41.5	0	6.6	-73.29	-73.29	0.016	0.016	79.6	79.6	3.4	3.4	-73.29	*Fully Open/No Adj. Made
GUDEW001	11:09	10/4/2019	59.5	39.2	1.3	0	-23.39	-23.39	>>>>	>>>>	80.6	80.7	N/A	N/A	-46.36	*No Adj. Made
GUDEW002	10:55	10/4/2019	67.9	32	0.1	0	<b>40.9</b>	<b>40.9</b>	0.011	0.009	79.8	79.8	18.6	16.8	-46.82	*Fully Closed/No Adj. Made
GUDEW003	13:49	10/3/2019	0	0.5	<b>22.1</b>	77.4	-4.91	-4.7	-0.006	0	83	83	0	0	-52.94	*Dec. Flow/Vac.
GUDEW004	13:07	10/8/2019	75.3	24.7	0	0	<b>2.59</b>	-9.26	0.016	0.01	75.8	75.5	22.6	17.5	-50.33	*Inc. Flow/Vac.
GUDEW004	13:09	10/8/2019	61.8	20.7	3.7	13.8	-2.61	-2.6	0.009	0.01	74.6	74.5	16.3	16.9	-50.13	*No Adj. Made
GUDEW005	13:43	10/8/2019	36.6	23.3	<b>8.3</b>	31.8	-46.55	-45.97	-0.001	-0.001	75.3	74.9	<<>>	<<>>	-46.68	*Dec. Flow/Vac.
GUDEW006	14:25	10/8/2019	22.9	20.5	0.1	56.5	-0.32	-0.32	0.015	0.013	77.5	77.4	1.6	1.5	-0.33	*No Adj. Made
GUDEW010	13:39	10/3/2019	54.8	32.8	3.1	9.3	-53.05	-53.05	3.292	3.303	83.6	83.6	290.9	291.4	-53.02	*No Adj. Made
GUDEW011	13:33	10/3/2019	31.5	24.4	0	44.1	-0.32	-0.32	0.007	0.007	83.5	83.5	1.1	1.1	-53.01	*No Adj. Made
GUDEW012	13:28	10/3/2019	56.1	28	0.1	15.8	-0.18	-0.29	-0.044	0.341	83.1	83.1	<<>>	38.6	-26.32	*Inc. Flow/Vac.
GUDEW015	14:20	10/8/2019	72.1	27.9	0	0	<b>4.42</b>	<b>2.71</b>	0.013	0.007	81.7	80.2	7.4	5.6	-44.33	*Inc. Flow/Vac.
GUDEW016	14:36	10/8/2019	46.8	21.7	0	31.5	-0.87	-0.87	0.293	0.293	80.3	80.6	35.6	35.6	-45.02	*No Adj. Made
GUDEW017	14:33	10/8/2019	60.5	25.2	0	14.3	-1.94	-1.93	1.594	1.592	78.1	78.1	86.5	86.4	-44.77	*No Adj. Made
GUDEW018	14:28	10/8/2019	46.1	27.1	4.4	22.4	-44.97	-44.98	0.014	0.014	77.6	77.6	1.5	1.5	-44.98	*No Adj. Made
GUDEW021	14:07	10/3/2019	72.8	27.2	0	0	<b>39.14</b>	<b>31.74</b>	0.005	-0.005	85.3	85.3	4.6	<<>>	-51.62	*Inc. Flow/Vac.
GUDEW021	11:13	10/4/2019	61.4	35.2	0.9	2.5	-46.48	-46.48	0.002	0.001	79.9	79.9	2.3	2.1	-46.48	*No Adj. Made
GUDEW022	13:02	10/4/2019	64.6	35.2	0.2	0	<b>15.33</b>	-1.14	-0.143	-0.141	80.2	80.2	<<>>	<<>>	-46.04	*Dec. Flow/Vac.
GUDEW022	13:04	10/4/2019	57	27.7	3.8	11.5	-42.75	-37.5	0.354	0.355	79.1	79.1	37.2	37.5	-46.15	*Dec. Flow/Vac.
GUDEW023	13:20	10/4/2019	65.9	32.3	1.2	0.6	-45.1	-45.09	0.009	0.009	81.4	81.4	5.7	5.8	-45.09	*No Adj. Made
GUDEW024	13:28	10/4/2019	25.3	29.6	0.1	45	-6.5	-6.49	0.018	0.11	81.2	81.2	7.8	19.9	-44.01	*No Adj. Made
GUDEW025	14:51	10/8/2019	56.1	38.3	0.6	5	-24.18	-24.17	0.007	0.005	84	83.9	4.8	4.3	-24.16	*No Adj. Made
GUDEW026	10:44	10/4/2019	66.7	33	0.3	0	-31.09	-45.21	0.002	-0.008	79.7	80.1	2.4	<<>>	-45.71	*Inc. Flow/Vac.
GUDEW027	13:28	10/8/2019	68	32	0	0	<b>0.6</b>	-0.51	0.006	0.007	71.8	71.6	5.1	5.4	-46.81	*Inc. Flow/Vac.
GUDEW027	13:30	10/8/2019	54.4	26.8	3.5	15.3	-1.11	-1.04	2.18	0.005	71.8	71.8	4.6	4.4	-46.79	*Dec. Flow/Vac.
GUDEW028	13:18	10/8/2019	60.4	36.6	0.8	2.2	-47.25	-47.24	-0.001	0	70.8	70.9	<<>>	0	-47.24	*No Adj. Made
GUDEW029	15:07	10/8/2019	17.4	14.5	<b>14</b>	54.1	-45.08	-34.82	-0.002	0.006	81.6	81.5	<<>>	4.4	-45.38	*Dec. Flow/Vac.
GUDEW030	15:04	10/8/2019	52	36.6	1.2	10.2	-45.26	-45.26	0.008	0.008	81.9	81.9	13.7	13.1	-45.26	*No Adj. Made
GUDEW031	15:01	10/8/2019	57.8	38.6	0.3	3.3	-35.1	-35.09	0.025	0.026	81.8	81.8	9.4	9.5	-45.01	*No Adj. Made
GUDEW032	14:59	10/8/2019	59.9	22.4	2.9	14.8	<b>0.63</b>	<b>2.28</b>	-0.442	-3.798	81.1	81.2	<<>>	<<>>	-45.13	*No Adj. Made
GUDEW034	14:08	10/8/2019	38.1	29.4	0.9	31.6	-16.8	-16.8	0.144	0.14	77.4	77.4	23.3	23	-45.66	*No Adj. Made
GUDEW035	14:49	10/8/2019	40.4	17.7	<b>7.8</b>	34.1	-29.63	-27.04	0.006	0.009	86.2	86.1	12.4	14.6	-45.39	*Dec. Flow/Vac.
GUDEW036	13:50	10/8/2019	1.9	1.2	<b>21.8</b>	75.1	-45.72	-40.27	-0.023	-0.015	74.2	74.4	<<>>	<<>>	-0.39	*Dec. Flow/Vac.
GUDEW037	14:00	10/8/2019	35.8	29.3	0.2	34.7	-18.24	-18.24	0.001	0.004	77.4	77.4	4.7	10.1	-45.86	*No Adj. Made
GUDEW038	14:13	10/8/2019	58.5	23.9	2.4	15.2	-1.3	-1.21	0.112	0.093	81	81	22.2	20.2	-45.44	*Dec. Flow/Vac.
GUDEW039	14:03	10/8/2019	0	0.9	<b>21.6</b>	77.5	-0.31	-0.32	0.003	0.002	77.4	77.5	3	2.3	-0.43	*Barely Open/No Adj. Made
GUDEW050	11:00	10/4/2019	12.3	7.7	<b>17.4</b>	62.6	-44.38	-34.49	0.81	0.239	77.6	77.3	140.5	76.5	-49.09	*Dec. Flow/Vac.
GUDEW051	10:57	10/4/2019	69.1	27.4	0.4	3.1	-0.22	-0.17	0.005	0.005	78.8	78.9	4.7	4.4	-46.72	*No Adj. Made
GUDEW052	10:49	10/4/2019	59.6	40	0.4	0	-7.3	-7.62	0.006	0.003	80.7	80.8	11.9	9.1	-49.02	*Inc. Flow/Vac.
GUDEW054	13:44	10/4/2019	5.8	2.8	<b>16.9</b>	74.5	-41.55	-41.11	>>>>	>>>>	77.9	78.3	N/A	N/A	-47.19	*Dec. Flow/Vac.
GUDEW057	13:23	10/8/2019	46.7	26.8	<b>5.3</b>	21.2	-7.66	-7.56	0	-0.001	71.2	71.2	1	<<>>	-46.88	*Dec. Flow/Vac.
GUDEW062	13:47	10/8/2019	66.2	33.1	0.3	0.4	-0.46	-0.44	0.01	0.009	73.1	73.1	6.5	6.1	-46.17	*No Adj. Made
GUDEW070	11:03	10/4/2019	67.8	32.1	0.1	0	<b>3.09</b>	<b>3.39</b>	-0.039	-0.038	78.8	79.4	<<>>	<<>>	3.4	*No Adj. Made
GUDEW071	10:51	10/4/2019	58.7	41.3	0	0	<b>13.66</b>	<b>8.04</b>	0.014	0.014	81.7	81.6	7.5	7.2	-47.13	*Inc. Flow/Vac.
GUDEW072	10:40	10/4/2019	53.5	34.7	2	9.8	-14.8	-14.81	0.036	0.034	79.5	79.5	30.7	29.8	-47.87	*No Adj. Made
GUDEW073	13:46	10/4/2019	52.6	37.5	2.5	7.4	-25.78	-25.79	0.123	0.111	81.2	81.3	21.1	20.2	-47.34	*No Adj. Made
GUDEW074	10:39	10/4/2019	57.7	42.1	0.2	0	-1.21	-5.59	-0.004	0.939	80.5	80.3	<<>>	62.1	-47.96	*Inc. Flow/Vac.
GUDEW075	13:34	10/8/2019	56.3	35.7	1.3	6.7	-46.48	-46.48	-0.029	-0.025	72.6	72.6	<<>>	<<>>	-46.47	*No Adj. Made



Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H2O)	Adjusted Static Press. (in. H2O)	Initial Diff. Press. (in. H2O)	Adjusted Diff. Press. (in. H2O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Initial Flow (scfm)	Adjusted Flow (scfm)	Available Vacuum (in. H2O)	Comments
GUDEW159	14:58	10/8/2019	66.2	23.6	1.7	8.5	-45.05	-45.05	0.135	0.134	80.9	80.9	23.5	23.4	-45.06	*No Adj. Made
GUDEFLAR	14:49	10/1/2019	31.2	27.2	3.5	38.1	-71.64	-71.65	>>>>	>>>>	94.9	95.1	320.8	320.8	N/A	
GUDEFLAR	11:20	10/3/2019	33.8	29.8	3.4	33	-74.66	-74.66	>>>>	>>>>	81.3	81.3	320.8	320.8	N/A	
GUDEFLAR	13:55	10/4/2019	35.3	30.5	3	31.2	-75.92	-75.89	>>>>	>>>>	85.6	85.5	311.2	311.2	N/A	
GUDEFLAR	22:31	10/8/2019	34	29.3	3.3	33.4	-78.5	-78.51	>>>>	>>>>	69.6	69.6	314	314	N/A	
GUDEFLAR	12:58	10/15/2019	35.1	29.4	3.3	32.2	-80.11	-80.12	>>>>	>>>>	80.7	80.6	306	306	N/A	
GUDEFLAR	12:05	10/19/2019	39.5	32.3	2.2	26	-74.58	-74.59	>>>>	>>>>	70.2	70.2	400.2	400.2	N/A	
GUDEFLAR	12:44	10/21/2019	35.1	30.4	2.9	31.6	-80.74	-80.72	>>>>	>>>>	65.9	65.9	310.2	310.2	N/A	

Pressure ≥ 0

Oxygen ≥ 5%

Temperature ≥ 131° F







Well ID	Time	Date	CH <sub>4</sub> (%)	CO <sub>2</sub> (%)	O <sub>2</sub> (%)	Balance (%)	Initial Static Press. (in. H <sub>2</sub> O)	Adjusted Static Press. (in. H <sub>2</sub> O)	Initial Diff. Press. (in. H <sub>2</sub> O)	Adjusted Diff. Press. (in. H <sub>2</sub> O)	Initial Temp. (°F)	Adjusted Temp. (°F)	Initial Flow (scfm)	Adjusted Flow (scfm)	Available Vacuum (in. H <sub>2</sub> O)	Comments
GUDEW153	11:24	11/12/2019	62	37.9	0.1	0	-0.21	-1.56	-0.009	-0.003	51.1	51.2	0	0	-59.21	*Inc. Flow/Vac.
GUDEW153	11:26	11/12/2019	61.4	38.5	0.1	0	-2.72	-2.71	-0.003	-0.003	51.3	51.3	0	0	-59.02	*Fully Closed/*No Adj. Made
GUDEW154	12:39	11/12/2019	59	33.5	6	1.5	-0.27	-0.27	-0.089	-0.088	52.5	52.5	<<<>	<<<>	-57	*Fully Closed/*No Adj. Made
GUDEW156	10:37	11/15/2019	27.3	30.6	2.8	39.3	-8.64	-7.91	-0.003	-0.008	62.3	62.3	0	0	-74.34	*Dec. Flow/Vac.
GUDEW157	10:11	11/15/2019	1.3	2.4	19.2	77.1	-5.97	-6.03	-0.01	-0.009	60.1	60.1	0	0	-46.67	*No Adj. Made
GUDEW158	11:26	11/15/2019	61.6	37.6	0.8	0	-46.16	-46.16	0.027	0.026	64.4	64.4	9.8	9.6	-46.15	*Fully Open/*No Adj. Made
GUDEW159	12:38	11/14/2019	72.4	26.9	0.7	0	-1.51	-1.47	0.014	0.012	54.2	54.3	7.9	7.5	-1.5	*No Adj. Made
GUDEFLAR	18:33	11/5/2019	40.9	30.5	3.3	25.3	7.2	7.2	-2.838	-6.935	50	50	450	450	N/A	
GUDEFLAR	10:02	11/12/2019	34.1	28.2	4.1	33.6	-82.75	-82.75	>>>>	>>>>	61.2	61.2	333.7	333.7	N/A	
GUDEFLAR	12:28	11/15/2019	33.2	27.4	3.8	35.6	-83.8	-83.86	>>>>	>>>>	51.2	51.2	309.4	309.4	N/A	
GUDEFLAR	10:30	11/18/2019	35.2	28.3	3.6	32.9	-83.71	-83.73	>>>>	>>>>	70.5	70.5	314.1	314.1	N/A	
GUDEFLAR	11:22	11/27/2019	36.8	29.3	3.1	30.8	-82.93	-81.83	>>>>	>>>>	76.4	79	298.7	298.7	N/A	

Pressure ≥ 0

Oxygen ≥ 5%

Temperature ≥ 131° F

## **Appendix B**

### **Construction Permit and As-Built Drawings**

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Robert L. Ehrlich, Jr.  
Governor

Kendal P. Philbrick  
Secretary

DEPARTMENT OF THE ENVIRONMENT

Air and Radiation Management Administration  
1800 Washington Boulevard, Suite 720  
Baltimore, MD 21230

Construction Permit

Operating Permit

PERMIT NO. 031-9-0738 M

DATE ISSUED June 3, 2004

PERMIT FEE \$400.00 (Paid)

In accordance with  
EXPIRATION DATE COMAR 26.11.02.04B

LEGAL OWNER & ADDRESS

Montgomery Co. Division of Solid Waste Services  
Department of Public Works and Transportation  
16101 Frederick Road  
Derwood, MD 20855  
Attn: Robert Wilson, Section Chief

SITE

Gude Landfill  
600 East Gude Drive  
Rockville, MD 20850  
Montgomery County  
Premises # 2253

SOURCE DESCRIPTION

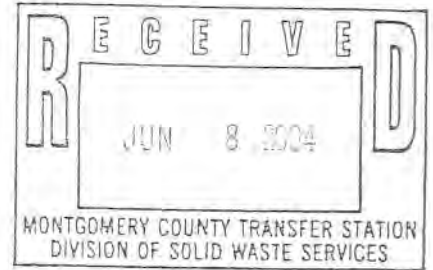
Installation of two (2) enclosed landfill gas flares to control emissions at an existing landfill.

This source is subject to the conditions described on the attached pages.

*Karen Y. [Signature]*  
Program Manager

*Angel [Signature]*  
Director, Air and Radiation Management Administration

**MONTGOMERY COUNTY DIVISION OF SOLID WASTE SERVICES**  
**GUDE LANDFILL**  
**PERMIT-TO-CONSTRUCT CONDITIONS**  
**PERMIT No. 031-9- 0738 M**



**INDEX**

- Part A – General Provisions
- Part B – Applicable Regulations
- Part C – Construction Conditions
- Part D – Operating Conditions

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**Part A – General Provisions**

- (1) The Application for 2 (two) enclosed ground landfill gas flares (form AMA-6) received on April 12, 2004 is incorporated into this permit by reference.

If there are any conflicts between representations in this permit and representations in the applications, the representations in the permit shall govern. Estimates of dimensions, volumes, emissions rates, operating rates, feed rates and hours of operation included in the applications do not constitute enforceable numeric limits beyond the extent necessary for compliance with applicable requirements.

- (2) Upon presentation of credentials, representatives of the Maryland Department of the Environment (“MDE” or the “Department”) and the Montgomery County Department of Environmental Protection shall at any reasonable time be granted, without delay and without prior notification, access to the Permittee’s property and permitted to:
- (a) inspect any construction authorized by this permit;
  - (b) sample, as necessary to determine compliance with requirements of this permit, any materials stored or processed on-site, any waste materials, and any discharge into the environment;
  - (c) inspect any monitoring equipment required by this permit;
  - (d) review and copy any records, including all documents required to be maintained by this permit, relevant to a determination of compliance with requirements of this permit, and
  - (e) obtain any photographic documentation or evidence necessary to determine compliance with the requirements of this permit.
- (3) The Permittee shall notify the Department prior to increasing quantities and/or changing the types of any materials referenced in the application or limited by this permit. If the Department determines that such increases or changes constitute a modification, the Permittee shall obtain a permit-to-construct prior to implementing the modification.

**MONTGOMERY COUNTY DIVISION OF SOLID WASTE SERVICES**  
**GUDE LANDFILL**  
**PERMIT-TO-CONSTRUCT CONDITIONS**  
**PERMIT No. 031-9- 0738 M**

- (4) Nothing in this permit authorizes the violation of any rule or regulation or the creation of nuisance or air pollution.
- (5) If any provision of this permit is declared by proper authority to be invalid, the remaining provisions of the permit shall remain in effect.

**Part B – Applicable Regulations**

- (1) This source is subject to all applicable Federal and local requirements, including 40 CFR 60 Subpart WWW – Standards of Performance for Municipal Solid Waste Landfills.
- (2) This source is subject to all applicable federally enforceable state air pollution control requirements including, but not limited to, the following regulations:
  - (a) COMAR 26.11.01.07C, which requires that the Permittee report to the Department occurrences of excess emissions.
  - (b) COMAR 26.11.02.09A, which requires that the Permittee obtain a permit-to-construct if an installation is to be modified in a manner that will cause changes in the quantity, nature, or characteristics of emissions from the installation as referenced in this permit.
  - (c) COMAR 26.11.06.02C(2), which prohibits visible emissions other than water in uncombined form.
  - (d) COMAR 26.11.06.03B(2), which limits the concentration of particulate matter in any exhaust gases to not more than 0.03 grains per standard cubic foot of dry exhaust gas.
  - (e) COMAR 26.11.19.20 D(1) & (2) which states:
    - (1) A person who owns or operates an MSW landfill shall prepare and submit a design capacity report to the Department not later than November 1, 1997. The report shall contain the following information:
      - (a) A map or a plot of the landfill providing the size and the location of the landfill and the area in which MSW is or will be land filled;
      - (b) The date the MSW landfill began accepting MSW;
      - (c) The date the MSW landfill ceased or is estimated to cease accepting MSW;
      - (d) The maximum design capacity of the MSW landfill in tons or cubic yards; and

**MONTGOMERY COUNTY DIVISION OF SOLID WASTE SERVICES**  
**GUDE LANDFILL**  
**PERMIT-TO-CONSTRUCT CONDITIONS**  
**PERMIT No. 031-9- 0738 M**

- (e) The amount of MSW accepted in tons or cubic yards for each operating year.
- (2) Notwithstanding the permit to construct requirements in COMAR 26.11.02, a person who increases the maximum design capacity of an existing MSW landfill after November 1, 1997, shall amend and resubmit the design capacity report required in Sec. D(1) of this regulation within 90 days of the issuance of any permit that authorizes the increase or any other change that increases the maximum design capacity of the landfill.
- (3) This source is subject to all applicable State-only enforceable air pollution control requirements including, but not limited to, the following regulations:
  - (a) COMAR 26.11.06.08 – Nuisance. “An installation or premises may not be operated or maintained in such a manner that nuisance or air pollution is created. Nothing in this regulation relating to the control of emissions may in any manner be construed as authorizing or permitting the creation of, or maintenance of, nuisance or air pollution.”
  - (b) COMAR 26.11.06.09 – Odors. “A person may not cause or permit the discharge into the atmosphere of gases, vapors, or odors beyond the property line in such a manner that nuisance or air pollution is created.”

**Part C – Construction Conditions**

- (1) Except as otherwise provided in this part, the two enclosed ground landfill gas flares shall be constructed in accordance with specifications included in the application.
- (2) The landfill gas flare shall be designed to operate at a minimum combustion efficiency of at least 98%.

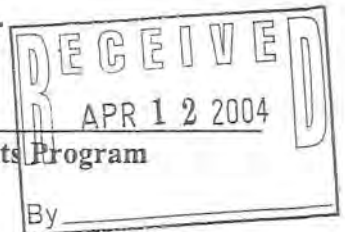
**Part D – Operating Conditions**

- (1) Except as otherwise provided in this part, the two enclosed ground landfill flares shall be operated in accordance with specifications included in the application.
- (2) Nothing in this permit authorizes the violation of any rule or regulation or the creation of nuisance or air pollution.
- (3) If any provision of this permit shall be held invalid for any reason, the remaining provisions shall remain in full force and effect, and such invalid provisions shall be considered and deleted from the permit.



**MARYLAND DEPARTMENT OF THE ENVIRONMENT**

1800 Washington Blvd ▪ Baltimore, Maryland 21230  
 (410) 537-3230 ▪ 1-800-633-6101 ▪ www.mde.state.md.us



**Air and Radiation Management Administration ▪ Air Quality Permits Program**

**Application for Permit to Construct  
 Gas Cleaning or Emission Control Equipment**

<b>1. Owner of Installation</b> Montgomery County Division of Solid Waste Services Department of Public Works and Transportation		<b>Telephone No.</b> (301) 840-2371	<b>Date of Application</b> 04/08/2004
<b>2. Mailing Address</b> 16101 Frederick Rd.		<b>City</b> Derwood	<b>Zip Code</b> 20855
<b>3. Equipment Location</b> Gude Landfill		<b>City/Town or P.O.</b> Rockville	<b>County</b> Montgomery
<b>4. Signature of Owner or Operator</b> <i>Robert Willson</i>		<b>Title</b> Section Chief	<b>Print or Type Name</b> Robert Willson
<b>5. Application Type:</b>		Alteration <input type="checkbox"/>	New Construction <input checked="" type="checkbox"/>
<b>6. Date Construction is to Start:</b> (Estimate) August 1, 2004		<b>Completion Date (Estimate):</b> November 1, 2004	
<b>7. Type of Gas Cleaning or Emission Control Equipment:</b>			
Simple Cyclone <input type="checkbox"/> Multiple Cyclone <input type="checkbox"/> Afterburner <input type="checkbox"/> Electrostatic Precipitator <input type="checkbox"/>			
Scrubber <input type="checkbox"/> _____ (type) Other <input checked="" type="checkbox"/> Enclosed Landfill Gas Flare _____ (type)			
<b>8. Gas Cleaning Equipment Manufacturer</b> John Zink or Equivalent		<b>Model No.</b> ZTOF	<b>Collection Efficiency (Design Criteria)</b> 98% VOC Destruction
<b>9. Type of Equipment which Control Equipment is to Service:</b> Landfill Gas Emissions			
<b>10. Stack Test to be Conducted:</b>			
Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> _____ (Date)			
(Stack Test to be Conducted By) _____ (Date)			
<b>11. Cost of Equipment</b> \$250,000 (estimated)			
Estimated Erection Cost \$150,000 (estimated)			

**12. The Following Shall Be Design Criteria:**

	<u>INLET</u>	<u>OUTLET</u>
Gas Flow Rate	1200 (600 per flare) ACFM*	_____ ACFM*
Gas Temperature	70-120 °F	1500-1900 °F
Gas Pressure	5 INCHES W.G.	N/A INCHES W.G.
	PRESSURE DROP N/A _____	
Dust Loading	N/A GRAINS/ACFD**	N/A GRAINS/ACFD**
Moisture Content	100 %	N/A %
OR		N/A
Wet Bulb Temperature	N/A °F	_____ °F
Liquid Flow Rate (Wet Scrubber)	N/A GALLONS/MINUTE	
(WHEN SCRUBBER LIQUID OTHER THAN WATER INDICATE COMPOSITION OF SCRUBBING MEDIUM IN WEIGHT %)		
*= ACTUAL CUBIC FEET PER MINUTE		**= ACTUAL CUBIC FEET DRY

WHEN APPLICATION INVOLVES THE REDUCTION OF GASEOUS POLLUTANTS, PROVIDE THE CONCENTRATION OF EACH POLLUTANT IN THE GAS STREAM IN VOLUME PERCENT. INCLUDE THE COMPOSITION OF THE GASES ENTERING THE CLEANING DEVICE AND THE COMPOSITION OF EXHAUSTED GASES BEING DISCHARGED INTO THE ATMOSPHERE. USE AVAILABLE SPACE IN ITEM 15 ON PAGE 3.

**13. Particle Size Analysis**

<u>Size of Dust Particles Entering Cleaning Unit</u>	<u>% of Total Dust</u>	<u>% to be Collected</u>
0 to 10 Microns	N/A	N/A
10 to 44 Microns	_____	_____
Larger than 44 Microns	_____	_____

**14. For Afterburner Construction Only:**

Volume of Contaminated Air N/A CFM (DO NOT INCLUDE COMBUSTION AIR)

Gas Inlet Temperature \_\_\_\_\_ °F

Capacity of Afterburner \_\_\_\_\_ BTU/HR

Diameter (or area) of Afterburner Throat \_\_\_\_\_

Combustion Chamber \_\_\_\_\_ (diameter) \_\_\_\_\_ (length) Operating Temperature at Afterburner \_\_\_\_\_ °F

Retention Time of Gases \_\_\_\_\_

15. Show Location of Dust Cleaning Equipment in the System. Draw or Sketch Flow Diagram Showing Emission Path from Source to Exhaust Point to Atmosphere.

See attached process flow diagram.

S

Date Received: Local \_\_\_\_\_ State 4/12/04

Acknowledgement Date: 4/14/04

By Vas Rusu

Reviewed By:

Local \_\_\_\_\_

State Vas Rusu

Returned to Local:

Date \_\_\_\_\_

By \_\_\_\_\_

Application Returned to Applicant:

Date \_\_\_\_\_

By \_\_\_\_\_

REGISTRATION NUMBER OF ASSOCIATED EQUIPMENT: 

9	0	7	3	8	M
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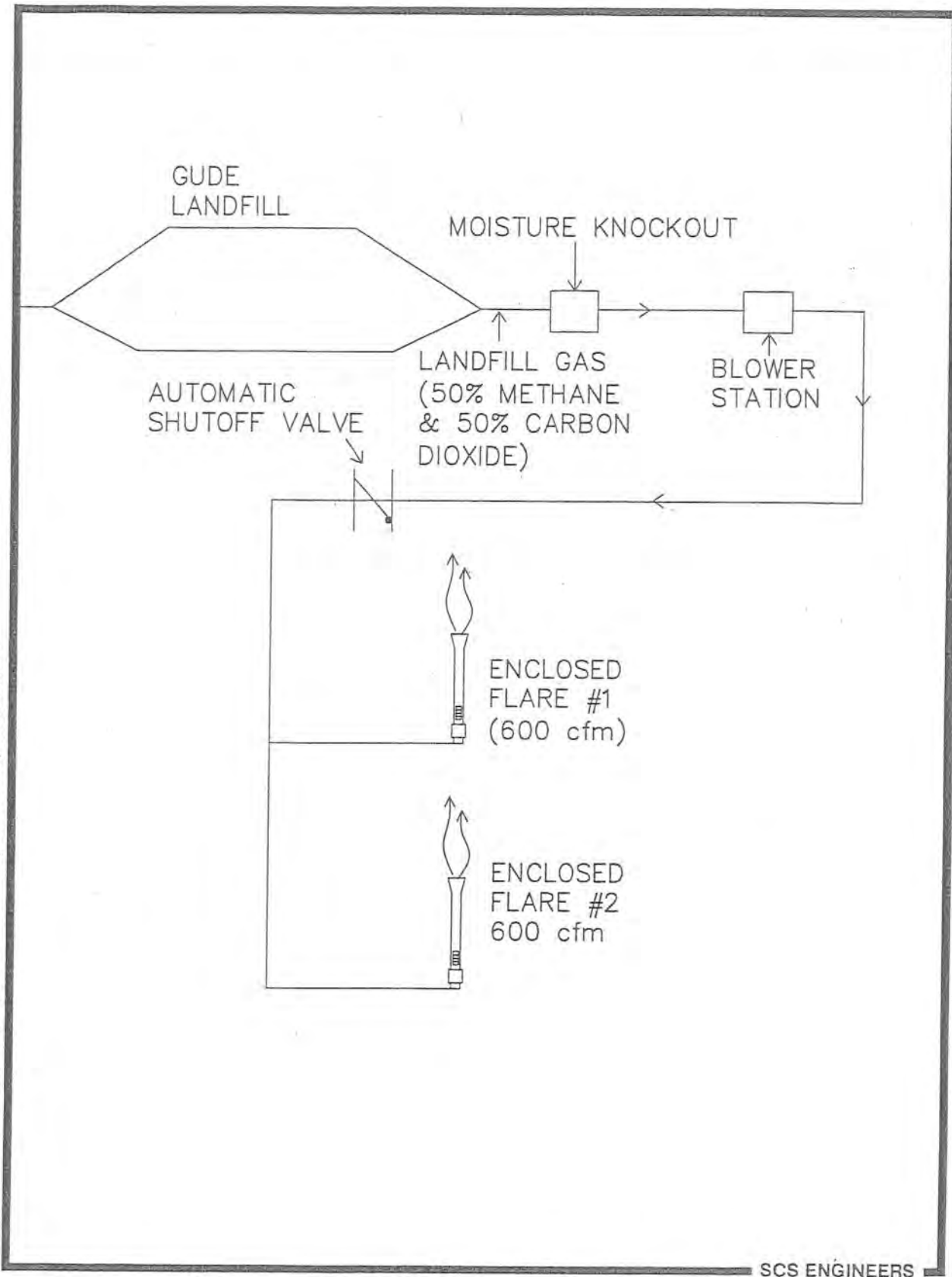
PREMISES NUMBER: 

0	3	1
---	---	---

2	2	5	3
---	---	---	---

Emission Calculations Revised By \_\_\_\_\_ Date \_\_\_\_\_

DRAWN BY: RTU DATE: 03/26/04 FILE NAME: M: /022030392/GUDEDIAGRAM



SCS ENGINEERS

FIGURE 1 - PROCESS FLOW DIAGRAM: GUDE LANDFILL

**Estimated Flare Emissions Calculations  
Gude Landfill**

Calculated by: RTU  
Checked by: JGR

Pollutant	Table 1: Emission Summary Emissions Per Flare (ton/yr)	Total (ton/yr)
NO <sub>x</sub>	6.3	12.6
CO	15.8	31.5
PM	1.3	2.6
SO <sub>2</sub>	1.2	2.4
VOC	0.2	0.4

1. Assumed methane content = 50.0%
2. Maximum LFG flow rate = 600 cfm per flare
3. Assumed methane flow rate = 300 cfm per flare
4. Flare control efficiency = 98.0% [min. mfrg.'s guaranteed destruction]

**Calculate the maximum NO<sub>x</sub> Emissions**

The emission of NO<sub>x</sub> is estimated using the John Zink emission factor of 0.08 lb/MMBTU for operating temp of 1,800 °F.

Using 50% methane flow rate the CO emissions are:

$$= (525,600 \text{ min/yr})(0.08 \text{ lb/MMBTU})(\text{LFG flow rate})(500 \text{ BTU/ft}^3)(1/10^6)(1 \text{ ton}/2000 \text{ lb})$$

$$= \quad \quad \quad \mathbf{6.3 \text{ tons/yr NO}_x \text{ emissions per flare}}$$

where:

$$\text{methane flow rate} = \quad \quad \quad 600 \text{ cfm}$$

**Calculate the Maximum CO Emissions**

The emission of CO is estimated using the John Zink emission factor of 0.2 lb CO/MMBTU.

Using the methane flow rate the CO emissions are:

$$= (525,600 \text{ min/yr})(0.2 \text{ lb/MMBTU})(\text{LFG Flow Rate, cfm})(500 \text{ Btu/ft}^3)(1/10^6)(1 \text{ ton}/2000 \text{ lb})$$

$$= \quad \quad \quad \mathbf{15.8 \text{ tons/yr CO emissions per flare}}$$

where:

$$\text{LFG flow rate} = \quad \quad \quad 600 \text{ cfm}$$

Calculate the Maximum PM10 Emissions

The emission of PM10 is estimated using the EPA's AP-42 emission factor (Table 2.4-5) of 17 lb PM/10<sup>6</sup> dscf methane. Divide lb/10<sup>6</sup> dscf by 16,700 to obtain lb/hr/dscfm.

- \* AP-42 emissions factors do not distinguish between PM10 and PM2.5 emissions, though AP-42 does suggest that, for LFG particulate flare emissions, PM10 and PM2.5 emissions are equivalent.

Using the 50% methane flow rate the PM10 emissions are:

$$= [(17 \text{ lb PM}) / (16,700)] * (\text{methane flow rate cfm}) * (1 \text{ ton}/2,000 \text{ lb}) * (8,760 \text{ hr/year})$$

$$= \qquad \qquad \qquad \mathbf{1.3 \text{ tons/yr PM10 emissions per flare}}$$

where:

$$\text{methane flow rate} = \qquad \qquad \qquad 300 \text{ cfm}$$

Calculate Maximum SOx Emissions

The emission of sulfur oxides (SOx) is estimated using the LFG flow rate to the flare and the AP-42 default concentration of 46.9 ppmv of total reduced sulfur compounds.

First, calculate the volume flow rate of sulfur to the flare using AP-42 equation 2.4(3)

$$= (\text{Maximum LFG flow rate, cfm}) * [(46.9 \text{ ppm}) / (1,000,000)] * (1 \text{ m}^3/35.31 \text{ ft}^3) * (525600 \text{ min/yr})$$

$$= \qquad \qquad \qquad 419 \text{ m}^3 \text{ sulfur/yr}$$

where:

LFG flow rate is converted from cfm to cubic meters per year

Next, calculate the mass flow rate of sulfur to the flare using AP-42 equation 2.4(4)

$$= [(\text{sulfur volume flow}) * (32 \text{ g/mol})] / [(8.205 \times 10^{-5}) * (1000 \text{ g/kg}) * (298 \text{ K})]$$

$$= \qquad \qquad \qquad 548 \text{ kg sulfur/yr}$$

where:

32 g/gmol is the molecular weight of sulfur

8.205x10<sup>-5</sup> is the ideal gas conversion factor

298 K is the assumed temperature of the LFG (equivalent to 25 deg C)

$$\text{sulfur vol. flow (m}^3\text{/yr)} = \qquad \qquad \qquad 419 \text{ cfm}$$

Finally, calculate the SO<sub>x</sub> flare emissions using AP-42 equation 2.4(7)

$$= (\text{sulfur mass flow to the flare, kg}) * (2.0) * (2.2 \text{ lb/kg}) * (1 \text{ ton}/2,000 \text{ lb})$$

$$= \quad \quad \quad \mathbf{1.2 \text{ tons/yr SO}_x \text{ emissions per flare}}$$

where:

2.0 is the ratio of the molecular weight of SO<sub>2</sub> to that of sulfur  
sulfur mass flow (kg/yr) = 548 cfm

### Calculate the VOC Emissions

The emission of Volatile Organic Compounds (VOCs) is estimated using the LFG flow rate to the flare and the AP-42 default concentration of 235 ppmv of VOCs (from Table 2-4.2 note c).

First, calculate the volume flow rate of VOC to the flare using AP-42 equation 2.4(3)

$$= (\text{LFG flow rate, cfm}) * [(235 \text{ ppm}) / (1,000,000)] * (1 \text{ m}^3/35.31 \text{ ft}^3) * (525600 \text{ min/yr})$$

$$= \quad \quad \quad \mathbf{2099 \text{ m}^3/\text{yr VOC total flare emissions}}$$

where:

LFG flow rate is converted from cfm to cubic meters per year

Next, calculate the mass flow rate of VOCs to the flare using AP-42 equation 2.4(4)

$$= [(\text{VOC volume flow}) * (86.18 \text{ g/mol})] / [(8.205 \times 10^{-5}) * (1000 \text{ g/kg}) * (298 \text{ K})]$$

$$= \quad \quad \quad \mathbf{7,398 \text{ kg VOC/yr}}$$

where:

86.18 g/gmol is the molecular weight of Hexane (VOC as Hexane from AP-42 Table 2-4.2 note c)

$8.205 \times 10^{-5}$  is the ideal gas conversion factor

298 K is the assumed temperature of the LFG (equivalent to 25 deg C)

VOC vol. flow (m<sup>3</sup>/yr) = 2,099 m<sup>3</sup>/yr

Finally, calculate the VOC flare emissions using AP-42 equation 2.4(5)

$$= (\text{VOC mass flow to the flare}) * (100\% - 98\% \text{ destruction efficiency}) * (2.2 \text{ lb/kg}) * (1 \text{ ton}/2,000 \text{ lb})$$

$$= \quad \quad \quad \mathbf{0.2 \text{ tons VOC emissions from flare}}$$

where:

VOC mass flow (kg/yr) = 7,398 cfm



## SECTION 11170

### ENCLOSED GROUND FLARES

#### PART 1 GENERAL

##### 1.1 DESCRIPTION

- A. Scope of Work: The CONTRACTOR shall supply all materials, equipment, and labor needed to procure, fabricate, shop test, deliver, install, start-up, and field test a complete landfill gas flaring package consisting of two (2) enclosed ground flares, as specified herein, including all appurtenances to provide a complete system ready for operation at the Gude Landfill.
- B. Related Work Described Elsewhere  
  
Section 15090: Blower Motor Assembly  
Section 16930: Instrumentation and Control Panels.
- C. If necessary, modifications shall be made in the manufacturer's standard product to make it conform to the specific requirements of the Specifications and to requirements contained in regulations issued by public agencies.
- D. Equipment shall include all production line improvements made prior to the delivery or Contract date. All equipment and components shall comply with applicable requirements of the standards of ASME, AGA, NFPA, and the Underwriters' Laboratories. Equipment shall not have been in service, except for shop tests, at any time prior to delivery. The equipment shall be furnished factory-assembled to the extent possible and ready for installation.

##### 1.2 QUALIFICATIONS

- A. Two (2) Enclosed Ground Flares, including all ancillary equipment, shall be furnished by a manufacturer who is fully experienced, reputable, and qualified in the manufacture of the equipment to be furnished. The manufacturer shall have experience in supplying equipment for landfill gas service, and shall have a minimum of five years experience in design and manufacture of this type of equipment. It shall have a minimum of five similar installations in successful operation in the United States.
- B. The Enclosed Ground Flares shall be manufactured by John Zink Company, Perennial Energy, or approved equal.

### 1.3 SUBMITTALS

- A. Drawings: The CONTRACTOR shall prepare and submit to the ENGINEER, for review and approval, manufacturer's drawings and other information pertaining to the assembly, operation, adjustments, and maintenance and repairs of equipment delivered under this Section, together with detailed parts lists and/or photographs. The CONTRACTOR shall prepare and submit drawings showing the general arrangement, layout, orientation, elevations, and dimensions of the flare, pilot/ignition assembly, and other flare appurtenances. The CONTRACTOR shall submit a piping and instrumentation diagram. The CONTRACTOR shall also submit complete control panel diagrams and elevations showing all components, wires, connections, and numbered terminals, and complete electrical interconnect diagrams showing all wires and terminals between the control panel and external devices (See Section 16930 for more details).
- B. Catalog Cuts and Specification Sheets: The CONTRACTOR shall submit information describing the make and model number for all components and physical dimensions for the following: flame arrester, valves, actuators, and flow meter.
- C. The CONTRACTOR shall submit information showing the total weight of the equipment, including the weight of the single largest item
- D. O & M Manual: Three (3) copies of a complete draft O & M manual shall be submitted for review three (3) weeks prior to flare delivery. The draft manual must include a detailed checklist specifying how all controls, safeties, etc. will be tested during start-up. Vender information (for example, user manuals for the PLC and phone dialer) shall not be included with the draft manuals. The CONTRACTOR shall submit to the ENGINEER three (3) copies of a final operations and maintenance manual two weeks after startup of the flare that incorporate the ENGINEER's comments on the draft manual. The manual shall be prepared specifically for this installation and shall include all required catalog cuts, specification sheets, record drawings, equipment list, descriptions, health and safety issues, and information necessary to instruct operating personnel unfamiliar with such equipment.
- E. The CONTRACTOR shall submit detailed instructions on the proper handling, unloading, storage, and installation of all equipment in an outside environment.
- F. Prior to testing, the CONTRACTOR shall submit for review and approval a detailed outline of test procedures including step-by-step descriptions of the proposed test, a list of all test equipment, test equipment calibration dates, and sign-off sheets.

#### 1.4 DESIGN CRITERIA

- A. The landfill gas flare system shall be designed to operate continuously at the following service conditions.

Parameter	Value
Number Required	2
Maximum LFG Flow, each flare	600 scfm
Maximum Btu Rate (HHV), each flare	18 MMBtu/hr.
Flare Inlet Pressure: Maximum	5 in.-w.c.
Turndown Ratio (based on Btu)	7:1
Gas Composition Range:	
Example LFG Composition & Flow, each flare	600 scfm @ 50% methane 100 scfm @ 50% methane 170 scfm @ 30% methane
Hydrogen Sulfide	up to 2,000 ppm
Moisture Content	saturated
Site Elevation	420 ft. M.S.L.
Pilot Gas	Propane
Maximum Stack Emissions	
NO <sub>x</sub> (HHV)	0.06 lbs/MMBtu @1600 °F
CO (HHV)	0.20 lbs/MMBtu
Operating Temperature	1500 to 1900 °F
Minimum Residence Time	0.3 seconds @1500 °F

#### 1.5 PERFORMANCE REQUIREMENTS

- A. The following performance requirements shall be guaranteed by the CONTRACTOR:
1. Each supplied flare assembly shall meet the design and performance criteria, including the emission limits, specified herein.
  2. The flare shall be complete with adjustment features that will allow odor-free operation of the flare under significant changes in gas composition.
  3. The flare shall provide both a minimum 98 percent by weight, destruction and removal efficiency of nonmethane organic compounds (NMOC) as measured by

U.S. Environmental Protection Agency (EPA) Method 25C and an outlet NMOC concentration that shall not exceed 20 ppmv measured as hexane and corrected to 3 percent oxygen.

4. Exhaust from the flare stack shall have no visible flame and no visible emissions.
5. The burner heads shall be designed to provide a sufficient pressure drop at minimum flow and heat content conditions in order to maintain a stable flame and proper destruction. The burners must operate with a stable flame over the entire operating range.
6. The burner shall be designed so that flame lift-off from the burner does not occur, and shall be an anti-flash back design.
7. The flare shall be configured to operate on LFG only and maintain operating temperature, provided the methane content is greater than 25 percent. The flare shall allow for and use supplementary fuel if the methane content falls below 25 percent.

#### 1.6 APPLICABLE CODES AND STANDARDS

- A. All equipment shall be manufactured in accordance with codes and guidelines as specifically detailed herein and in accordance with applicable portions of the following (latest edition):
  1. Local Laws and Ordinances.
  2. State and Federal Laws.
  3. National Electrical Code.
  4. National Electrical Manufacturers Association (NEMA).
  5. Underwriters Laboratories (UL).
  6. Uniform Building Code (UBC).
  7. American National Standards Institute (ANSI).
  8. American Society of Mechanical Engineers (ASME).
  9. Institute of Electrical and Electronic Engineers (IEEE).
  10. Instrument Society of America (ISA).
  11. Industrial Risk Insurance (IRI).
  12. Factory Mutual (FM).
  13. National Fire Protection Agency (NFPA).

## PART 2 MATERIALS

### 2.1 EQUIPMENT

- A. The landfill gas flare system shall have the following items as a minimum:
1. Two (2) stacks and burners for landfill gas.
  2. One (1) flame arrester for each flare stack.
  3. Control system (see Section 16930 for more details).
  4. Auxiliary equipment and piping (see Sections 15090 and 16930 for more details).
  5. Ignition by propane pilot system with electric igniter and pressure regulator.
  6. Controls and piping for supplemental fuel.
  7. Spare parts.

### 2.2 STACK AND BURNERS

- A. The CONTRACTOR shall provide two (2) enclosed flares, with a minimum turndown ratio of 7:1 (based on Btu rate). The stack shall be constructed of ASTM A-36 carbon steel, at a minimum, with a minimum thickness of 1/4-inch. BOCA Code and local Building Code requirements shall be met, including structural loading for 110 mph winds. Welds shall be full penetration. LFG burners shall be made from 304L series stainless steel, at a minimum, with a minimum thickness of 16 gauge. The manifold shall be of a sectional header arrangement to accommodate the removal and repair of individual flanged headers.
- B. The refractory shall be a lightweight ceramic insulating blanket, manufactured by A.P. Green or equal, installed at the factory. The flare shall not require warm-up or cool-down procedures to avoid refractory damage. The shell skin temperature shall not exceed 250 degrees F under maximum Btu loading conditions. A minimum of two (2) layers of ceramic fiber insulation blanket shall be provided. One 1-inch-thick layer of ceramic fiber blanket of 8lbs/ft<sup>3</sup> density shall be installed, using overlap outer face construction methods, over one 1-inch-thick layer of ceramic fiber blanket of 6lbs/ft<sup>3</sup> density. Insulation shall be attached to stack wall and floor with Inconel 601 series, or as approved by the ENGINEER as equal, anchors, pins, and keepers. A 304 S.S. rain guard shall be provided at the top of the flare stack to prevent water seeping into the insulation. A 2-inch heat and flame resistant sight port shall be provided.
- C. The exposed carbon steel surfaces of the flare shall be sand blasted (SSPC - SP6) and have one (1) finish coat of rust-resistant, heat-resistant primer and one (1) finish coat applied at the shop/factory. The primer shall have high zinc content (minimum 50 percent by weight) suitable for the operating temperatures, such as Sherwin Williams Zinc Clad II or approved equal, suitable for a corrosive environment with high hydrogen sulfide LFG. Primer coat shall be 2 to 3 mils DFT and finish coat shall be minimum 1.5 dry mils. The CONTRACTOR shall remove rust and repaint equipment that experiences blistering, cracking, peeling, rusting, or other failure during the first year of

operation under normal flare temperature conditions (< 2000 °F). One (1) gallon of touch-up paint shall be supplied with the flare. The color of the finish coat shall be approved by the OWNER.

- D. At all levels of performance, the sound pressure shall not exceed 85 dbA over a frequency range of 37.8 to 9,600 cycles per second. Measurement shall be made a distance of three (3) feet from the outer face of the flare. In addition, the sound pressure for all blower and flaring equipment shall not exceed 55 dbA at a distance of 150 feet from the flaring equipment. The equipment manufacturer shall guarantee that the equipment furnished for this project does not exceed the specified sound pressures.
- E. All factory-finished equipment shall be protected from damage during shipment, thoroughly cleaned after shipment, and touched up as directed by the ENGINEER. If the factory finish had, in the opinion of the ENGINEER, been damaged, the equipment shall be given one (1) finish field coat.
- F. Each flare stack shall have a galvanized ladder mounted to it to allow servicing of the thermocouples. The ladder shall comply with OSHA requirements and include a hood shield at the top of the ladder and safety harness attachment lugs. Protective screening shall be provided behind the ladder.
- G. A brass or stainless steel nameplate shall be attached to the flare in a conspicuous place. The following information shall be plainly marked on the nameplate: name and address of the manufacturer, serial number, model number, and any other information necessary for complete identification.
- H. An access manway shall be provided on the unit for inspection and maintenance of the burners. Access may be provided by hinging one set of louvers, or by a separate bolted or locked manway.
- I. A set of minimum two (2) sampling ports shall be spread horizontally and located at least 2 feet above the flame zone and at least 1/2 stack diameter below the top of the flare shroud. Sampling ports shall be installed 90 degrees apart, and shall consist of 4-inch NPT ports with insulated plugs.
- J. Eyebolts shall be provided above each sampling port to properly support sampling probe and trains.
- K. The flare stack shall be provided with lifting lugs near the top of the flare to permit the lifting and upright suspension of the flare at these points. The flare shall arrive on the site with internal supports necessary to permit the lifting of the flare by the lifting lugs without damage to the refractory or other flare components and all necessary covering and weather protection to enable outside storage prior to installation.
- L. The flare stack shall be assembled at the factory to the extent possible. Instructions for any unavoidable on-site assembly shall be provided per submittal requirements.

- M. The flare stack shall be installed on the concrete slab. All necessary support angles to install the flare on the concrete slab shall be furnished by the flare manufacturer. A base ring template made of 1/4" carbon steel shall be used to assist in setting the anchor bolts. The landfill gas inlet flange and pilot gas pipe connection furnished with the flare shall extend a minimum of 6 inches beyond the outermost dimension of the flare.

### 2.3 FLAME ARRESTER

- A. Flame arresters (2) shall be suitable for installation on lines containing saturated LFG.
- B. The CONTRACTOR shall supply an eccentric flame arrester compatible to the required flow rates for each flare. Maximum head loss through the flame arrester shall not exceed 5 in.-w.c. at the maximum flow rate. Each flame arrester be provided with 125-pound, ANSI flange connections for compatibility with the LFG header pipe. Each flame arrester and all LFG piping and fittings downstream of the flame arrester shall be provided by the flare manufacturer. The housing construction shall be cast aluminum and shall have a drain connection with manual valve. The flame arrester shall be manufactured by Varec, Groth, or as approved by the ENGINEER as equal.
- C. The bank assembly shall be all aluminum and shall be so arranged for removal from the housing to facilitate inspection and cleaning, without removal of the housing from the pipe. The net free area through the bank assembly shall not be less than four times that of the corresponding size pipe. All grids of the bank shall be arranged for individual removal.
- D. The CONTRACTOR shall provide a differential pressure (Dwyer Capsuhelic or equal) indicator across the flame arrester, including connecting piping, mount, and isolation valves.

### 2.4 CONTROL SYSTEM

The control panel(s) for the system shall be compliant with NEMA 4 specifications at a minimum and shall house all control functions for the flares and blowers. See Section 16930 for details.

### 2.5 AUXILIARY EQUIPMENT

Auxiliary equipment for each flare shall include the following:

- A. Temperature Indication:

Three (3) thermocouples installed at various stack heights to appropriately monitor anticipated minimum, maximum, and intermediate flow temperatures. A selector switch shall be provided to allow operator selection of any thermocouple.

- B. Automatic temperature control via makeup air dampers.

- C. Ultraviolet scanner (self-checking) flame monitoring with NFPA-approved flame safeguard controller as manufactured by Honeywell, or as approved by the ENGINEER as equal.
- D. Explosion-proof purge blower.
- E. Automatic control valves. Each flare assembly shall include an automatic control valve. The valve shall open when prompted by the flare control panel and closed by loss of electrical power, flame failure, or blower failure. It shall be a pneumatically operated butterfly valve, bubble-tight, wafer-style, equipped with a stainless steel disk and Viton or Teflon seat. The operator shall have a manual override and be equipped as a spring fail close device. It shall close when directed by the logic in less than 5 seconds. The compressed gas necessary to operate the valve shall be supplied by a nitrogen bottle (to be supplied by others).

## 2.6 IGNITION PROCEDURE

- A. The pilot and main flame for each flare shall be controlled by a PLC using ultraviolet (UV) scanner(s), thermocouples and timers to perform the following functions:
  1. System startup shall begin with a 5-minute purge cycle, using a purge blower, to evacuate any fugitive hydrocarbons from the flare. Limit switch on flare shut-off valve must indicate closure during the purge cycle. After purge is completed, spark ignition of propane creates pilot flame. Prove the pilot flame by a self-checking flame scanner.
  2. When pilot is successfully ignited, automatic control valve is activated. Open limit switch on main valve activates blower(s).
  3. When main flame is successfully ignited (as detected by a UV scanner), pilot gas is shut off.
  4. If pilot is not ignited after three attempts within the pre-selected time interval (as set on the timer), the pilot is shut off, a trouble light is illuminated, and the auto dialer signal is initiated.
  5. If main flame is not ignited within the pre-selected time interval, the pilot is shut off, and the trouble light is illuminated.
  6. If the main flame fails (either loss of flame or high or low temperature condition for either flare), a contact closure shall signal the inlet valve to close, the blower(s) to turn off and an alarm and auto-dialer signals to activate.
  7. In the event of loss of flame, the flare and blower shall automatically restart after an adjustable time delay of 5 to 15 minutes.
- B. In the event of a power failure, the flare and blowers shall automatically restart when power resumes. After 15 minutes, an alarm and auto-dialer signal is activated.



2.8 SPARE PARTS - The CONTRACTOR shall provide the following spare parts:

- A. 1 UV scanner
- B. 1 Flame scanner controller/amplifier
- C. 4 Thermocouple assemblies
- D. 1 Spark plug
- E. 2 Igniter rod insulators
- F. 1 Sight port assembly
- G. 6 Panel lights
- H. 1 Pressure gauge
- I. 1 Solenoid valve (for propane pilot)
- J. 1 Damper actuator
- K. 1 Pressure Switch
- L. 1 Gallon of paint

### **PART 3 EXECUTION**

- 3.1 Prior to shipment, the flare manufacturer shall test all interlocks, relays, blowers, valves, instrumentation and controls. Testing of proper start-up, operating and shutdown sequences is required, together with and required adjustment or corrections. The main flare burners do not need to be operated.
- 3.2 The flare manufacturer's representative shall be on site for up to 4 days (defined as 8 hour days at the site) during flare system start-up to provide start-up troubleshooting, to perform a QA/QC check of the installation work, to identify any defects requiring corrective action, to confirm all controls and safeties, to demonstrate equipment operation, health and safety issues, and to train on-site personnel using the draft O&M manual. Successful demonstration of all equipment, controls, and failure modes is required for final acceptance of the system. All labor, equipment, field testing, supplies and other necessary items to perform the blower/flare start-up shall be provided by the CONTRACTOR.
- 3.3 The CONTRACTOR shall coordinate all aspects of the work with the blower manufacturer and with the flare manufacturer.

END OF SECTION



16406 US ROUTE 224 E  
 FINDLAY, OH 45840-9761  
 PHONE: (800) 331-7683 or (419) 424-4999  
 FAX: (419) 424-4939 or (419) 424-4991

LANDFILL GAS ENCLOSED FLARE #EF63018  
 GUDE LANDFILL  
 ROCKVILLE, MD

DWG No.

- 1953-TTL
- 1953-PID-SHT1
- 1953-PID-SHT2
- 1953-M1
- 1953-M2
- 1953-M3
- 1953-KOP
- 1953-EPD
- 1953-EM1-SHT1
- 1953-EM1-SHT2
- 1953-EP1-SHT1
- 1953-EP1-SHT2
- 1953-EP1-SHT3
- 1953-EE1-SHT1
- 1953-EE1-SHT2
- 1953-EP2
- 1953-ER1
- 1953-E01
- 1953-E02
- 1953-E03
- 1953-E04
- 1953-E05
- 1953-E06
- 1953-E07
- 1953-E08
- 1953-E09
- 1953-E10
- 1953-E11
- 1953-AD1
- 1953-EP3
- 1953-EP4
- 1953-EP5

LIST OF DRAWINGS

- TITLE SHEET
- PIPING AND INSTRUMENTATION DIAGRAM AND BILL OF MATERIAL
- PIPING AND INSTRUMENTATION DIAGRAM AND BILL OF MATERIAL
- BLOWER SKID ASSEMBLY
- ENCLOSED FLARE NOZZLE ORIENTATION
- ELECTRICAL CONTROL RACK ASSEMBLY
- KNOCK OUT POT ASSEMBLY
- ONE LINE POWER DISTRIBUTION DIAGRAM
- POWER DISTRIBUTION PANEL ELECTRICAL SCHEMATIC
- POWER DISTRIBUTION PANEL ELECTRICAL SCHEMATIC
- POWER DISTRIBUTION PANEL ENCLOSURE LAYOUT
- POWER DISTRIBUTION PANEL BACKPLATE LAYOUT AND TERMINAL STRIP LAYOUT
- POWER DISTRIBUTION PANEL BILL OF MATERIALS
- FLAME-TROL IV ENCLOSURE LAYOUT
- FLAME-TROL IV BUTTON & LIGHT DETAILS
- FLAME-TROL IV BACKPLATE LAYOUT
- FLAME-TROL IV PLC CARD STACKUP
- FLAME-TROL IV ELECTRICAL SCHEMATIC
- FLAME-TROL IV ELECTRICAL SCHEMATIC
- FLAME-TROL IV ELECTRICAL SCHEMATIC
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- FLAME-TROL IV ELECTRICAL SCHEMATIC
- FLAME-TROL IV ELECTRICAL SCHEMATIC
- FLAME-TROL IV AUTO-DIALER CONNECTIONS
- AUTO-DIALER ENCLOSURE LAYOUT
- ENCLOSED FLARE JUNCTION BOX
- ENCLOSED FLARE JUNCTION BOX

LEGEND

INSTRUMENT OR FUNCTION SYMBOLS

LOCALLY MOUNTED	PANEL MOUNTED FRONT	PANEL MOUNTED BACK	
			INSTRUMENT
			SHARED DISPLAY, SHARED CONTROL
			COMPUTER FUNCTION
			PLC CONTROL

- RESET
- PURGE
- INTERLOCK
- INSTRUMENTS SHARING COMMON HOUSING
- ALARM HORN
- INDICATING LIGHT
- NOZZLE SCHEDULE POINT
- DESIGN PARAMETER SCHEDULE POINT
- SAMPLE SCHEDULE POINT

PIPING & INSTRUMENT LINE SYMBOLS

- FLOW DIRECTION
- MAIN FLOW
- SECONDARY FLOW
- PNEUMATIC SIGNAL
- ELECTRIC SIGNAL
- HYDRAULIC SIGNAL
- CAPILLARY TUBING
- ELECTROMAGNETIC (GUIDED)
- BOUNDARY
- SUPPLIED BY OTHERS

VALVES, REGULATORS, AND OTHER DEVICES

- GATE VALVE
- ANGLE VALVE
- BALL VALVE
- GLOBE VALVE
- BUTTERFLY VALVE
- CHECK VALVE
- THREE WAY VALVE
- PLUG VALVE
- NEEDLE VALVE
- MANUALLY OPERATED VALVE
- SOLENOID OPERATED VALVE
- PNEUMATICALLY OPERATED VALVE
- ELECTRIC MOTOR OPERATED VALVE
- DIAPHRAGM OPERATED VALVE
- PRESSURE RELIEF VALVE
- PRESSURE REDUCING REGULATOR
- PRESSURE REDUCING REGULATOR (SELF CONTAINED)
- BACK PRESSURE REGULATOR (SELF CONTAINED)
- FLANGED CONNECTION
- FLEXIBLE CONNECTION
- INSULATION
- REDUCER
- VENTURI TUBE
- FLOW STRAIGHTENER
- ORIFICE PLATE
- UNION
- STRAINER
- FLAME ARRESTER
- DAMPER (AUTOMATED)
- BLOWER OR PUMP

TABLE OF STANDARD IDENTIFICATION LETTERS

FIRST LETTER	SECOND LETTER	THIRD LETTER	FOURTH LETTER
A	ANALYSIS	ALARM	ALARM
B	BURNER, COMBUSTION	USER'S CHOICE	CONTROL
C	CONNECTION, USER'S CHOICE	CONTROL	CLOSED
D	DIFFERENTIAL	DIFFERENTIAL	SENSOR
E	VOLTAGE	SENSOR	
F	FLOW RATE	USER'S CHOICE	
G	GAUGE	GLASS, VIEWING DEVICE	HIGH
H	HAND	USER'S CHOICE	HIGH
I	CURRENT (ELECTRICAL)	INDICATOR	
J	POWER	USER'S CHOICE	
K	TIME	CONTROL STATION	
L	LEVEL	CONTROL STATION	LOW
M	USER'S CHOICE, MECHANICAL	USER'S CHOICE, DELIVERY	LOW
N	USER'S CHOICE, REMOTE	USER'S CHOICE	
O	USER'S CHOICE	ORIFICE, RESTRICTION	OPEN
P	PRESSURE, VACUUM	POINT (TEST) CONNECTION	DEVICE, BLOWER
Q	QUANTITY	INTEGRATE, TOTALIZE	
R	RADIATION	RECORDER	
S	SPEED, FREQUENCY	SAFETY	SWITCH
T	TEMPERATURE	TRANSMIT	SWITCH
U	MULTIVARIABLE	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION	VALVE, DAMPER, LOUVER	MULTIFUNCTION
W	WEIGHT, FORCE	WELL	
X	UNCLASSIFIED	X AXIS, EXCHANGER, SEPARATOR	UNCLASSIFIED
Y	EVENT, STATE	Y AXIS	UNCLASSIFIED
Z	POSITION, DIMENSION	Z AXIS	UNCLASSIFIED

ABBREVIATIONS

- AS AIR SUPPLY
- COND CONDENSATE
- CPLG COUPLING
- CS CARBON STEEL
- ES ELECTRICAL SUPPLY
- ESD EMERGENCY SHUT DOWN
- GS GAS SUPPLY
- HDPE HIGH DENSITY POLYETHYLENE
- IAS INSTRUMENT AIR SUPPLY
- KOP KNOCK-OUT TANK
- LFG LANDFILL GAS
- MCC MOTOR CONTROL CENTER
- MS MOTOR STARTER
- PS PIPE STAND/SUPPORT
- PVC POLYVINYL CHLORIDE
- SC SAMPLE CONNECTION
- SS STAINLESS STEEL
- WS WATER SUPPLY

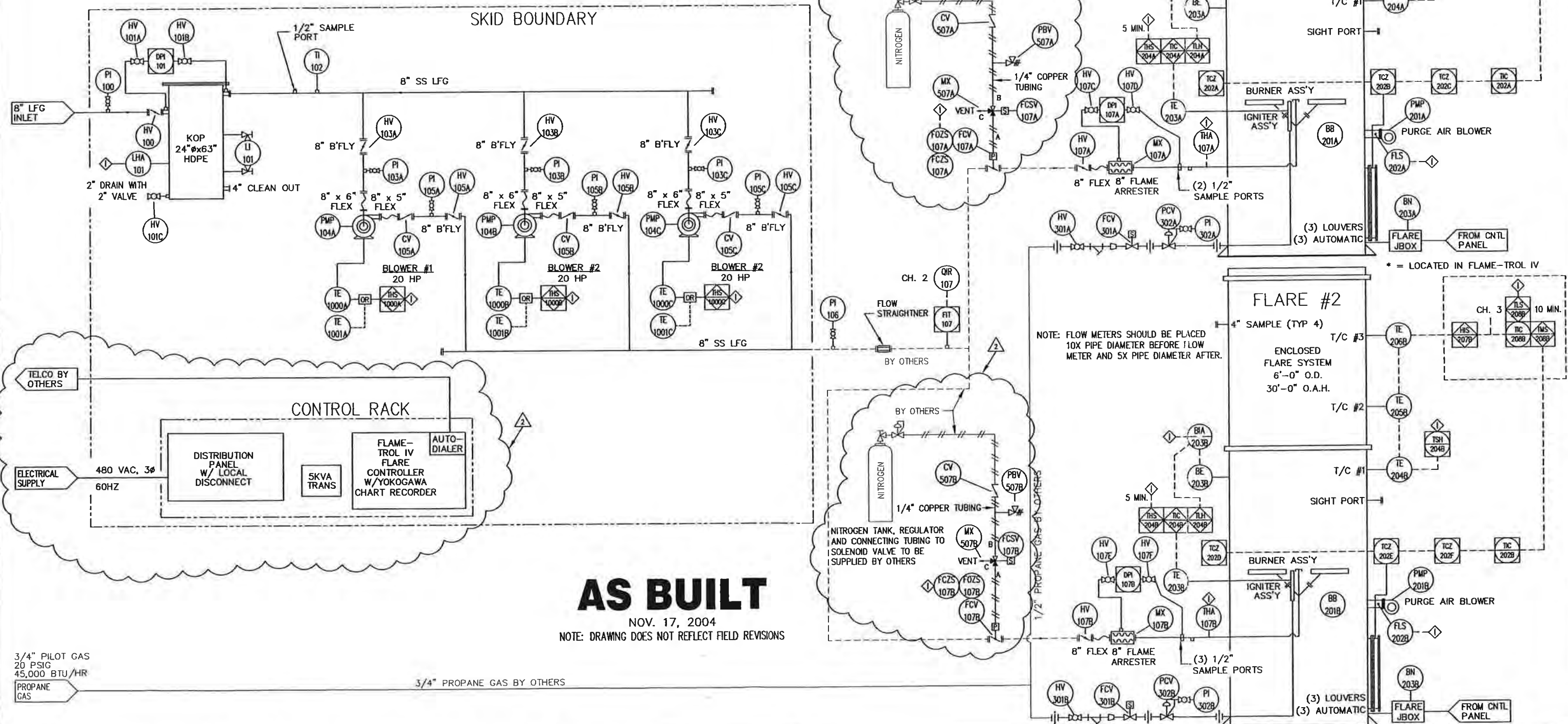
STATE	AIR FLOW
(ENERGIZED)	B C → A
(NON-ENERGIZED) (FAIL TO THIS STATE)	B C → A

FCSV-107A & B

**NOTES:**

P & ID SYMBOLS ARE SHOWN FOR GENERAL REPRESENTATION ONLY. SEE ASSEMBLY DRAWINGS FOR COMPONENT PLACEMENT & CONFIGURATION.

\* = LOCATED IN FLAME-TROL IV



**AS BUILT**

NOV. 17, 2004

NOTE: DRAWING DOES NOT REFLECT FIELD REVISIONS

3/4" PILOT GAS  
20 PSIG  
45,000 BTU/HR  
PROPANE GAS

3/4" PROPANE GAS BY OTHERS



REV	DESCRIPTION / ISSUE	DATE	BY
3	AS BUILT	10/17/04	CLK
2	MODIFIED AIR SYSTEM	10/15/04	TRS
1	8" x 6" FLEX WAS 8" x 5"	10/11/04	CLK

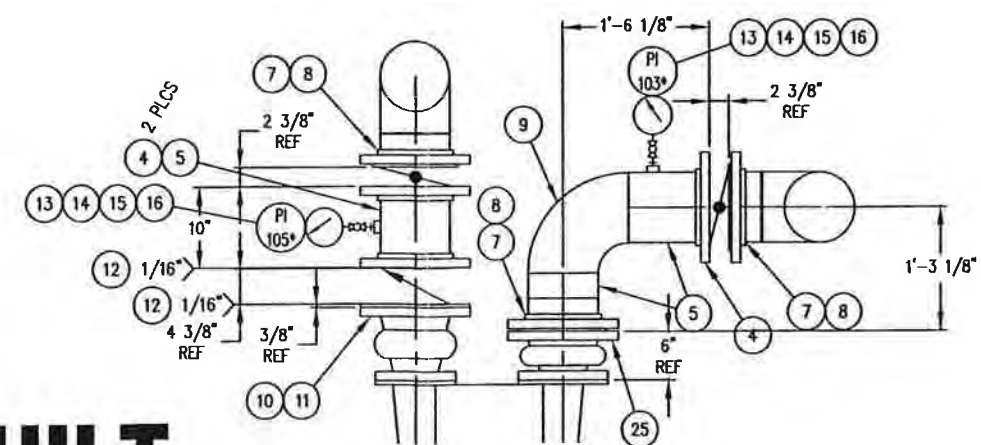
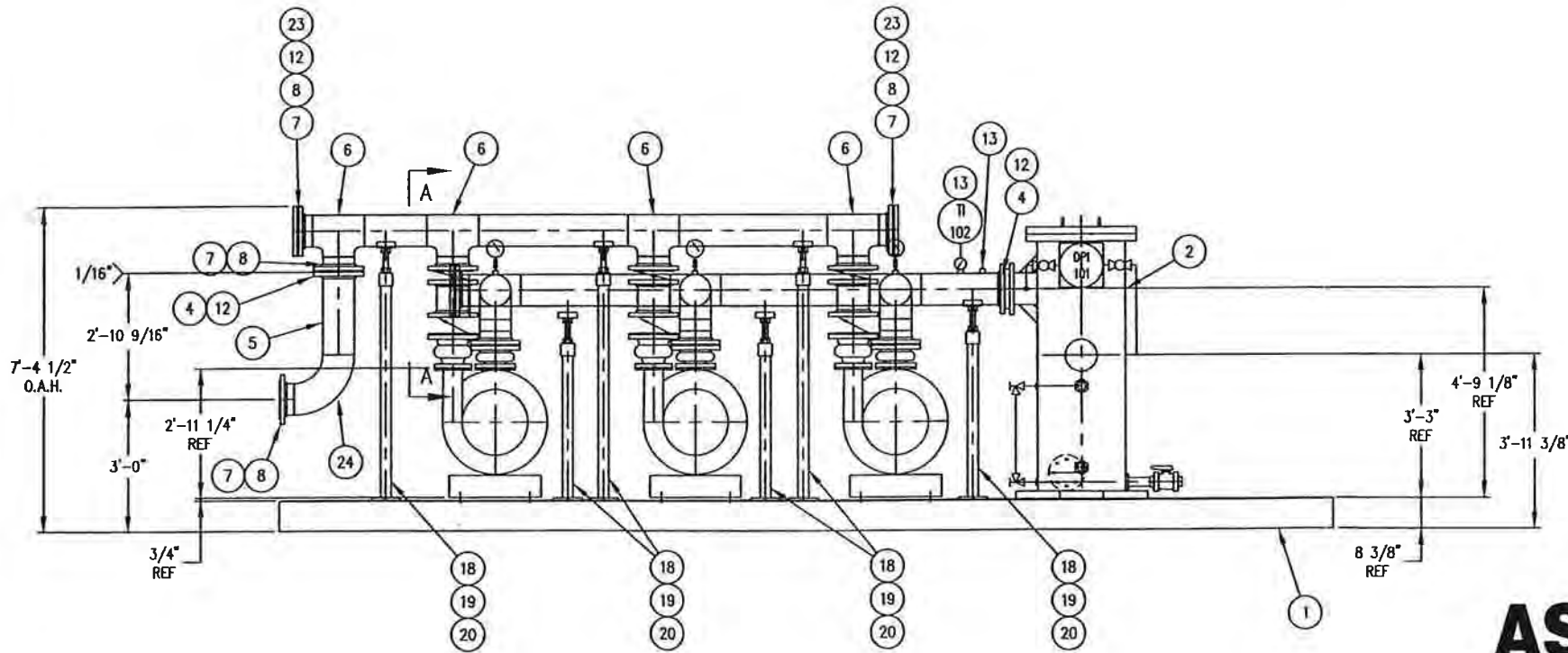
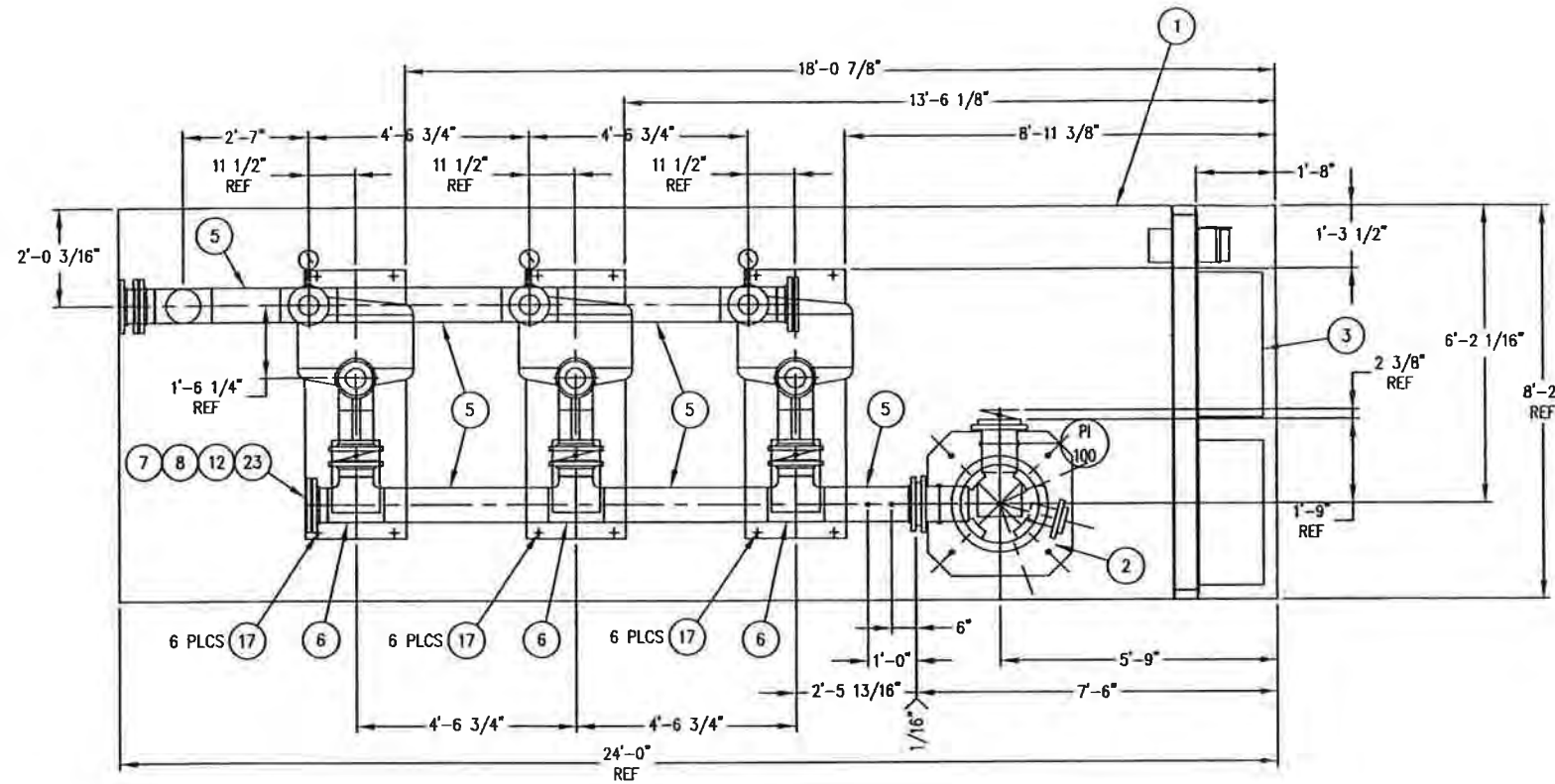
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PIPING AND INSTRUMENTATION DIAGRAM				PROJECT NAME		
DRAWN BY: CLK	DESIGNED BY: LZ	APPROVED BY: LZ	SCALE: NONE	LANDFILL GAS ENCLOSED FLARE #EF63018		
DATE: 7/1/04	PROJECT NO: 847042	GUDE LANDFILL ROCKVILLE, MD			SERIAL NO: 1953	DWG NO: PID
				MONTGOMERY COUNTY, MD		



BILL OF MATERIAL

ITEM	QTY	DESCRIPTION	SUPPLIER	PART NO.
1	1	SKID ASSEMBLY	LFG	1953-STLL
2	1	24" DIA x 63" LG KOP ASSEMBLY	LFG	1953-KOP
3	1	ELECTRICAL CONTROL RACK ASSEMBLY	LFG	1953-M3
4	11	FLANGE RFSO SS 150# 8"	LFG	WFO8S3
5	16	PIPE 304SS SCH10 8"	LFG	PW8S10
6	7	TEE 304SS SCH10 8"	LFG	WFT08000800S10
7	13	STUB END 304SS SCH10 8"	LFG	WFO8S10
8	13	LAP JOINT FLANGE GALV 8"	LFG	WFLJ8GALV
9	3	ELL 90° SR 304SS SCH10 8"	LFG	WFS0800S10
10	3	FLEX JOINT 8" x 5" x 9"	LFG	
11	3	BACKING RING 8"	LFG	VFJBR838S
12	10	GASKET F-F NON-ASBESTOS 8"	LFG	WFG8NA
13	8	COUPLING HALF THRD CS 1/2"	LFG	FLOOR STOCK
14	6	PIPE NIPPLE SS 1/4" x 2" LG.	LFG	FLOOR STOCK
15	6	REDUCER SS 1/2" x 1/4"	LFG	FLOOR STOCK
16	6	GAGE VALVE 1/4"	LFG	PFGV014S
17	18	RUBBER ISOLATION PAD	LFG	VP3SDUROMETER
18	6	PIPE SUPPORT ASSEMBLY 8"	LFG	PIPESUPPORT8
19	6	PIPE SUPPORT BASE	LFG	PIPESUPPORTBASE
20	6	PIPE BLK SCH40 2"	LFG	PW2B40
21	1	PIPE 304SS SCH40 1/2"	LFG	PW012S40
22	1	PIPE BLK SCH40 1/2"	LFG	PW012B40
23	3	FLANGE BLIND SS 8"	LFG	WFB08S
24	1	ELL 90° LR 304SS SCH10 8"	LFG	WFL0800S10
25	3	FLEX JOINT 8" x 6"	LFG	VFJ8X6B



NOTES:

- ALL BOLTS, CAP SCREWS AND NUTS WILL BE SAE GRADE 8 WITH YELLOW ZINC DICHROMATE PLATING. THREADED RODS WILL BE STAINLESS STEEL. ALL THREADS WILL BE UNIFIED NATIONAL COARSE.
- ALL 1/8"-1 1/2" PIPES WILL BE STANDARD BLACK PIPE ASTM A53 OR ASTM A106. ALL 1/8"-1 1/2" PIPE NIPPLES WILL BE STANDARD BLACK PIPE ASTM A733. 3. ALL 1/8"-1 1/2" PIPE FITTINGS (ELBOWS, TEES, BUSHINGS & ETC.) WILL BE STANDARD (CLASS 150) WITH A BLACK FINISH.
- EXTERNAL PIPE SURFACES TO BE BLASTED TO SP-7 SPECIFICATIONS, APPLIES TO CARBON STEEL PIPING ONLY.
- ALL CARBON STEEL VESSELS AND PIPE EXTERNALS TO BE COATED WITH RUST PROHIBITING SHERWIN WILLIAMS B67R5 RED OXIDE RECOATABLE PRIMER AND FINISHED WITH A 3 MIL COAT OF SLATE GREY COLORED INDUSTRIAL ACRYLIC POLYURETHANE, SHERWIN WILLIAMS ACROLON 218 HS.
- FLARE STACK TO BE COATED WITH A 6 MIL COAT OF AMERON DIMETCOTE 25-1.
- INSTALL GAUGES TO FACE CONTROL RACK SIDE.
- ALL INTERNAL SURFACES OF PIPES & FITTINGS BETWEEN THE BLOWERS AND THE FLARE WILL BE BLASTED TO SP-7 SPECIFICATIONS AND COATED WITH SHERWIN WILLIAMS PHENICON HS FLAKE FILLED SOLID EPOXY.
- ALL PIPE BUTT WELD JOINTS WILL HAVE A 1/8" ROOT OPENING.

**AS BUILT**

NOV. 17, 2004

SECTION A-A

3 PLACES

SCALE: 2X



REV	DESCRIPTION / ISSUE	DATE	BY
3	AS BUILT	10/17/04	CLK
2	ADDED ITEM 25	10/11/04	CLK
1	9" LG FLEX JOINT WAS 6"	9/20/04	CLK
0	ISSUED FOR CONSTRUCTION	9/16/04	CLK

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BLOWER SKID ASSEMBLY			
DRAWN BY: CLK	ENGINEER: LZ	APPROVED BY: LZ	SIZE: D
SCALE: 1/2" = 1'-0"	DATE: 7/7/04	PROJECT NO: 847042	

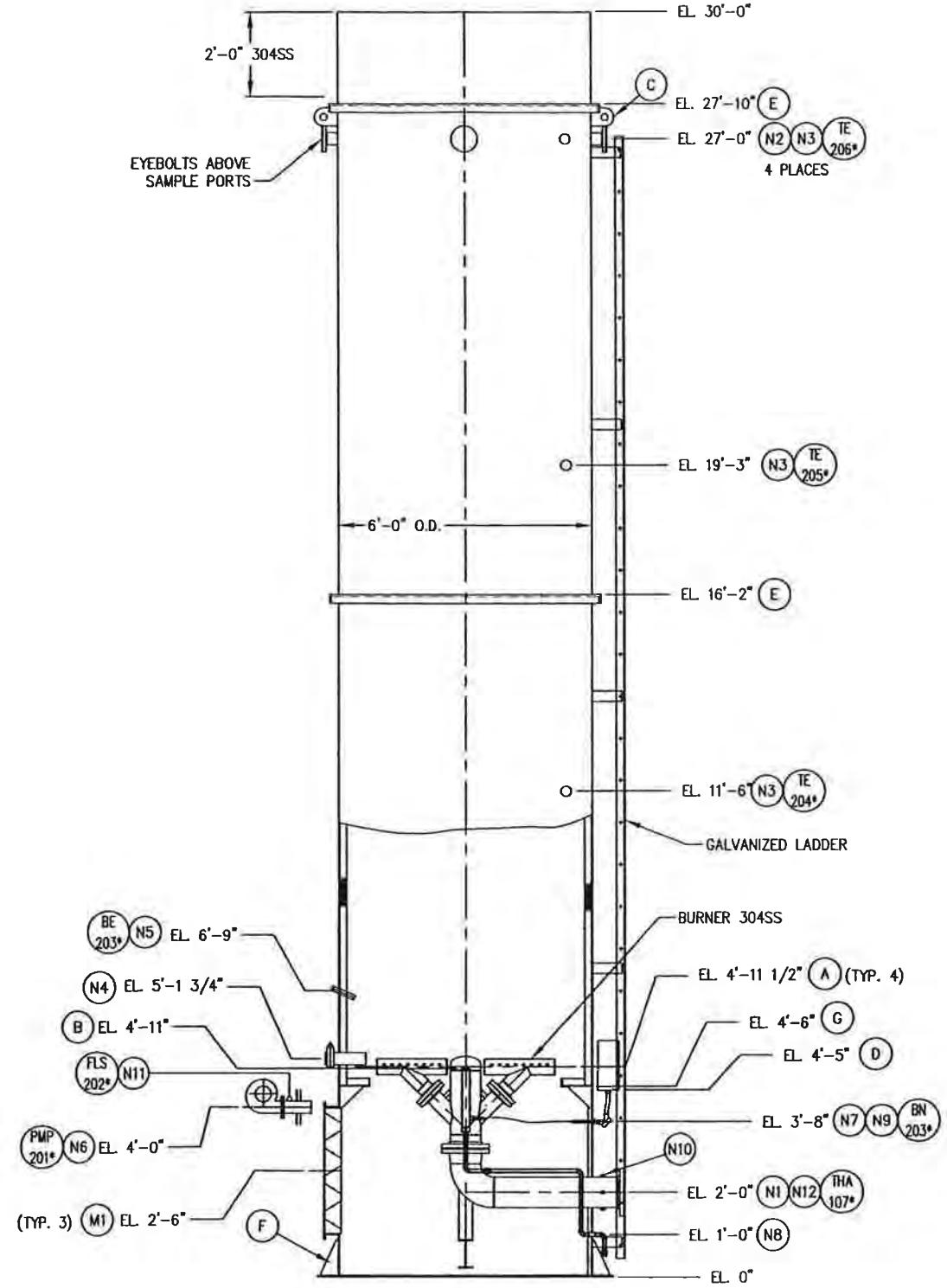
PROJECT NAME: LANDFILL GAS ENCLOSED FLARE #EF63018			
GUDE LANDFILL ROCKVILLE, MD			
CUSTOMER: MONTGOMERY COUNTY, MD	SERIAL NO: 1953	DISC NO: M1	SHEET: 1

NOZZLE SCHEDULE

MARK	REQ'D	SIZE	NOZ PROJ	NECK THKNS	MAT'L	RATING	TYPE	SERVICE
A	4	5"	-	SCH 10S	304SS	150#	SS PIPE	FLARE ARMS
B	1	2"	18"	SCH 10S	304SS	150#	SS PIPE	IGNITER ASSEMBLY
C	2	-	-	1/2"	CS	-	PL	LIFTING LUG
D	1	12W x 14H	-	-	-	-	NEMA 4	FLARE JUNCTION BOX
E	2	2 1/2"	-	1/4"	CS	-	ANGLE	ANGLE STIFFENER
F	8	-	-	1/2"	CS	-	PLATE	ANCHOR CHAIR
G	1	1/4"	-	-	CS	-	PLATE	BAFFLE PLATE
M1	3	30W x 36H	4"	1/4"	CS	-	SQ FLG	LOUVER
N1	1	8"	9"	SCH 40	CS	150#	CS PIPE	LANDFILL GAS INLET
N2	4	4"	-	-	CS	150#	TK FLG	SAMPLE PORT
N3	3	1"	-	-	CS	150#	TK FLG	THERMOWELL (FLARE)
N4	1	3"	-	-	CS	150#	TK FLG	SIGHT PORT
N5	1	1"	-	-	CS	150#	TK FLG	U.V. SCANNER
N6	1	4"	6"	SCH 40	CS	150#	CS PIPE	PURGE BLOWER
N7	1	1/2"	-	-	CS	3000#	F'CPLG	THERMOWELL (PILOT)
N8	1	1/2"	-	-	CS	3000#	F'CPLG	PILOT GAS INLET
N9	1	1/2"	-	-	CS	3000#	F'CPLG	IGNITER ROD
N10	2	1/2"	-	-	CS	3000#	H'CPLG	SAMPLE
N11	1	1/2"	-	-	CS	150#	TK FLG	PURGE BLOWER FLOW SWITCH
N12	1	1/2"	-	-	CS	3000#	H'CPLG	TEMPERATURE SWITCH
N14	1	20" X 36"	-	-	CS	-	-	MANWAY
N15	1	-	-	-	CS	-	-	LADDER

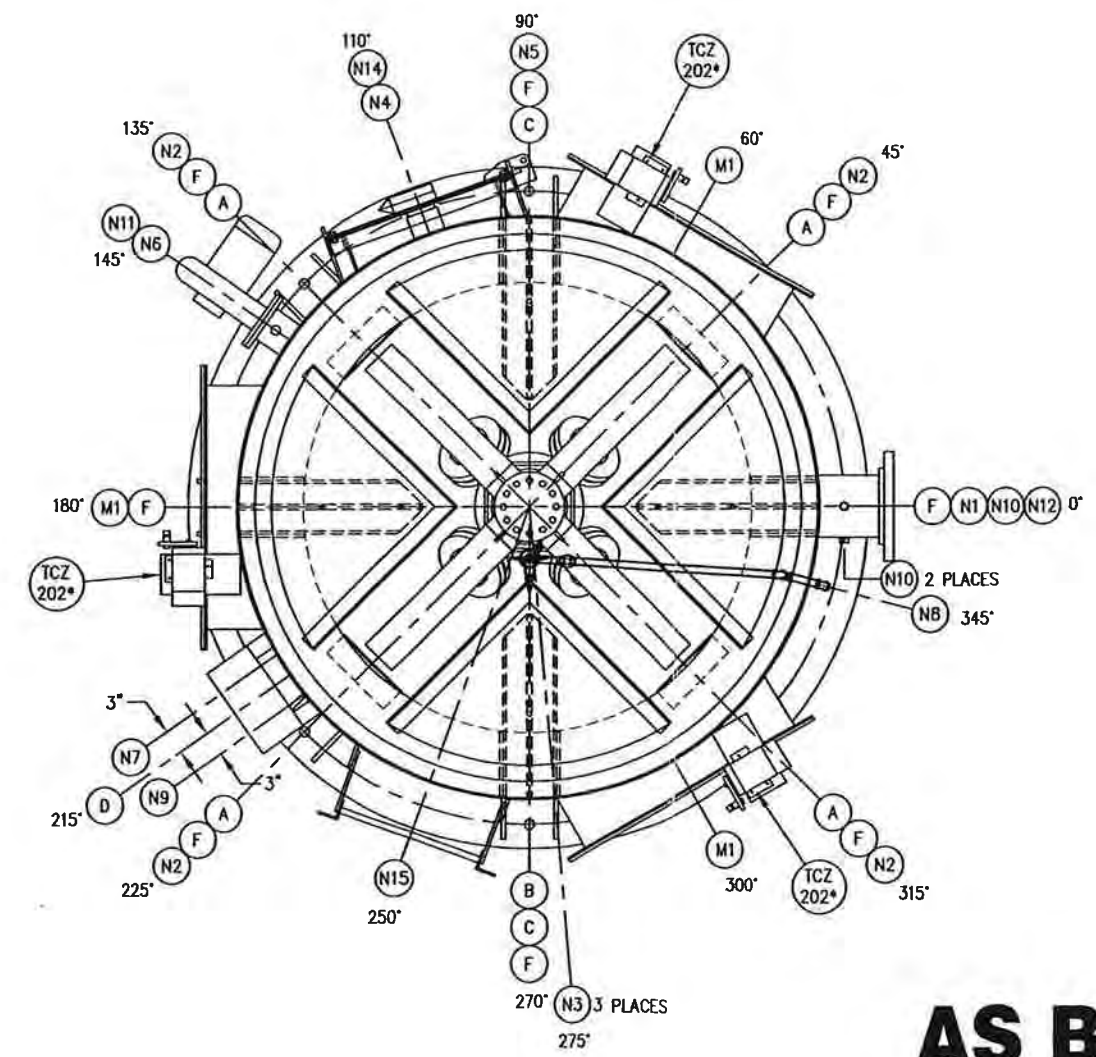
NOTES:

- ENCLOSED FLARE MODEL EF63016
  - FLARE APPROXIMATE WEIGHT = 8,000 LBS
  - WIND LOADING FOR 110 MPH (PER ASCE 7-93 EXP. C)
  - SHEAR FORCE = XXX KIPS
  - COUPLE @ BASE = XXX FT-KIPS
  - INSULATION: MOUNTED ON INCONEL ANCHORS (9" C/C SPACING)
    - TYPE 1 - 1" A.P. GREEN, "INSWOOL-HP" 8# DENSITY (2400F)
    - TYPE 2 - 1" A.P. GREEN, "INSWOOL-HP" 6# DENSITY (2400F)
- a. INSULATE SHELL BELOW BAFFLE PLATE WITH (1) LAYER TYPE 1 INSULATION  
 b. INSULATE TOP OF BAFFLE PLATE WITH (1) LAYER TYPE 1 INSULATION OVERLAPPED ON (1) LAYER OF TYPE 2 INSULATION.  
 c. INSULATE SHELL ABOVE BAFFLE PLATE LONGITUDINALLY WITH (1) LAYER TYPE 1 INSULATION OVERLAPPED ON (1) LAYER TYPE 1 INSULATION.  
 d. ADD (2) CIRCUMFERENTIAL BAND OF TYPE 1 INSULATION AGAINST SHELL DIRECTLY ABOVE BAFFLE PLATE.



ELEVATION  
NOT TRUE ORIENTATION

NOTE: NAMEPLATE ON FLARE AS OUTLINED



NOZZLE ORIENTATION  
SCALE: 2X

**AS BUILT**

NOV. 17, 2004

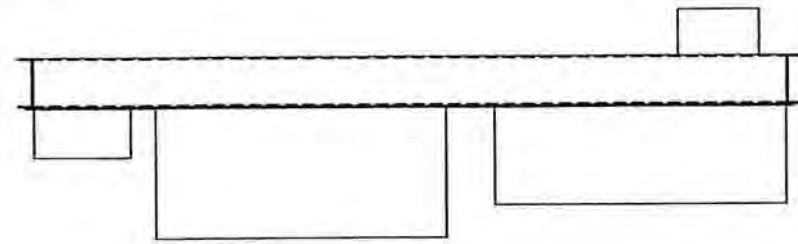


REV	DESCRIPTION / ISSUE	DATE	BY
1	AS BUILT	10/17/04	CLK
0	ISSUED FOR CONSTRUCTION	9/14/04	CLK

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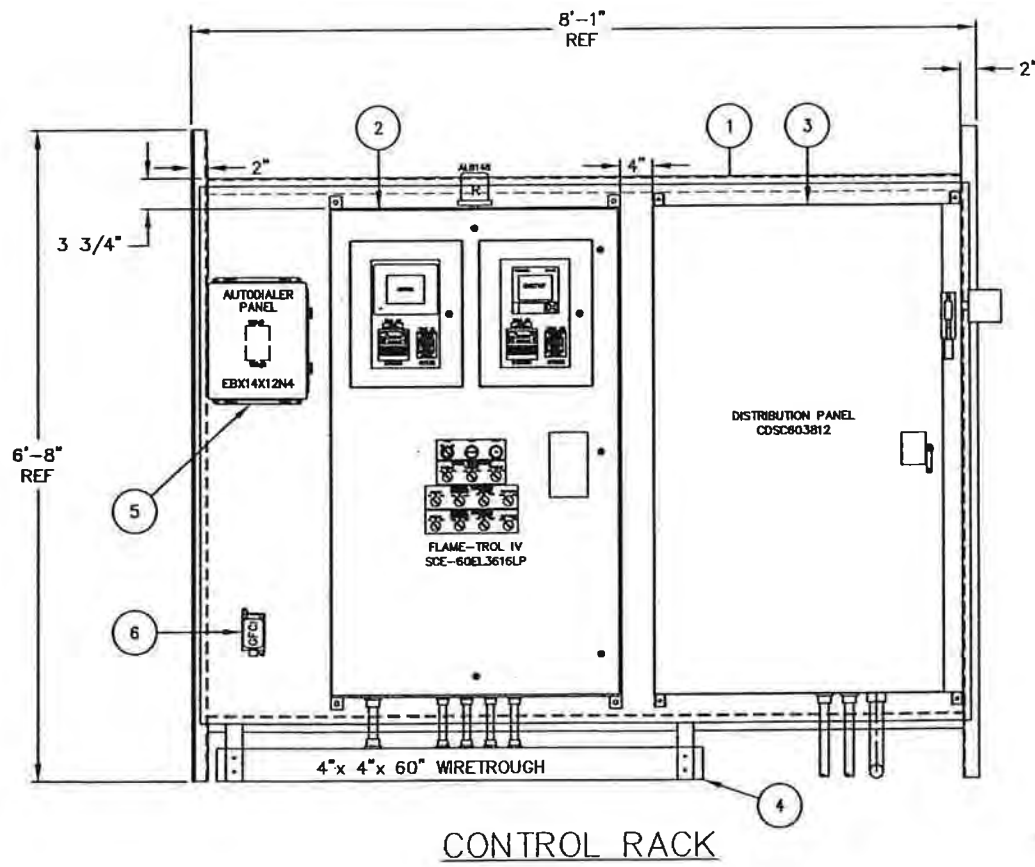
ENCLOSED FLARE NOZZLE ORIENTATION			
DRAWN BY: CLK	CHECKED: LZ	APPROVED BY: LZ	ISS: D
SCALE: 1/2" = 1'-0"	DATE: 7/7/04	PROJECT NO: 847042	

PROJECT NAME		SERIAL NO.		DWG NO.		PWT.	
LANDFILL GAS ENCLOSED FLARE #EF63018		1953		M2		1	
GUDE LANDFILL ROCKVILLE, MD		MONTGOMERY COUNTY, MD					

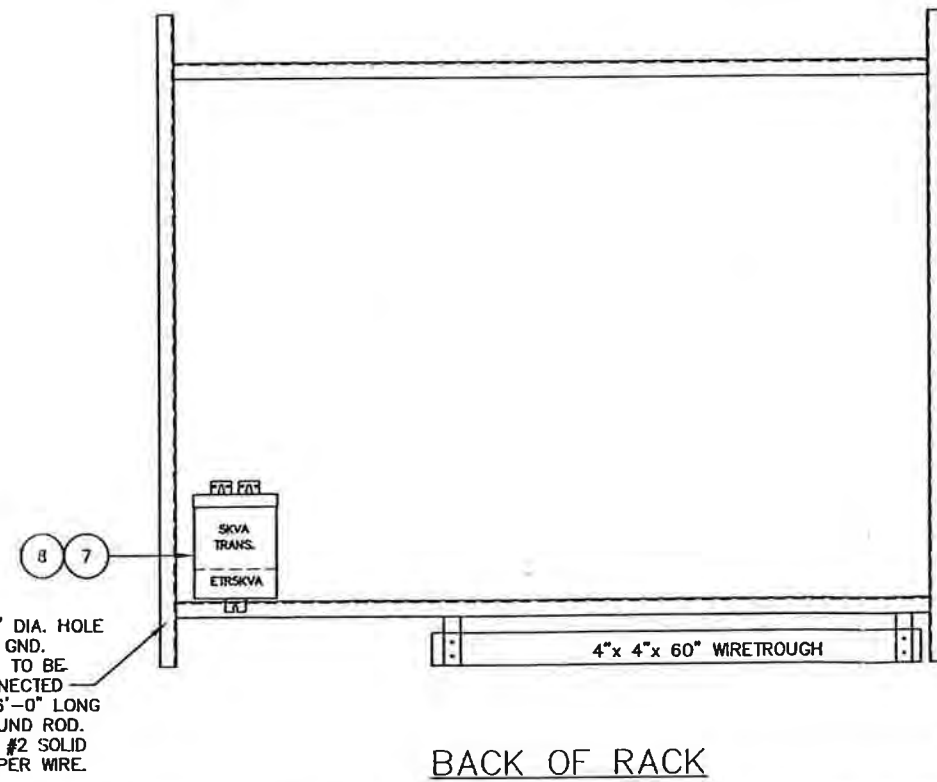


PLAN VIEW

BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	SUPPLIER	PART NO.
1	1	CONTROL RACK ASSEMBLY	LFG	1953-S3
2	1	FLAME-TROL IV ASSEMBLY (SCE-60EL3616LP)	LFG	1953-EE1
3	1	DISTRIBUTION PANEL ASSEMBLY (COSC603812)	LFG	1953-EP1
4	1	4" x 4" x 60" NEMA 3R WIRE TROUGH	HOFFMAN	A-4460RT
5	1	AUTO-DIALER PANEL (EBX14X12N4)	LFG	1953-EP6
6	1	UTILITY RECEPTACLE	LFG	1953-EP1
7	1	SKVA STEPDOWN TRANSFORMER (ETRSKVA)	LFG	1953-EP1
8	1	SKVA TRANSFORMER STRAP	LFG	SKVABRK



CONTROL RACK



BACK OF RACK

**AS BUILT**  
NOV. 17, 2004



REV	DESCRIPTION / ISSUE	DATE	BY
2	AS BUILT	10/17/04	CLK
1	ADDED ITEM 9	10/5/04	CLK
0	ISSUED FOR CONSTRUCTION	9/14/04	CLK

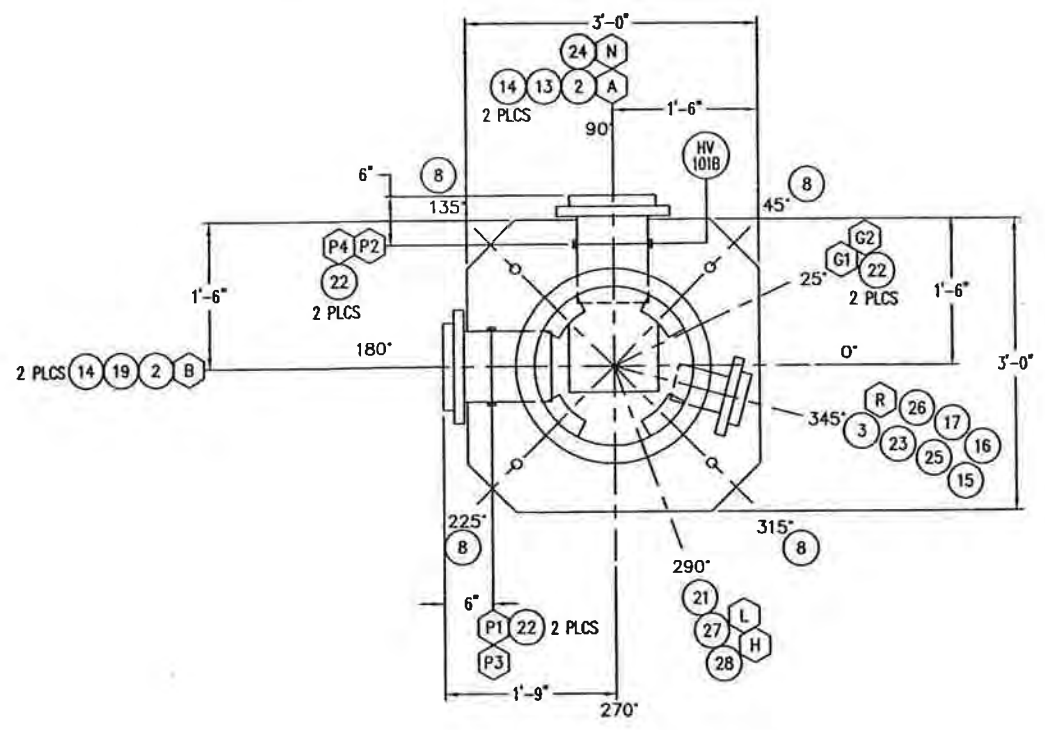
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ELECTRICAL CONTROL RACK ASSEMBLY				PROJECT NAME		CUSTOMER		SERIAL NO.	DWG NO.	SHEET
DRWN BY: CLK	ENGINEER: LZ	APPROVED BY: LZ	SIZE: D	LANDFILL GAS ENCLOSED FLARE #EF63018		MONTGOMERY COUNTY, MD		1953	M3	1
SCALE: 1" = 1'-0"	DATE: 9/14/04	PROJECT NO: 847042		GUDE LANDFILL		ROCKVILLE, MD				

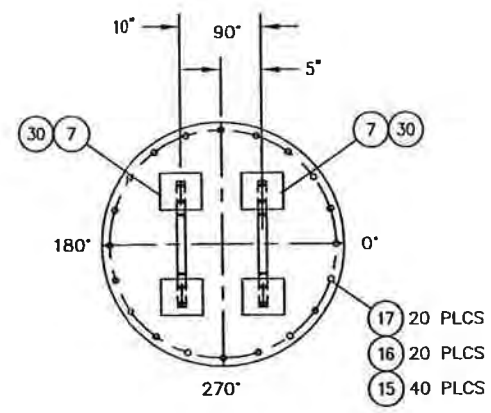


BILL OF MATERIAL

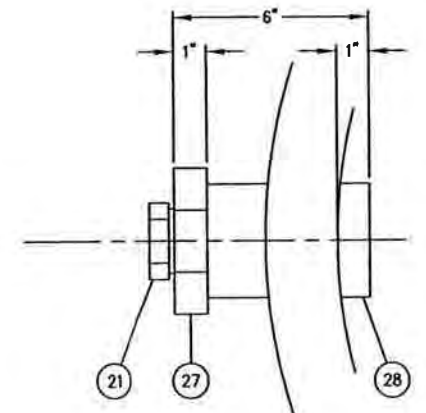
ITEM	QTY	DESCRIPTION	SUPPLIER	PART NO.
1	1	24" DIA. HDPE SDR17 PIPE x 5'-8"	LFG	PW24HDPE17
2	2	8" KOP INLET/OUTLET HDPE SDR11 FLANGE ADAPTER	LFG	SPECIAL
3	1	4" CLEAN OUT HDPE SDR-11 FLANGE ADAPTOR	LFG	SPECIAL
4	1	LID	LFG	SPECIAL
5	1	LID ADAPTER RING	LFG	SPECIAL
6	1	NEOPRENE GASKET	LFG	SPECIAL
7	2	LIFTING LUG 304 SS 1" x 1/4" BAR (SEE DETAIL SHT #2)	LFG	SB01X14S
8	4	MIST PAD TABS (SEE DETAIL SHT #2)	LFG	PW24HDPE17
9	1	10 MICRON 304 SS DEMISTER OD TO MATCH TANK ID	LFG	SPECIAL
10	1	KOP BASE - 2" THICK HDPE PLATE (SEE DETAIL SHT #2)	LFG	HP5X102
11	1	KOP HIGH LEVEL SWITCH	LFG	1953-PID
12	1	1" DIA. SS THREADED PLUG	LFG	FLOOR STOCK
13	1	2" PVC CLOSED NIPPLE SCH80	LFG	FLOOR STOCK
14	4	GUSSETS 1" THICK HDPE (SEE DETAIL SHT #2)	LFG	HP4X1001
15	56	5/8" FLAT WASHER CS	LFG	FLOOR STOCK
16	28	5/8" - 11 UNC BOLT CS - 4 1/2" LG	LFG	FLOOR STOCK
17	28	5/8" - 11 UNC HEX NUT CS	LFG	FLOOR STOCK
18	1	1/2" THK HDPE PLATE - 11" x 1'-5 1/4" (SEE DETAIL SHT #2)	LFG	HP4X1012
19	1	BACKUP RINGS FOR 8" FLANGE ADAPTER	LFG	SPECIAL
20	2	GUSSETS 1/2" THICK HDPE (SEE DETAIL SHT #2)	LFG	HP4X1012
21	2	2" x 1" REDUCING BUSHING SS THRD	LFG	FLOOR STOCK
22	6	3/4" x 1/2" SS REDUCER BUSHING	LFG	FLOOR STOCK
23	1	BACKUP RINGS FOR 4" FLANGE ADAPTER	LFG	SPECIAL
24	1	2 1/2" x 2" REDUCING BUSHING SS THRD	LFG	SPECIAL
25	1	4" DIA GASKET	LFG	WFG4NA
26	1	4" DIA 1/4" THICK BLIND FLANGE	LFG	FLOORSTOCK
27	2	FLANGE 1" THICK HDPE (SEE DETAIL SHT #2)	LFG	HP4X1001
28	2	PIPE 3" HDPE SDR17 - 5" LG	LFG	PW3HDPE17
29	1	DIFFERENTIAL PRESSURE INDICATOR PROCESS	LFG	DPIPIPESTD
30	4	HANDLE COVER 4 1/2" x 5 1/8" x 1" HDPE	LFG	HP4X1001



NOZZLE ORIENTATION



LID PLAN



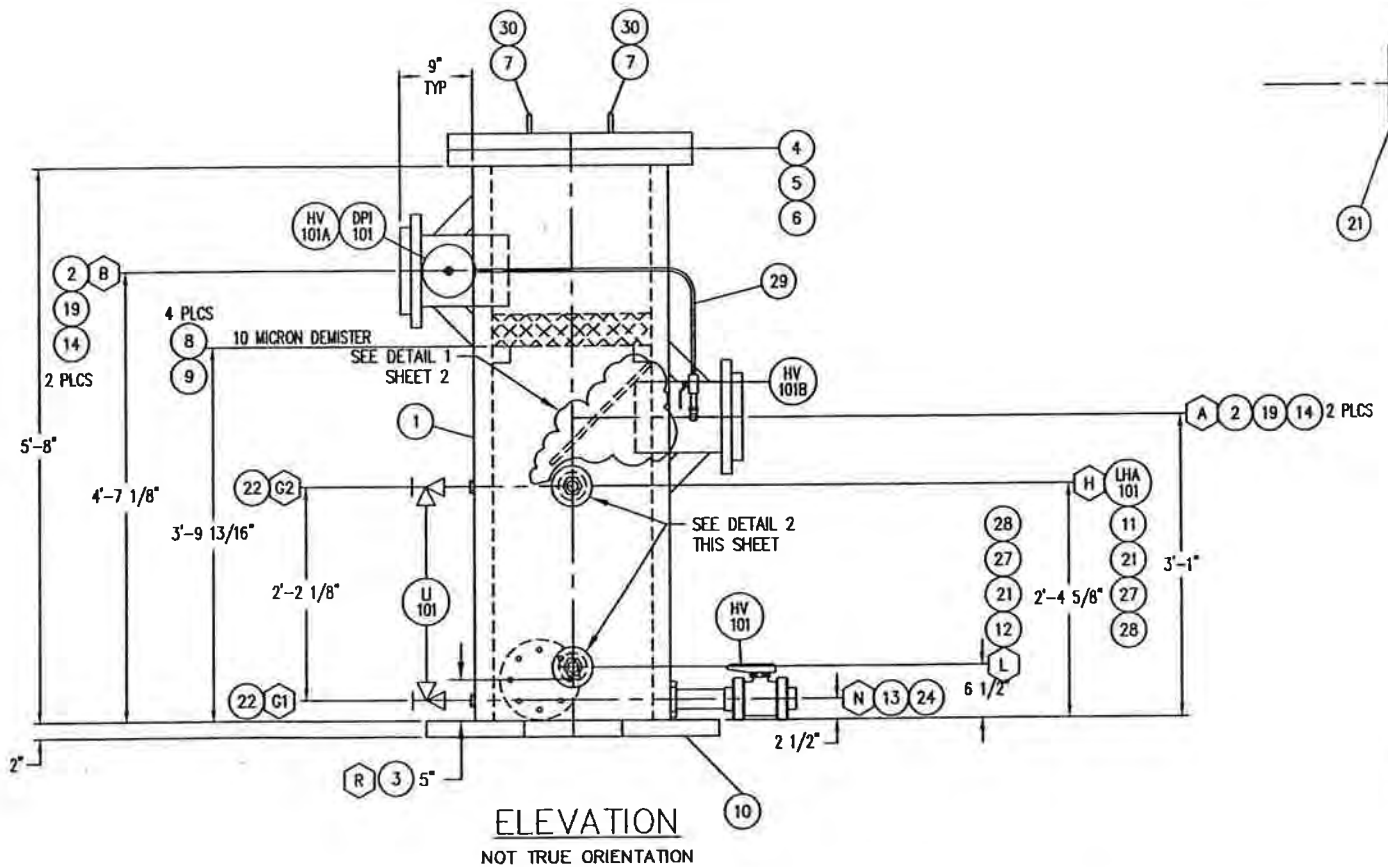
DETAIL 2  
SCALE: 4X  
2 PLACES

NOZZLE SCHEDULE

MARK	SIZE	SIZE	EXT	PROJ	RATING	MATL	DESCRIPTION
A	2	8	9	2	SDR-11	HDPE	GAS INLET
B	2	8	9	2	SDR-11	HDPE	GAS OUTLET
N	24	2	-	-	BUSHING	SS	CONDENSATE DRAIN
G1	22	1/2	-	-	BUSHING	SS	GAGE
G2	22	1/2	-	-	BUSHING	SS	GAGE
H	21	1	-	-	BUSHING	SS	HIGH LEVEL ALARM SWITCH
L	21	1	-	-	BUSHING	SS	PLUG
P1	22	1/2	-	-	BUSHING	SS	PLUG
P2	22	1/2	-	-	BUSHING	SS	DIFFERENTIAL PORT
P3	22	1/2	-	-	BUSHING	SS	DIFFERENTIAL PORT
P4	22	1/2	-	-	H.CPLG.	CS	PRESSURE GAUGE
R	3	4	6	-	SDR-11	HDPE	CLEAN OUT

NOTES:

- ALL BOLTS, CAP SCREWS AND NUTS WILL BE SAE GRADE 8 WITH YELLOW ZINC DICHROMATE PLATING. THREADED RODS WILL BE LOW CARBON STEEL WITH YELLOW ZINC DICHROMATE PLATING. ALL THREADS WILL BE UNIFIED NATIONAL COARSE.
- ALL FLANGE BOLT HOLES TO STRADDLE HORIZONTAL AND VERTICAL CENTERLINES.
- SHOP TO REMOVE SHARP EDGES OFF OF ALL INTERNAL SURFACES.



ELEVATION  
NOT TRUE ORIENTATION

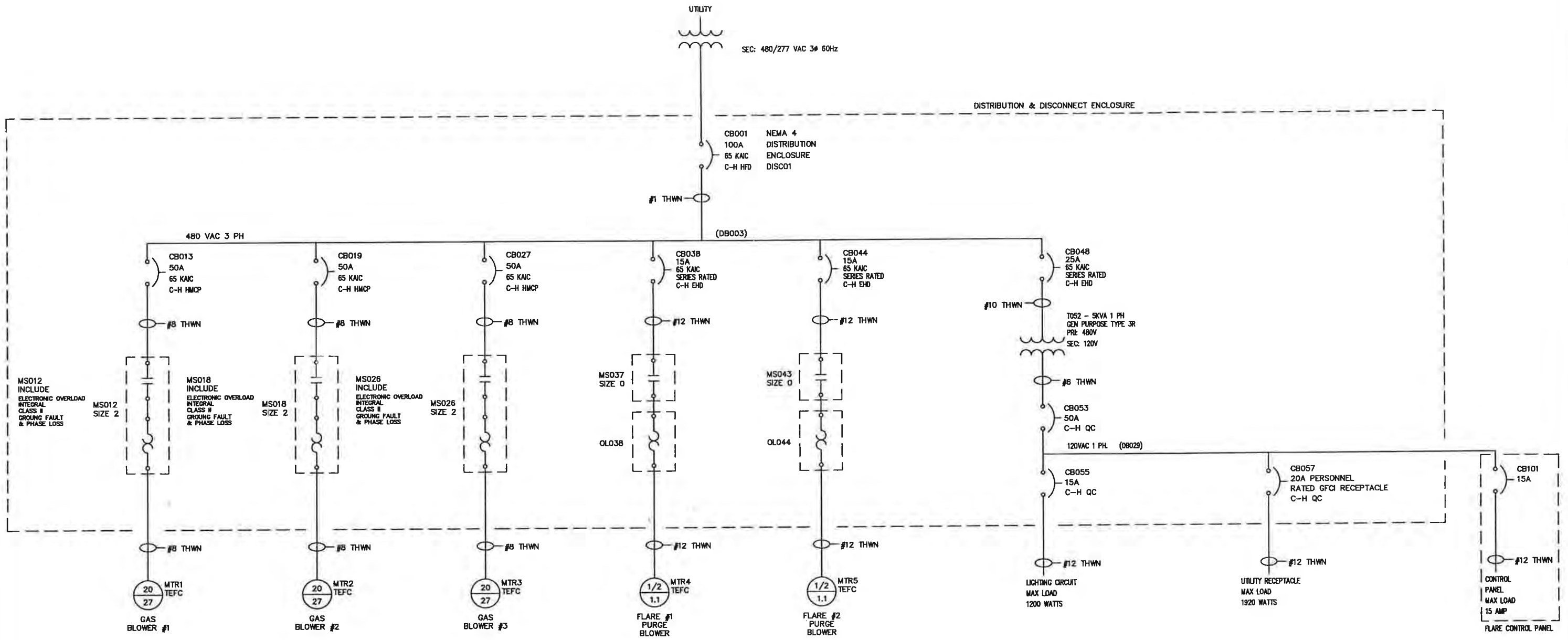
**AS BUILT**  
NOV. 17, 2004

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REV	DESCRIPTION / ISSUE	DATE	BY
1	AS BUILT	11/17/04	CLK
0	ISSUED FOR CONSTRUCTION	9/15/04	KZM

24" DIA. x 48" LG HDPE KNOCK OUT POT ASSEMBLY				PROJECT NAME: LANDFILL GAS UTILITY FLARE #EF63018			
DRAWN BY: KZM				ENGINEER: LZ			
APPROVED BY: LZ				SIZE: D			
SCALE: 1" = 1'-0"				DATE: 9/15/04			
PROJECT NO: 847042				CUSTOMER: MONTGOMERY COUNTY, MD			
SERIAL NO: 1953				DWG NO: KOP			
SHEET NO: 1				REV: 1			





**FOR REFERENCE ONLY**



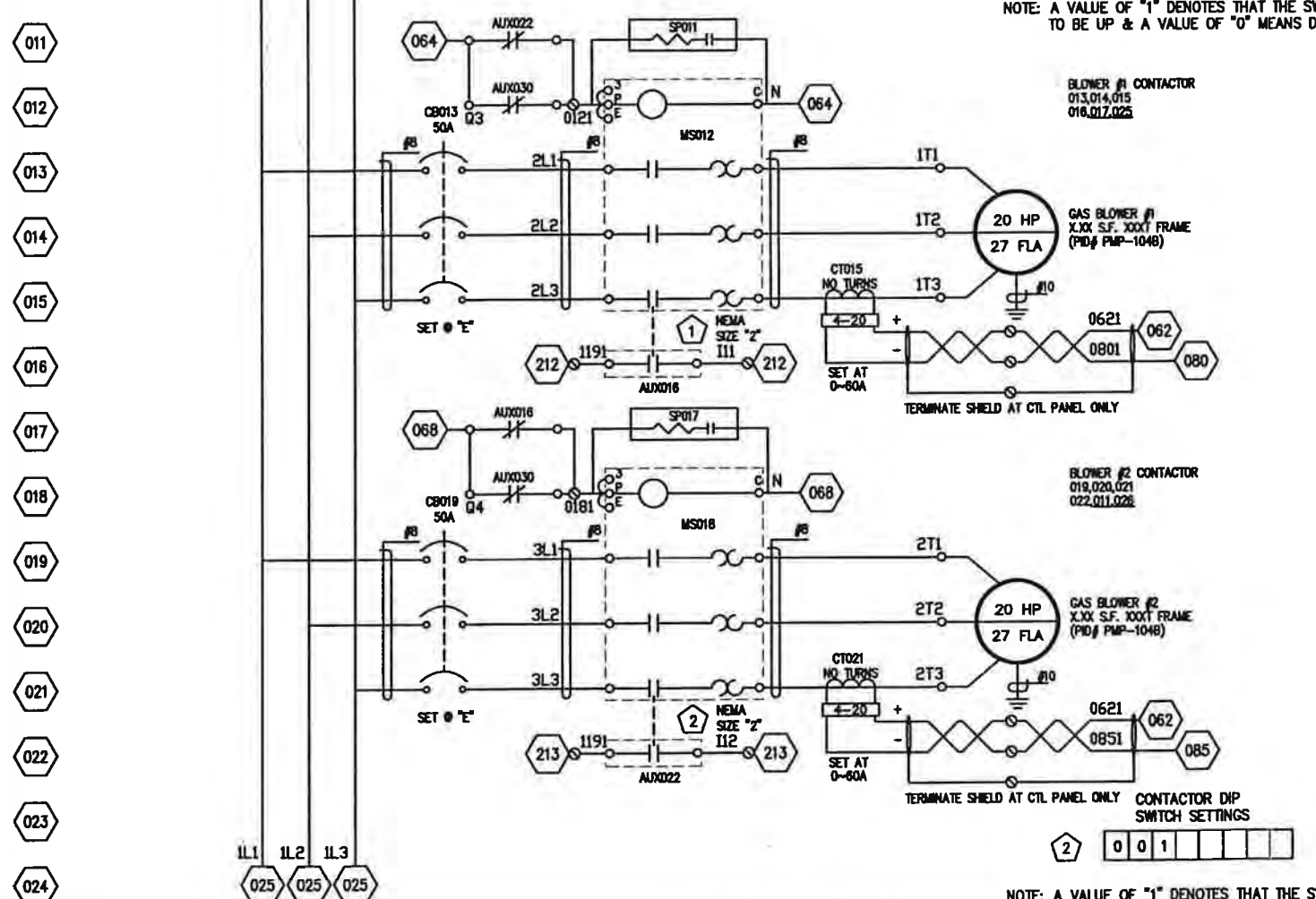
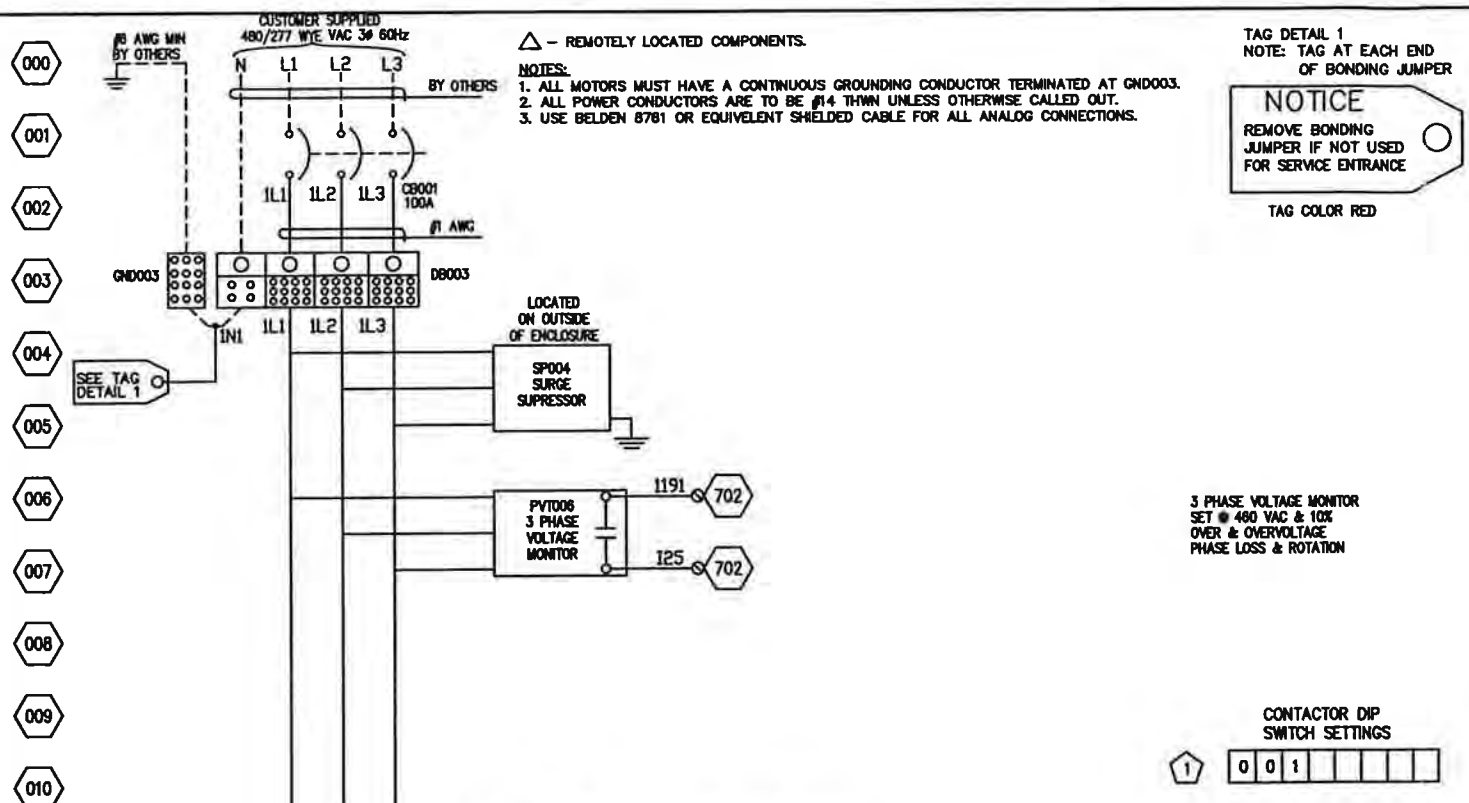
REV	DESCRIPTION / ISSUE	DATE	BY
0	ISSUED FOR CONSTRUCTION	10/21/04	TRS

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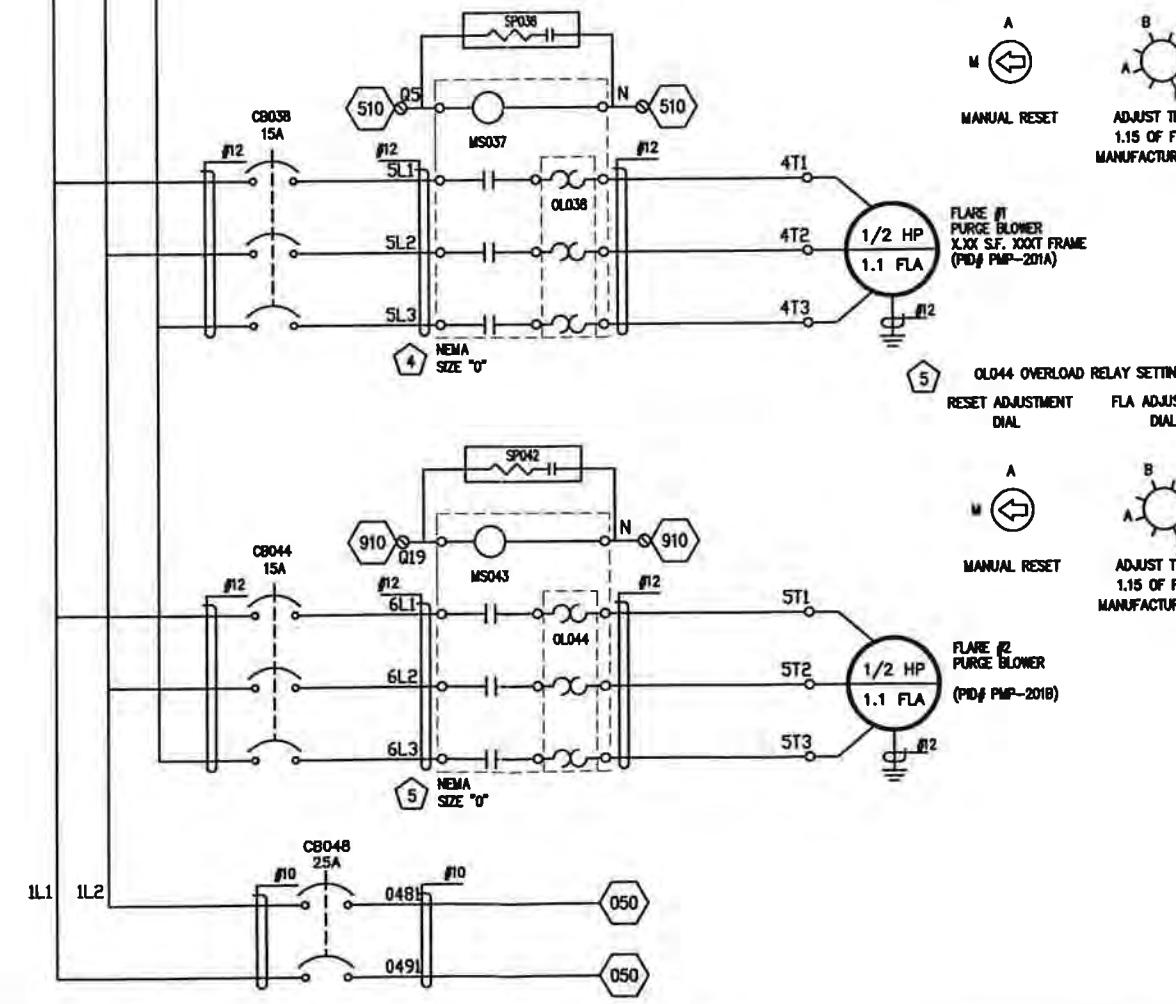
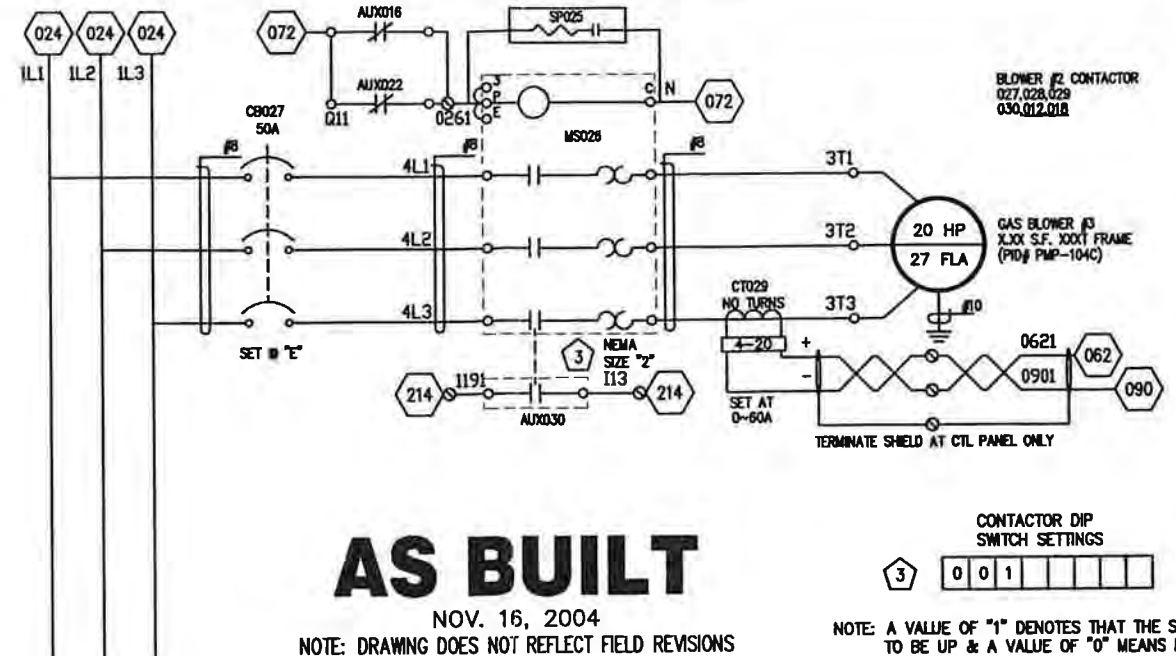
WIRE COLOR CODE			
SIGNAL	COLOR	GROUND	GREEN
DC	BLUE	GROUND	GREEN
120VAC	RED	EXTERNALLY POWERED	YELLOW
NEUTRAL (120VAC)	WHITE	INTRINSICALLY SAFE	LT BLUE
POWER CONNECTIONS	BLACK		

SYSTEM ELECTRICAL ONE LINE POWER DIAGRAM			
DRWN BY: TRS	ENGR'D: GWM	APPROVED BY: LK	SCALE: NONE
DATE: 09/11/04	PROJECT NO: 847042		

PROJECT NAME			
LANDFILL GAS ENCLOSED FLARE #EF63018			
GUDE LANDFILL			
ROCKVILLE, MD			
CUSTOMER		SERIAL NO.	DWG NO.
MONTGOMERY COUNTY, MD		1953	EPD



025  
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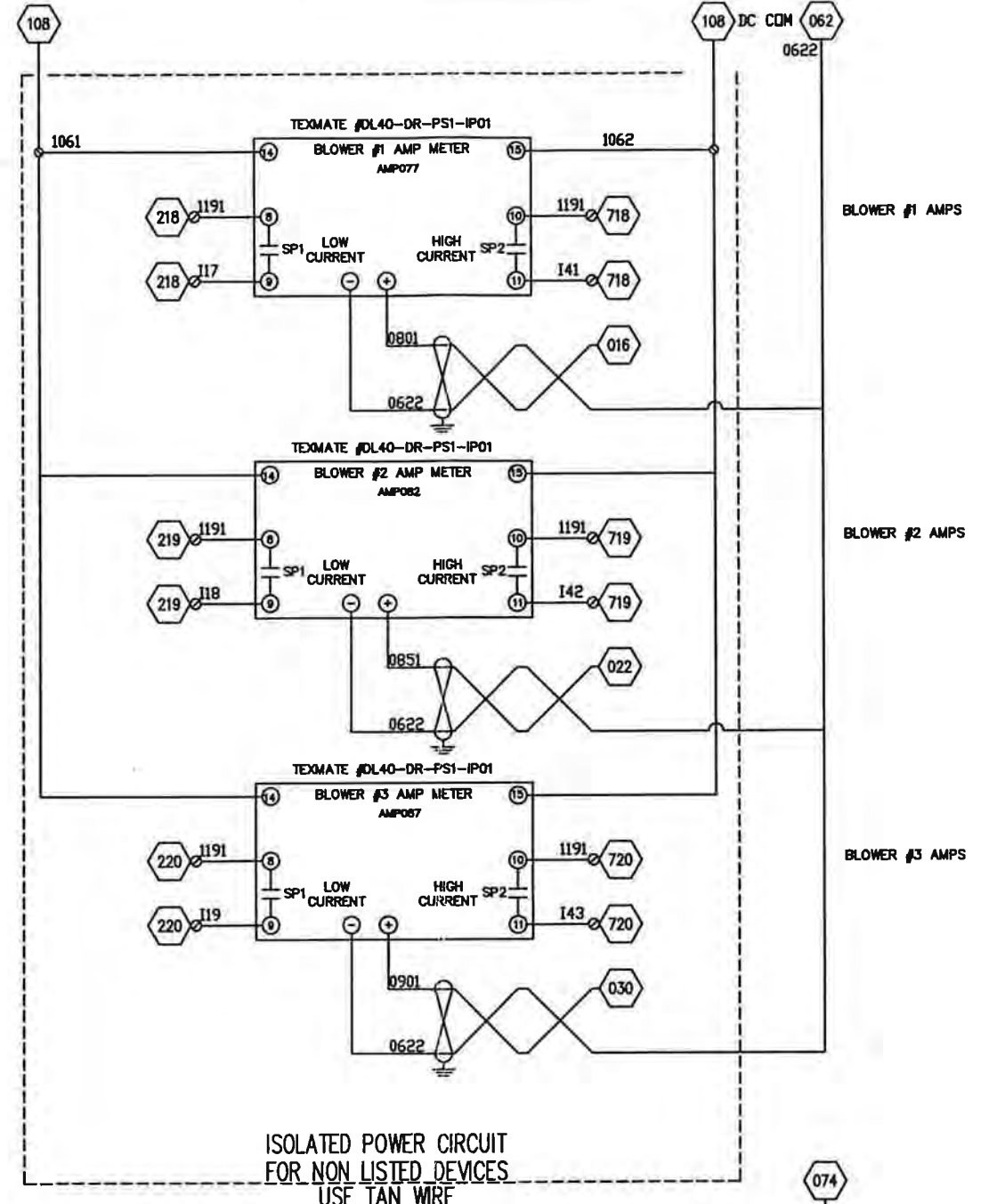
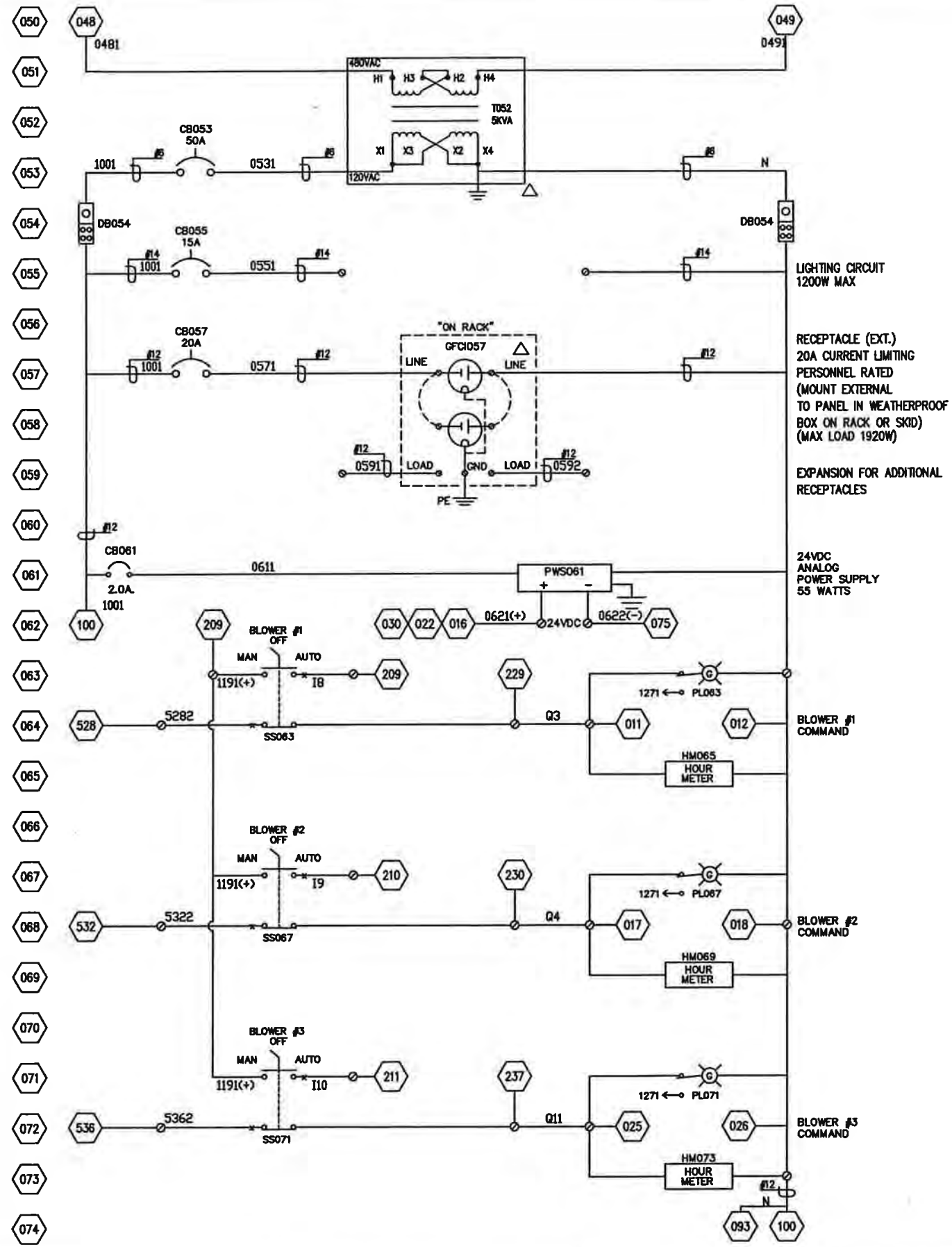
REV	DESCRIPTION / ISSUE	DATE	BY
1	AS BUILT	11/16/04	TRB

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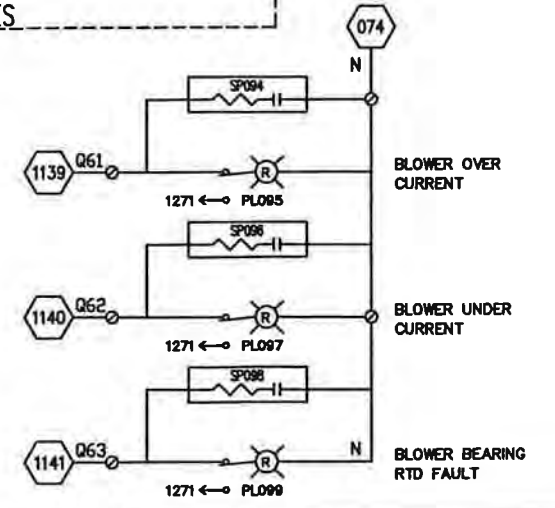
WIRE COLOR CODE			
SIGNAL	COLOR	SIGNAL	COLOR
DC	BLUE	GROUND	GREEN
120VAC	RED	EXTERNALLY POWERED	YELLOW
NEUTRAL (120VAC)	WHITE	INTRINSICALLY SAFE	LT BLUE
POWER WIRING	BLACK		

MOTOR CONTROL CENTER ASSEMBLY 480VAC CONNECTIONS		
DESIGN BY:	ENGINEER:	APPROVED BY:
TRB	RSR	LWZ
DATE:	PROJECT NO.:	
09/09/04	847042	

PROJECT NAME			
LANDFILL GAS ENCLOSED FLARE #EF63018 GIDE LANDFILL ROCKVILLE, MD			
MONTGOMERY COUNTY, MD		YEAR: 1953	REV: EM1



ISOLATED POWER CIRCUIT FOR NON LISTED DEVICES  
USE TAN WIRE



**AS BUILT**

NOV. 16, 2004  
NOTE: DRAWING DOES NOT REFLECT FIELD REVISIONS



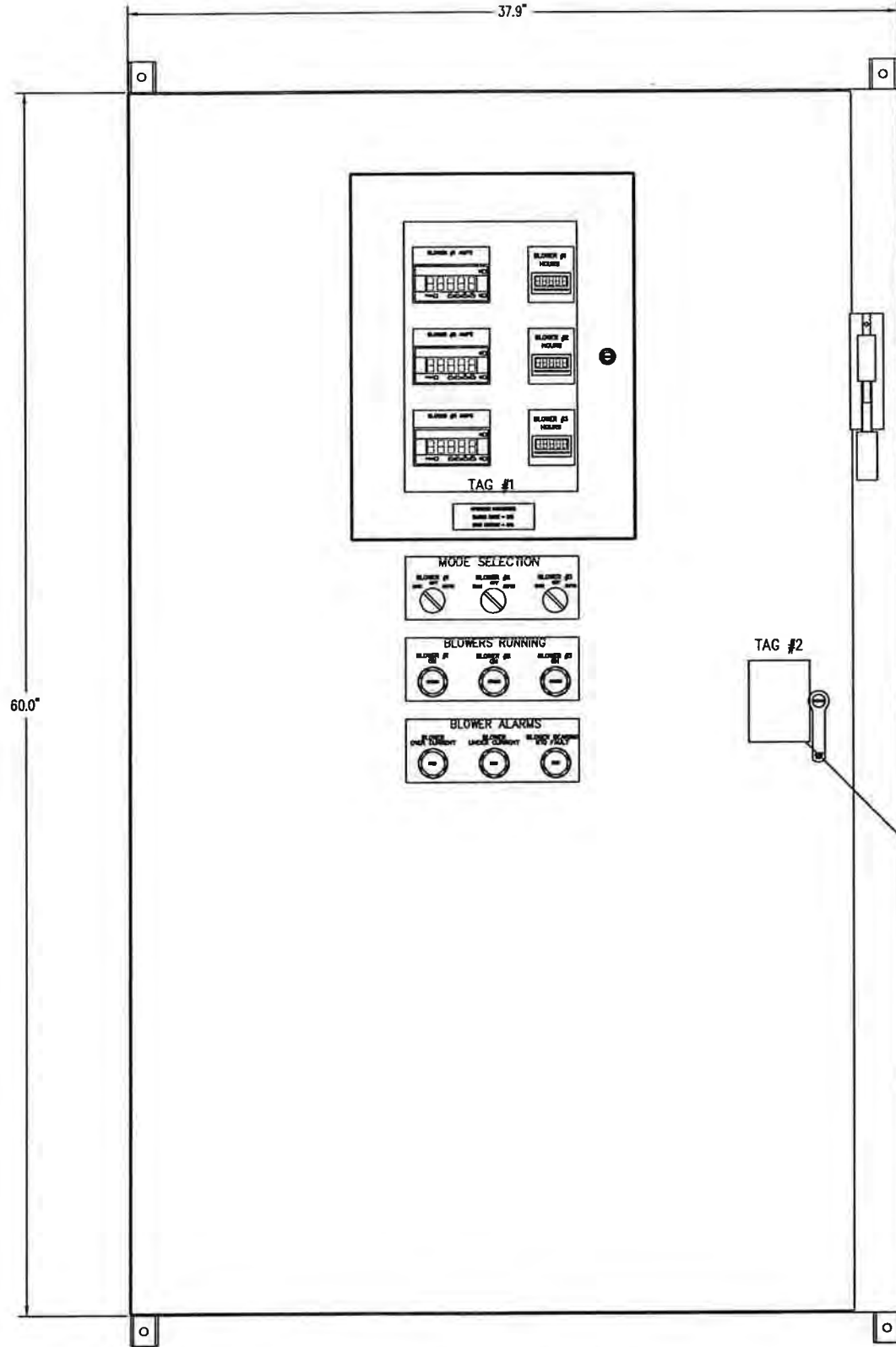
REV	DESCRIPTION / ISSUE	DATE	BY
1	AS BUILT	11/16/04	TRS

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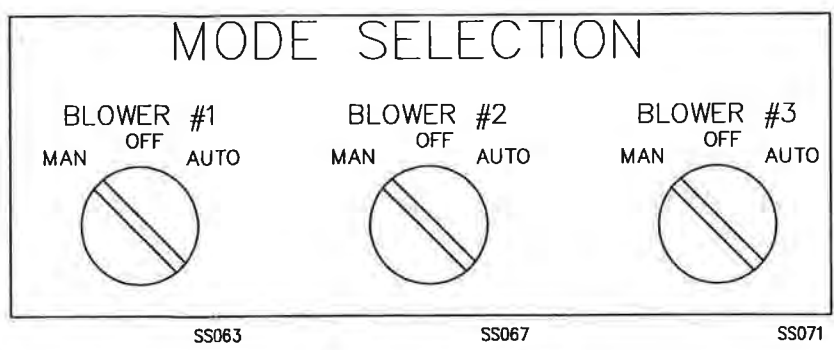
WIRE COLOR CODE			
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DC	BLUE	GROUND	GREEN
120VAC	RED	EXTERNALLY POWERED	YELLOW
NEUTRAL (120VAC)	WHITE	INTRINSICALLY SAFE	LT BLUE
POWER WIRING	BLACK		

MOTOR CONTROL CENTER ASSEMBLY 120VAC CONNECTIONS			
DRIVER	CONSUMER	APPROVED BY	REV.
TRS	RSR	LWZ	D
DATE	PROJECT NO.		
09/29/04	847042		

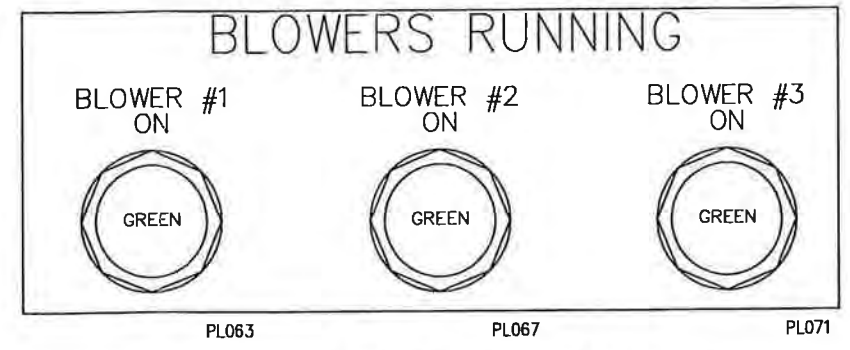
PROJECT NAME			
LANDFILL GAS ENCLOSED FLARE #EF63018			
GUIDE LANDFILL			
ROCKVILLE, MD			
MONTGOMERY COUNTY, MD			
DATE	REV.	BY	CHK.
1953	EM1		2/2



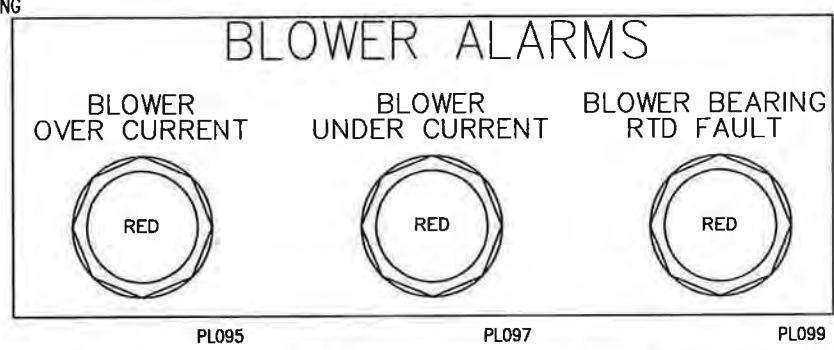
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SCALE: 4:1



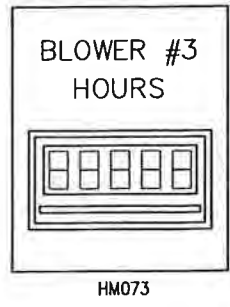
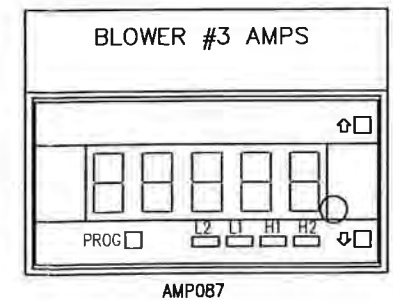
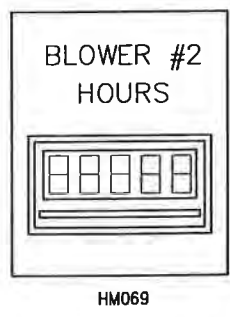
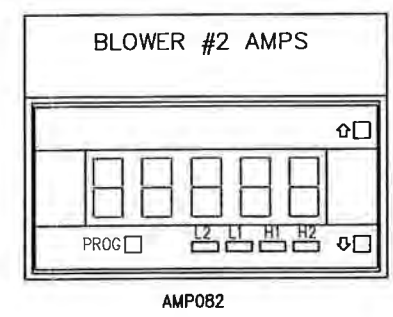
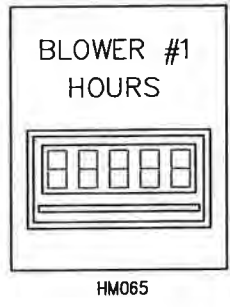
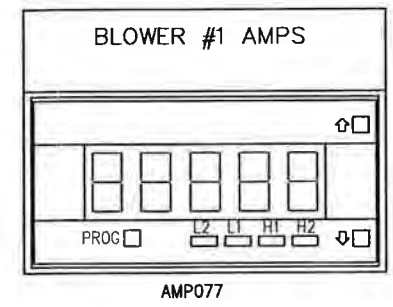
**BLOWER CONTROLS**  
SCALE: FULL



**BLOWER RUN INDICATORS**  
SCALE: FULL



**BLOWER FAULT INDICATORS**  
SCALE: FULL



**Shaw LFG SPECIALTIES**  
 16406 U.S. RTE. 224 EAST  
 FINDLAY OH 45840-9761  
 (419) 424-4999  
 (800) 331-7683  
 MODEL NO. FLAMETROL IV  
 SERIAL NO. 1953  
 PANEL: DISTRIBUTION  
 VOLTS - 480VAC PHASE - 3PH  
 FREQ - 60HZ  
 FULL LOAD AMPS - 100A  
 LARGEST MOTOR - 20HP 27 FLA  
 MAX. S.C.C. - 65kAIC RMS Sym.  
 Wiring Diagram: 1953-EM1  
 Date Code: 11/2004

NOTE: UL INFORMATION TAG

**AS BUILT**

NOV. 16, 2004  
 NOTE: DRAWING DOES NOT REFLECT FIELD REVISIONS

**DISTRIBUTION INSTRUMENTATION**  
SCALE: FULL



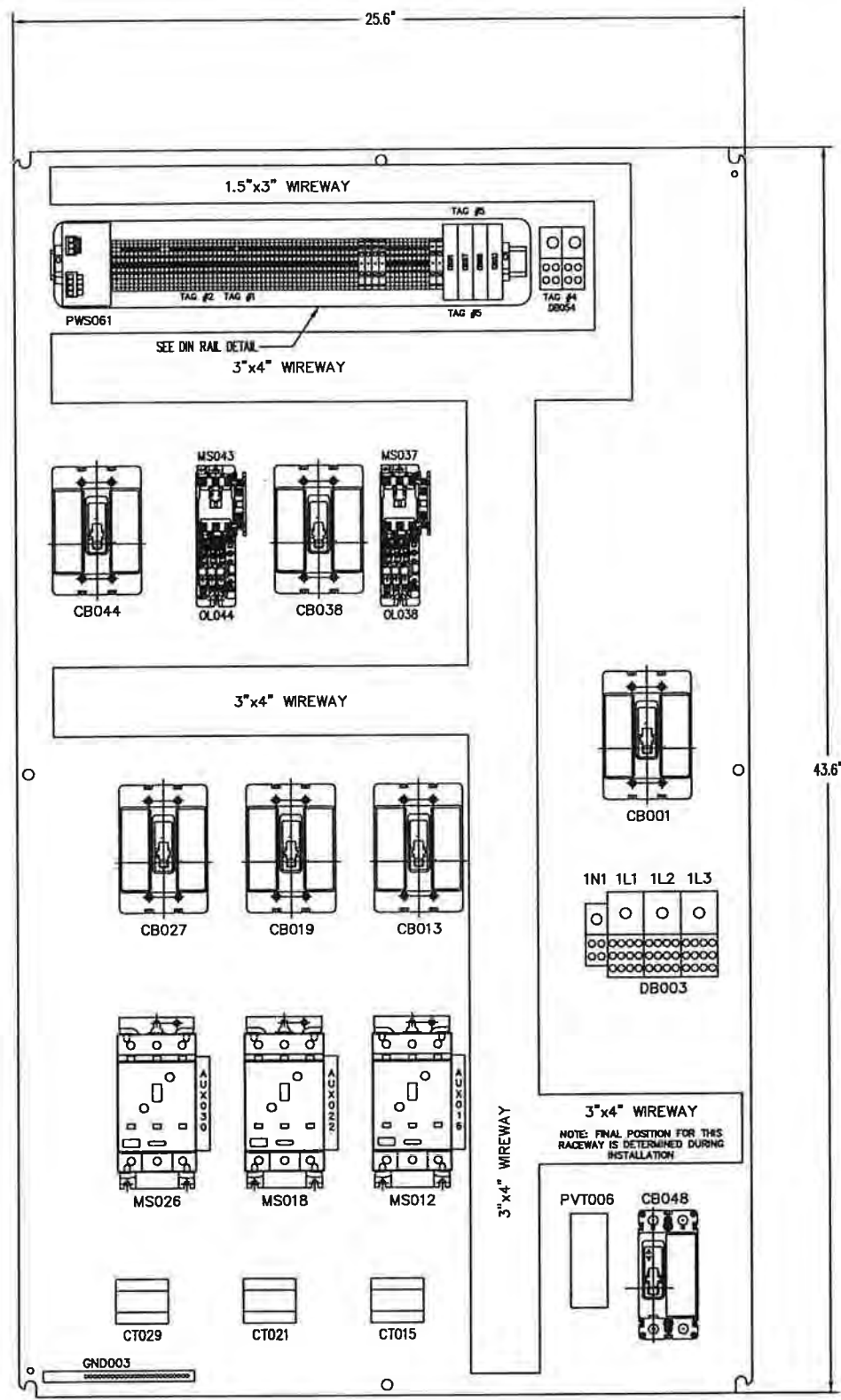
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2	AS BUILT	11/16/04	TRS
1	REVISED DISTRIBUTION PANEL LAYOUT	11/04/04	TRS

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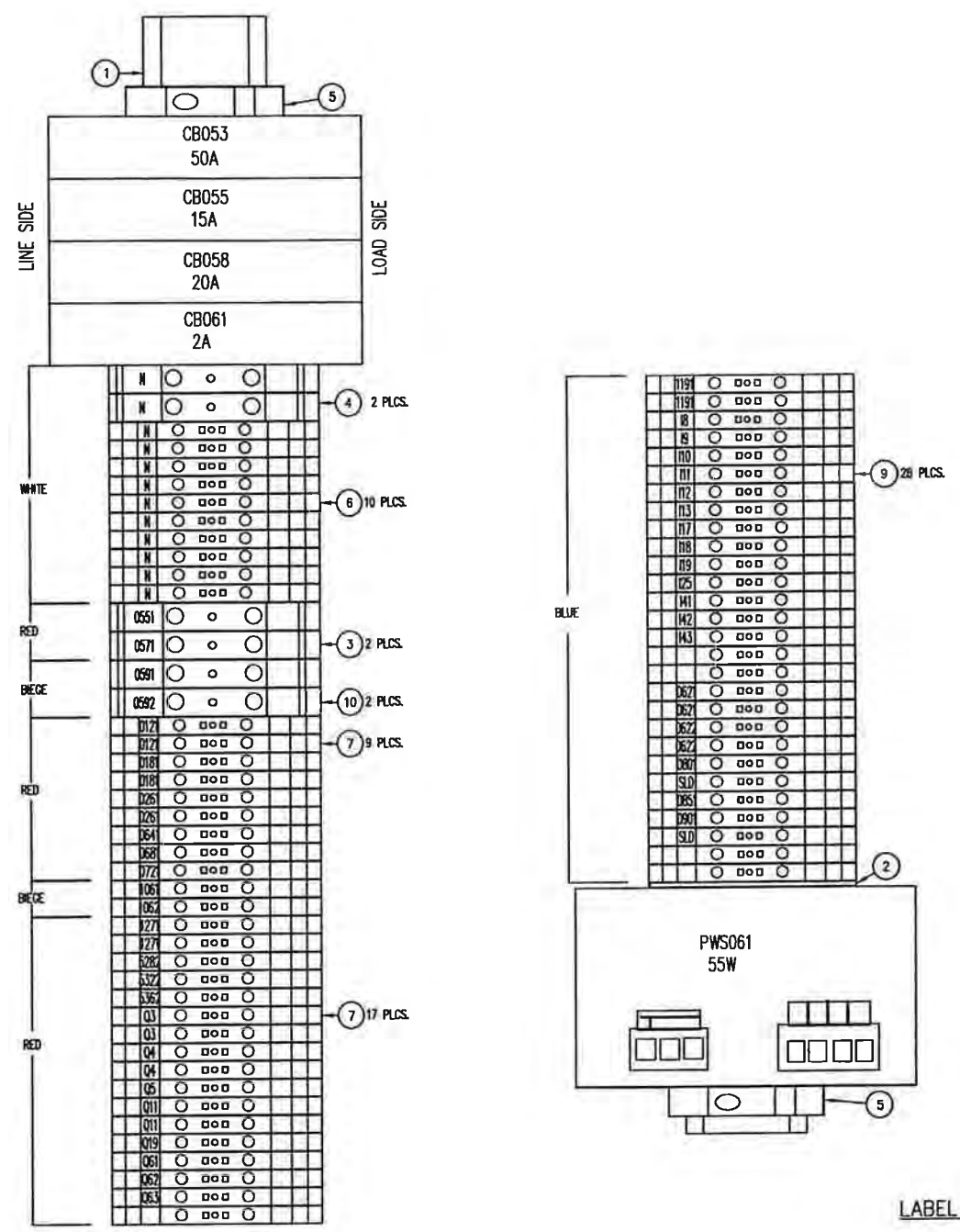
WIRE COLOR CODE			
SIGNAL	COLOR	SIGNAL	COLOR
DC	BLUE	GROUND	GREEN
120VAC	RED	EXTERNALLY POWERED	YELLOW
NEUTRAL (120VAC)	WHITE	INTRINSICALLY SAFE	LT BLUE
POWER WIRING	BLACK		

MOTOR CONTROL CENTER ENCLOSURE ASSEMBLY			
DRAWN BY:	ENGINEER:	APPROVED BY:	SIZE:
TRS	RSR	LWZ	D
SCALE:	DATE:	PROJECT NO:	
AS SHOWN	09/29/04	847042	

PROJECT NAME			
LANDFILL GAS ENCLOSED FLARE #EF63018			
GUDE LANDFILL			
ROCKVILLE, MD			
CUSTOMER:	SERIAL NO.:	DWG NO.:	REV.:
MONTGOMERY COUNTY, MD	1953	EP1	1/3



BACK PLATE OF MCC ENCLOSURE  
SCALE: 4:1



DIN RAIL DETAIL  
SCALE: FULL

LABEL & PLAQUE DETAIL

- TAG #1  
Use 105° C rated copper wire.
- TAG #2  
WEDMULLER WDUG  
TORQUE to 7.1 lb-in
- TAG #3  
↓
- TAG #4  
NSI DB #4-#14 WIRE  
TORQUE TO 35-110 LB-IN
- TAG #5  
C-H QC BREAKERS  
TORQUE to 30 lb-in

**AS BUILT**

NOV. 16, 2004  
NOTE: DRAWING DOES NOT REFLECT FIELD REVISIONS



REV	DESCRIPTION / ISSUE	DATE	BY
1	AS BUILT	11/16/04	TRS

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WIRE COLOR CODE			
SIGNAL	COLOR	SIGNAL	COLOR
DC	BLUE	GROUND	GREEN
120VAC	RED	EXTERNALLY POWERED	YELLOW
NEUTRAL (120VAC)	WHITE	INTRINSICALLY SAFE	LT BLUE
POWER WIRING	BLACK		

MOTOR CONTROL CENTER ENCLOSURE ASSEMBLY			
DRAWN BY:	DESIGNED BY:	APPROVED BY:	SIZE:
TR	RSR	LWZ	D
SCALE:	DATE:	PROJECT NO.:	
AS SHOWN	09/29/04	847042	

PROJECT NAME			
LANDFILL GAS ENCLOSED FLARE #EF63018			
GUDE LANDFILL			
ROCKVILLE, MD			
CUSTOMER:	SERIAL NO.:	DWG NO.:	REV.:
MONTGOMERY COUNTY, MD	1953	EP1	2/3

BILL OF MATERIAL (MOTOR CONTROL CENTER)

ITEM	QTY	DESCRIPTION	MANUFACTURER	SUPPLIER	PART NO.
AMP077	1	4-20mA CONTROLLER (AMP METER)	TEXTMATE	DL40-DR-PSI-IP01-OR12	NON STOCK
AMP082	1	4-20mA CONTROLLER (AMP METER)	TEXTMATE	DL40-DR-PSI-IP01-OR12	NON STOCK
AMP087	1	4-20mA CONTROLLER (AMP METER)	TEXTMATE	DL40-DR-PSI-IP01-OR12	NON STOCK
AUX016	1	AUXILIARY CONTACT KIT	CUTLER HAMMER	W22	EMS3PAUXW22
AUX022	1	AUXILIARY CONTACT KIT	CUTLER HAMMER	W22	EMS3PAUXW22
AUX030	1	AUXILIARY CONTACT KIT	CUTLER HAMMER	W22	EMS3PAUXW22
CB001	1	DISCONNECT BREAKER (100A)	CUTLER HAMMER	HFD3100L	CHHFD3100L
CB013	1	MOTOR CIRCUIT PROTECTOR (50A)	CUTLER HAMMER	HMCP050K2C	EMCP50A3P
CB019	1	MOTOR CIRCUIT PROTECTOR (50A)	CUTLER HAMMER	HMCP050K2C	EMCP50A3P
CB027	1	MOTOR CIRCUIT PROTECTOR (50A)	CUTLER HAMMER	HMCP050K2C	EMCP50A3P
CB038	1	CIRCUIT BREAKER (15A 3 POLE)	CUTLER HAMMER	EHD3015L	NON STOCK
CB044	1	CIRCUIT BREAKER (15A 3 POLE)	CUTLER HAMMER	EHD3015L	NON STOCK
CB048	1	CIRCUIT BREAKER (25A 2 POLE)	CUTLER HAMMER	EHD2025L	CHEHD2025L
---	3	DIN RAIL ADAPTER (FOR CB053-058)	CUTLER HAMMER	QCDINADAPT	DINADAPT
CB053	1	CIRCUIT BREAKER (50A 1 POLE)	CUTLER HAMMER	QC-1050	CHQC1050
CB055	1	CIRCUIT BREAKER (15A 1 POLE)	CUTLER HAMMER	QC-1015	CHQC1015
CB057	1	CIRCUIT BREAKER (20A 1 POLE)	CUTLER HAMMER	QC-1020	CHQC1020
CB061	1	CIRCUIT BREAKER (2A)	GE	V07102	ECB2A1PD
CT015	1	CURRENT TRANSFORMER W/ 4-20mA OUTPUT	HAWKEYE	H-921	ECT-H921
CT021	1	CURRENT TRANSFORMER W/ 4-20mA OUTPUT	HAWKEYE	H-921	ECT-H921
CT029	1	CURRENT TRANSFORMER W/ 4-20mA OUTPUT	HAWKEYE	H-921	ECT-H921
GND003	1	GROUNDING BAR 24 POINTS	GE	TGK24	FLOOR STOCK
DB003	1	DISTRIBUTION BLOCK (1)-#2/0-#14 LINE x (4)-#4-#14 LOAD	NSI	AS-K1-H4	EDBASK1H4
DB003	1	DISTRIBUTION BLOCK COVER (FOR AS SERIES BLOCKS)	NSI	CS	EDBCVR-S
DB003	3	DISTRIBUTION BLOCK (1)-350MCM-#6 LINE x (12)-#4-#14 LOAD	NSI	AM-P1-H12	NON STOCK
DB003	4	DISTRIBUTION BLOCK COVER (FOR AM SERIES BLOCKS)	NSI	CM	EDBCVR-M
DB054	2	DISTRIBUTION BLOCK (1)-#2/0-#14 LINE x (4)-#4-#14 LOAD	NSI	AS-K1-H4	EDBASK1H4
DB054	2	DISTRIBUTION BLOCK COVER (FOR CS SERIES BLOCKS)	NSI	CS	EDBCVR-S
DISC	1	DISTRIBUTION PANEL ENCLOSURE	HOFFMAN	C-DSC603812	NON STOCK
DISC	1	MOTOR CONTROL CENTER BACK PLATE	HOFFMAN	C-P6036	NON STOCK
DISC	1	ENCLOSURE MTG FEET	HOFFMAN	C-MFK	EBXMTGFT
DISC	1	FLEX SHAFT FLANGE MOUNTED DISCONNECT W/ ACTUATOR CABLE	CUTLER HAMMER	F1503CX	NON STOCK
DISC	1	HINGED WINDOW KIT NEMA 4	SCE	SCE-HWK1814	NON STOCK
HM065	1	HOUR METER	REDDINGTON	53202000	EAHOURMTR
HM069	1	HOUR METER	REDDINGTON	53202000	EAHOURMTR
HM073	1	HOUR METER	REDDINGTON	53202000	EAHOURMTR
MS012	1	MOTOR STARTER ADVANTAGE SZ 2 FVNR 120V COIL NO GC PRT	CUTLER HAMMER	W200M2CFYC7	CHW200M2CFC
MS018	1	MOTOR STARTER ADVANTAGE SZ 2 FVNR 120V COIL NO GC PRT	CUTLER HAMMER	W200M2CFYC7	CHW200M2CFC
MS026	1	MOTOR STARTER ADVANTAGE SZ 2 FVNR 120V COIL NO GC PRT	CUTLER HAMMER	W200M2CFYC7	CHW200M2CFC
MS037	1	MOTOR STARTER FREEDOM SZ 0 FVNR 120V COIL	CUTLER HAMMER	AN16ANOAC	NON STOCK
MS043	1	MOTOR STARTER FREEDOM SZ 0 FVNR 120V COIL	CUTLER HAMMER	AN16ANOAC	NON STOCK
SP004	1	3 PHASE SERVICE ENTRANCE SURGE PROTECTOR 600 VAC RATED	CUTLER HAMMER	CHSA03	ESA30600V
SP011	1	SNUBBER CIRCUIT FOR NEMA 2 STARTERS	RK ELECTRONICS	RSC2A-6	EMCSNUB-CR
SP017	1	SNUBBER CIRCUIT FOR NEMA 2 STARTERS	RK ELECTRONICS	RSC2A-6	EMCSNUB-CR
SP025	1	SNUBBER CIRCUIT FOR NEMA 2 STARTERS	RK ELECTRONICS	RSC2A-6	EMCSNUB-CR
SP036	1	SNUBBER CIRCUIT FOR NEMA 0 STARTERS	RK ELECTRONICS	RSC2A-6	EMCSNUB-CR
SP042	1	SNUBBER CIRCUIT FOR NEMA 0 STARTERS	RK ELECTRONICS	RSC2A-6	EMCSNUB-CR
SP094	1	SNUBBER CIRCUIT	RK ELECTRONICS	RSC2A-6	EMCSNUB-CR
SP096	1	SNUBBER CIRCUIT	RK ELECTRONICS	RSC2A-6	EMCSNUB-CR
SP098	1	SNUBBER CIRCUIT	RK ELECTRONICS	RSC2A-6	EMCSNUB-CR
SS063	1	3 POSITION ROTARY SWITCH (BLOWER #1 MAN./OFF/AUTO)	GE	CR104PSG34891	ESW3PM1CB
SS067	1	3 POSITION ROTARY SWITCH (BLOWER #2 MAN./OFF/AUTO)	GE	CR104PSG34891	ESW3PM1CB
SS071	1	3 POSITION ROTARY SWITCH (BLOWER #3 MAN./OFF/AUTO)	GE	CR104PSG34891	ESW3PM1CB
OL038	1	HEATER PACK FOR PURGE BLOWER (0.819A-1.32A) FOR 1/2 HP	CUTLER HAMMER	H2004B-3	NON STOCK
OL044	1	HEATER PACK FOR PURGE BLOWER (0.819A-1.32A) FOR 1/2 HP	CUTLER HAMMER	H2004B-3	NON STOCK
PL063	1	GREEN PUSH TO TEST PILOT LIGHT	GE	CR104PLT32G	EPL120VT6-G
PL067	1	GREEN PUSH TO TEST PILOT LIGHT	GE	CR104PLT32G	EPL120VT6-G
PL071	1	GREEN PUSH TO TEST PILOT LIGHT	GE	CR104PLT32G	EPL120VT6-G
PL095	1	RED PUSH TO TEST PILOT LIGHT	GE	CR104PLT32R	EPL120VT6-R
PL097	1	RED PUSH TO TEST PILOT LIGHT	GE	CR104PLT32R	EPL120VT6-R
PL099	1	RED PUSH TO TEST PILOT LIGHT	GE	CR104PLT32R	EPL120VT6-R
PVT006	1	THREE PHASE VOLTAGE RELAY (MICROPROCESSOR)	RK ELECTRONICS	PVTR-201-A2C	NON STOCK
PWS061	1	POWER SUPPLY 120 VAC IN 55W @ 50 DEG. C	WEIDMULLER	9927480024	EPS120V55W
24"	1	1 1/2" x 3" WIRING DUCT	PANDUIT	G1.5X3L6	EWV1.5X3-LG
24"	1	1 1/2" WIREWAY COVER	PANDUIT	C1.5L6	EWV1.5-LG
60"	1	3"x4" WIRING DUCT	PANDUIT	G3X4L6	EWV3X4-LG
60"	1	3" WIREWAY COVER	PANDUIT	C3L6	EWV3-LG
1	16"	DIN RAIL TS 35x7.5 (5mm SLOT)	WEIDMULLER	0514500000	FLOOR STOCK
2	1	TERMINAL BLOCK END PLATE WAP 2.5-10	WEIDMULLER	1050000000	FLOOR STOCK
3	2	TERMINAL BLOCK 20-10AWG 600 VAC WDU 4 RED	WEIDMULLER	1020140000	EWDU4RT
4	2	TERMINAL BLOCK 20-10AWG 600 VAC WDU 4 WHITE	WEIDMULLER	1036700000	EWDU4WS
5	2	TERMINAL BLOCK END BLOCK WEW 35/2	WEIDMULLER	1037810000	FLOOR STOCK
1	1	BLANK TERMINAL LABELS FOR 6mm WS12/6 10 TAGS EACH	WEIDMULLER	1609900000	FLOOR STOCK
6	10	TERMINAL BLOCK 22-12AWG 600 VAC WDU 2.5 WHITE	WEIDMULLER	1036800000	EWDU2.5WS
7	25	TERMINAL BLOCK 22-12AWG 600 VAC WDU 2.5 RED	WEIDMULLER	1020040000	EWDU2.5RT
8	2	TERMINAL BLOCK 22-12AWG 600 VAC WDU 2.5 BIEGE	WEIDMULLER	1020000000	EWDU2.5BI
9	28	TERMINAL BLOCK 22-12AWG 600 VAC WDU 2.5 BLUE	WEIDMULLER	1020080000	EWDU2.5BL
10	2	TERMINAL BLOCK 20-10AWG 600 VAC WDU 4 BIEGE	WEIDMULLER	1061060000	EWDU4BI
-	7	BLANK TERMINAL LABELS FOR 5mm WS12/5 10 TAGS EACH	WEIDMULLER	1061060000	FLOOR STOCK

BILL OF MATERIAL (UTILITY RECEPTACLE)

ITEM	QTY	DESCRIPTION	MANUFACTURER	SUPPLIER	PART NO.
GFCIO57	1	20A PERSONNEL RATED 125V GFCI RECEPTACLE	HUBBELL	GF5352IC	EGFCI
GFCIO57	1	NEMA 4 SINGLE GANG RECEPTACLE BOX	HUBBELL	5320-0	EGFCI-BOX
GFCIO57	1	WEATHER PROOF COVER FOR GFCI RECEPTACLE W/ BOX MATE UP	HUBBELL	50002-0	EGFCI-CVR

BILL OF MATERIAL (MISC. RACK COMPONENTS)

ITEM	QTY	DESCRIPTION	MANUFACTURER	SUPPLIER	PART NO.
T052	1	TRANSFORMER 5KVA	CUTLER HAMMER	S20N11505N	ETR5KVA

**AS BUILT**

NOV. 16, 2004

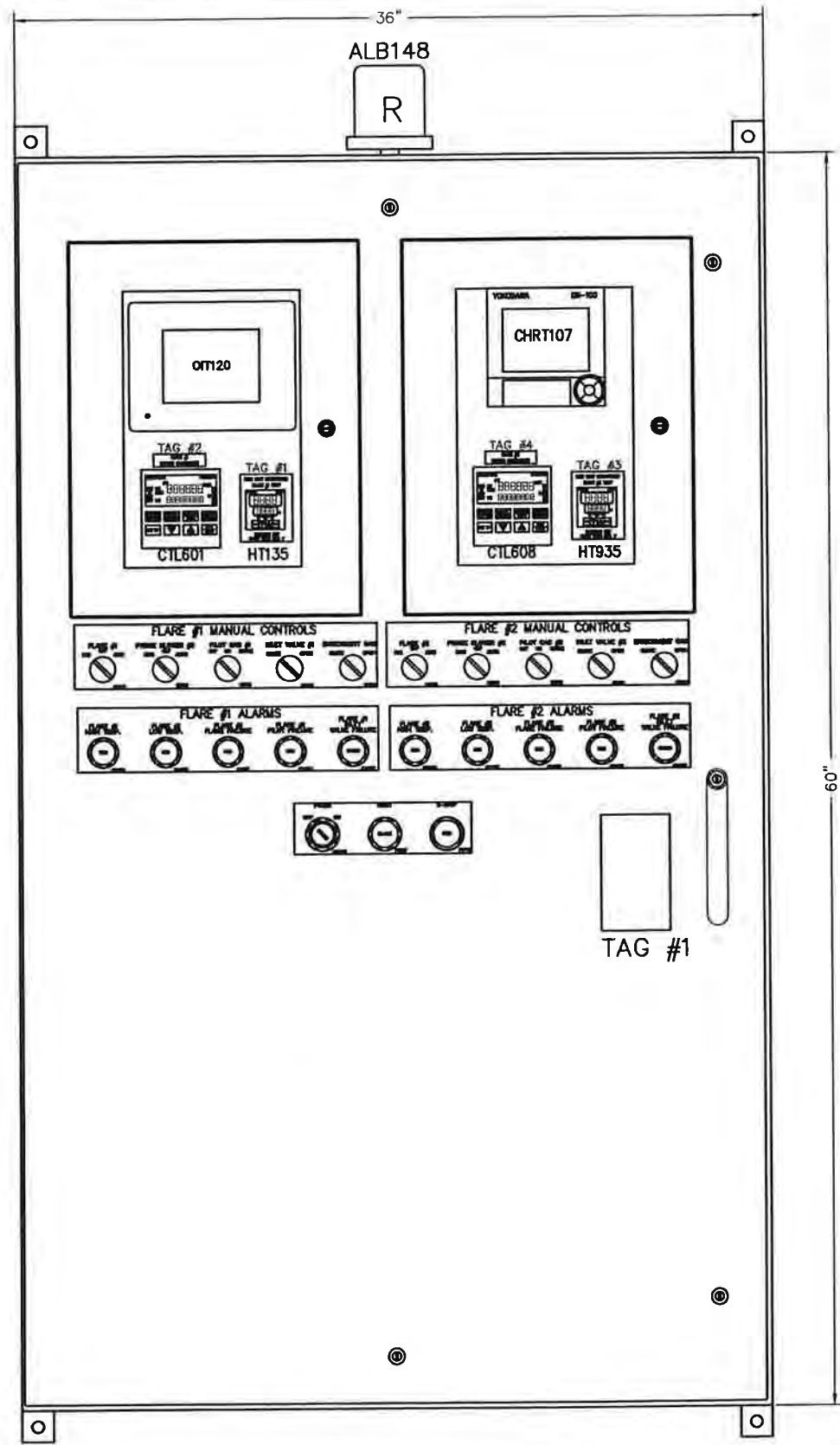
NOTE: DRAWING DOES NOT REFLECT FIELD REVISIONS



REV	DESCRIPTION / ISSUE	DATE	BY
2	AS BUILT	11/16/04	TRS
1	REVISED PART NUMBERS FOR AMMETERS AND WINDOW KIT	11/04/04	TRS

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WIRE COLOR CODE				MOTOR CONTROL CENTER ENCLOSURE ASSEMBLY				PROJECT NAME			
SIGNAL	COLOR	SIGNAL	COLOR	DRWN BY	CHKD BY	APPROVED BY	SIZE	LANDFILL GAS ENCLOSED FLARE #EF63018			
DC	BLUE	GROUND	GREEN	TRS	RSR	LWZ	D	GUDE LANDFILL			
120VAC	RED	EXTERNALLY POWERED	YELLOW					ROCKVILLE, MD			
NEUTRAL (120VAC)	WHITE	INTRINSICALLY SAFE	LT BLUE					MONTGOMERY COUNTY, MD			
POWER WIRING	BLACK			SCALE	DATE	PROJECT NO.		SERIAL NO.	DRG NO.	REV.	
				AS SHOWN	09/29/04	847042		1953	EP1	3/3	



NEMA 4 ENCLOSURE LAYOUT  
SCALE: 4:1

**TAG #1**  
  
**Shaw LFG SPECIALTIES**  
 16406 U.S. RTE. 224 EAST  
 FINDLAY, OH 45840-9761  
 PHONE: (419) 424-4999  
 FAX: (419) 424-4991

---

FLAME CONTROL PANEL  
 MODEL NO. FLAMETROL IV  
 SERIAL NO. 1953  
 PANEL: CONTROL PANEL

---

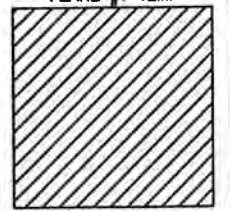
120 VAC, 1 PH, 60 HZ  
 FULL LOAD AMPS - 15A MAX  
 Wiring Diagram: 1953-EE1  
 Date Code: 11/2004

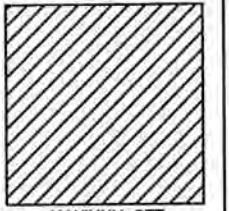
---

WARNING: DISCONNECT SUPPLY  
 BEFORE SERVICING

---

Caution: Yellow wiring  
 may be energized  
 when main disconnect  
 is opened.

**TAG #2**  
 HIGH LIMIT CONTROLLER  
 FLARE #1 TEMP  
  
 MAXIMUM SET  
 POINT 2000 DEG. F

**TAG #4**  
 HIGH LIMIT CONTROLLER  
 FLARE TEMP  
  
 MAXIMUM SET  
 POINT 2000 DEG. F

**TAG #3**  
 FLARE #1  
 LOUVER CONTROLLER

**TAG #5**  
 FLARE #2  
 LOUVER CONTROLLER

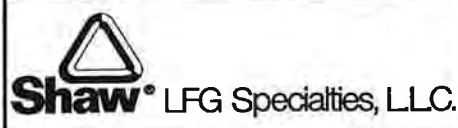
**TAG #5**  
 OPERATING PARAMETERS  
 BLOWER SURGE = XXA  
 OVER CURRENT = XXA

**TAG #6**  
 WARNING:  
 ONLY USE ENRICHMENT GAS  
 WHEN GAS CONTENT  
 IS <25% BY VOLUME

LABEL DETAIL  
 SCALE: FULL

**AS BUILT**

NOV. 16, 2004  
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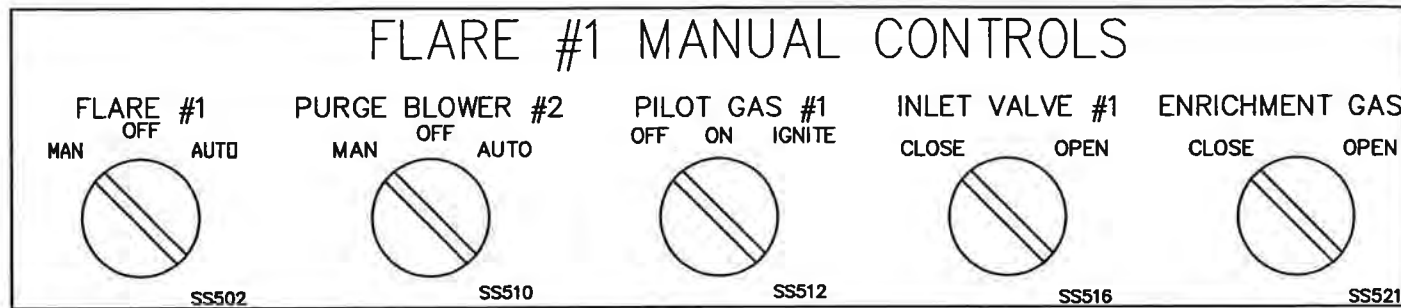
REV	DESCRIPTION / ISSUE	DATE	BY
1	AS BUILT	11/16/04	TRS
0	ISSUED FOR CONSTRUCTION	10/21/04	TRS

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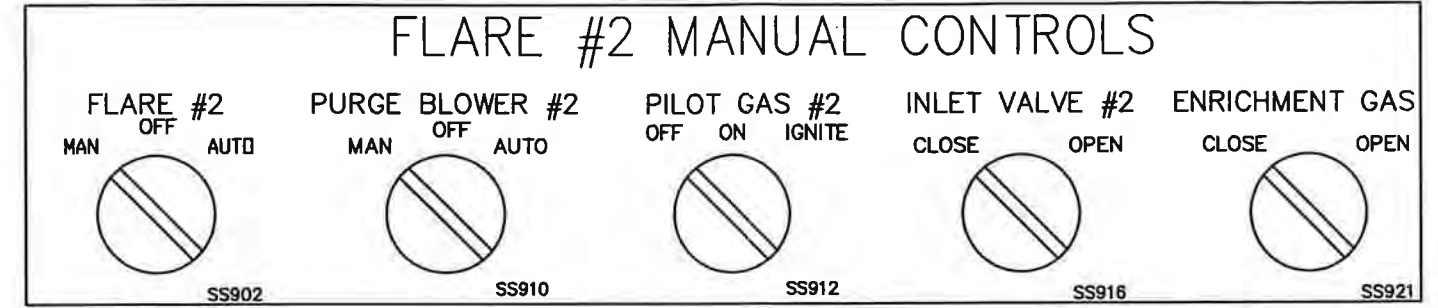
FLAME-TROL IV ENCLOSURE LAYOUT			
DRAWN BY	DESIGNED BY	APPROVED BY	REV.
TRS	RSR	LWZ	D
SCALE: AS SHOWN	DATE: 08/10/04	PROJECT NO: 847042	

PROJECT NAME			
LANDFILL GAS ENCLOSED FLARE #EF63018 GUDE LANDFILL ROCKVILLE, MD			
CUSTOMER	DRAWN BY	DESIGNED BY	DATE
MONTGOMERY COUNTY, MD	1953	EE1	1

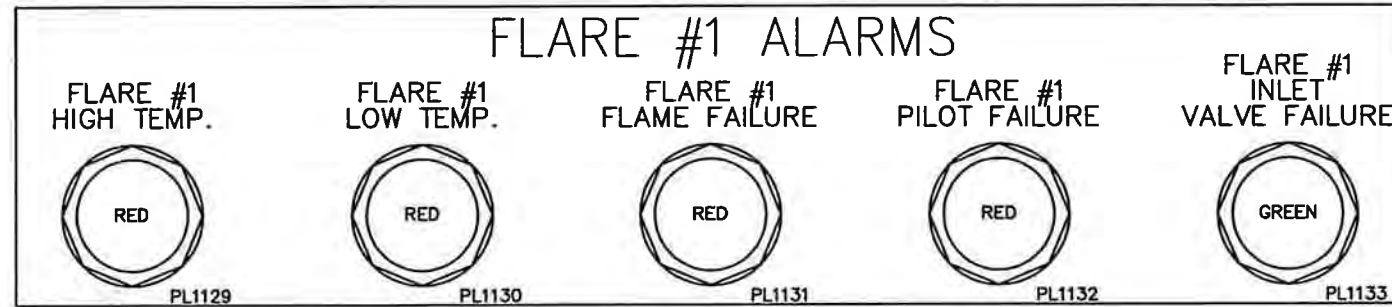




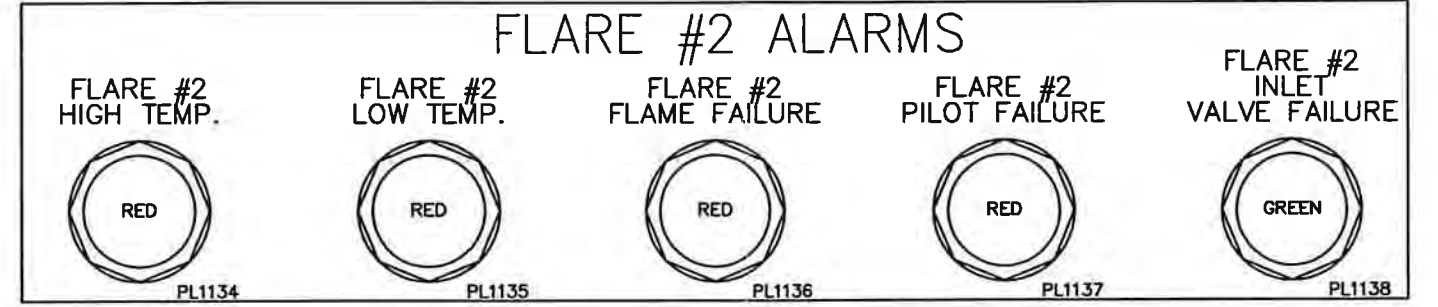
BUTTON DETAIL #1  
SCALE: FULL



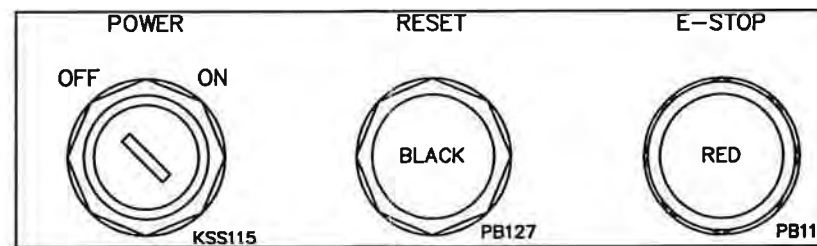
BUTTON DETAIL #2  
SCALE: FULL



LIGHT DETAIL #1  
SCALE: FULL



LIGHT DETAIL #2  
SCALE: FULL



BUTTON DETAIL #3  
SCALE: FULL

# AS BUILT

NOV. 16, 2004  
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REV	DESCRIPTION / ISSUE	DATE	BY
1	AS BUILT	11/16/04	TRS
0	ISSUED FOR CONSTRUCTION	10/21/04	TRS

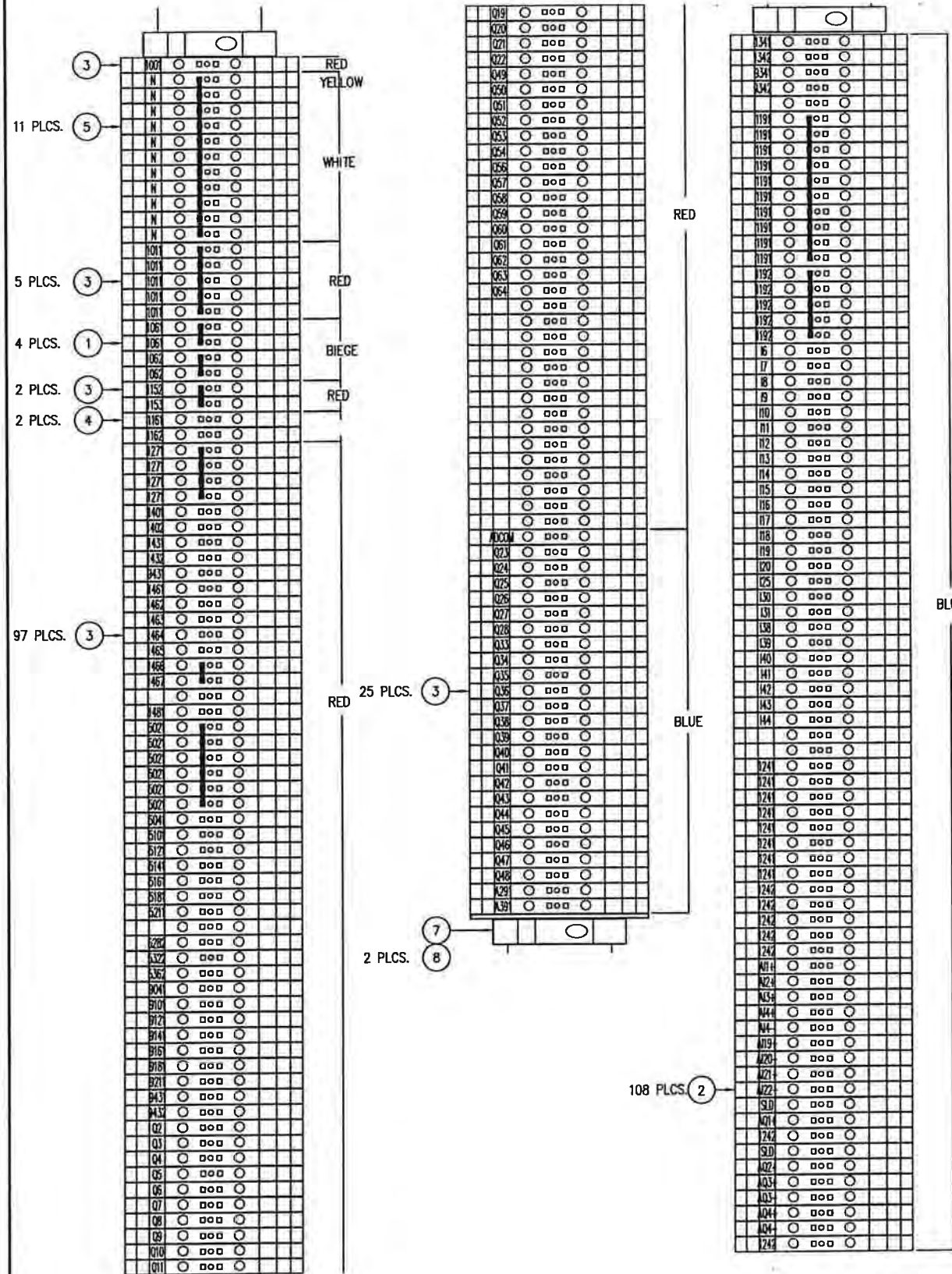
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FLAME-TROL IV BUTTON & LIGHT DETAILS			
DESIGNED BY: TRS	DRAWN BY: RSR	APPROVED BY: LWZ	DATE: D
SCALE: AS SHOWN	DATE: 08/10/04	PROJECT NO.: 847042	

PROJECT NAME LANDFILL GAS ENCLOSED FLARE #EF63018 GUDE LANDFILL ROCKVILLE, MD			
CUSTOMER: MONTGOMERY COUNTY, MD	SHEET NO.: 1953	DWG NO.: EE1	DATE: 2

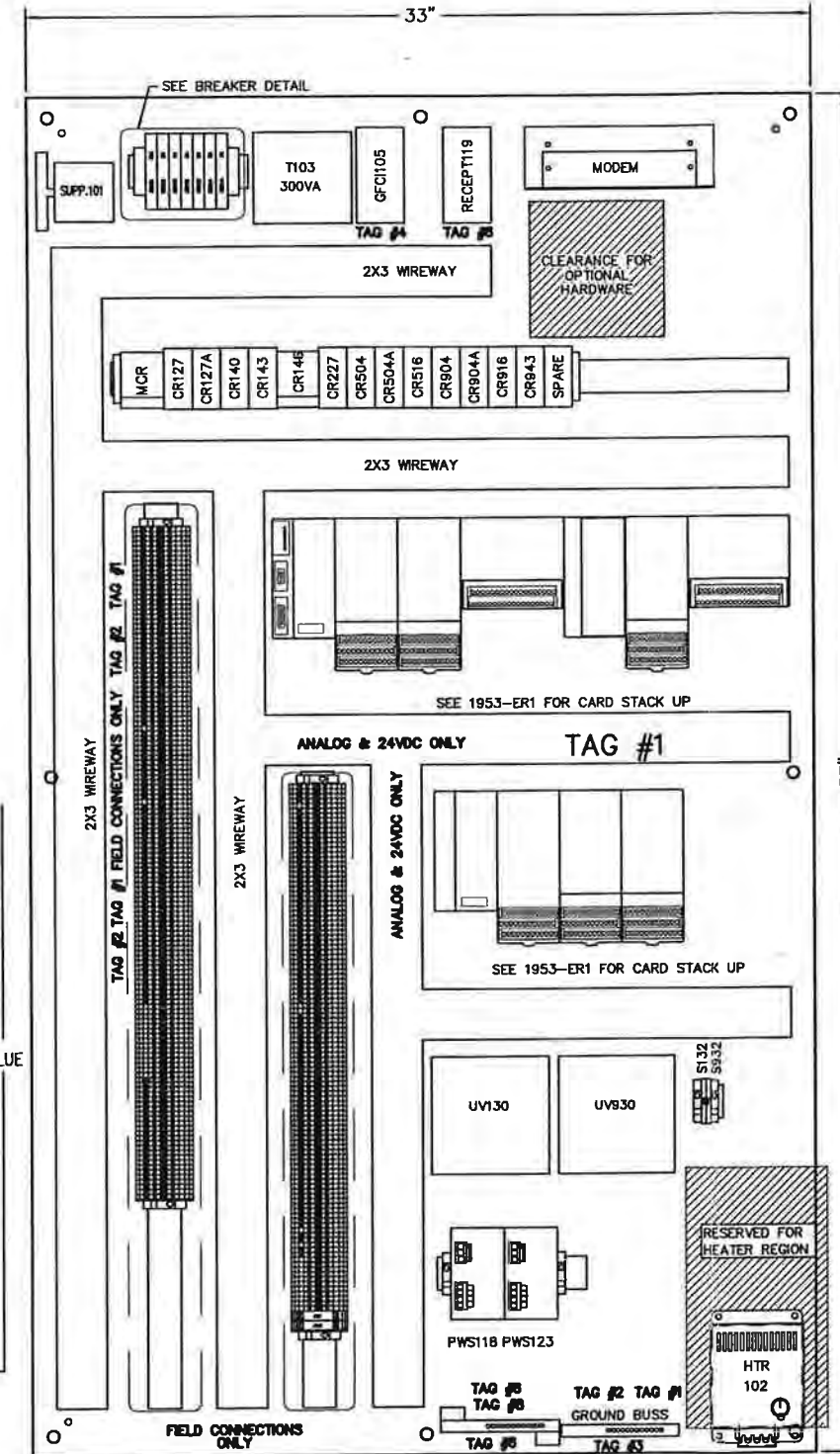
# AS BUILT

NOV. 16, 2004  
NOTE: DRAWING DOES NOT REFLECT FIELD REVISIONS

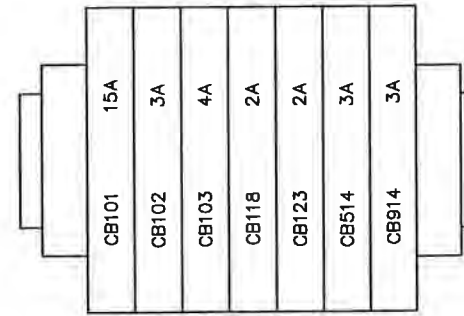


TS1 DETAIL  
SCALE: FULL

TS2 DETAIL  
SCALE: FULL



BACKPLATE LAYOUT  
SCALE: 4:1



BREAKER DETAIL  
SCALE: FULL

## LABEL & PLAQUE DETAIL

**TAG #1**  
USE 105° C RATED COPPER WIRE

**TAG #2**  
WEIDMULLER TERMINAL

WDU 2.5	UL	CSA
RATED VOLTAGE	600V	600V
RATED CURRENT	25A	25A
WIRE SIZE	#22...12 AWG	#26...12 AWG
TORQUE lb.in (Nm)	7.1 (0.8)	

**TAG #3**  
⚡

**TAG #4**  
GE TGK12  
TORQUE to 30 lb-in

**TAG #5**  
WARNING - Use Of The Following Components Is Dependent Upon The Additional Protection Afforded By The Ground Fault Circuit Interrupter And The Overcurrent Protective Device. Provided, Do Not Remove Or Defeat These Protective Components. CHART RECORDER (CR1107) FLOW METER(F4606)  
The Ground Fault Circuit Interrupter Should Be Checked Periodically For Proper Operation.

**TAG #6**  
RECEPT119 FOR MODEM & PROGRAMMING ONLY

**TAG #7**  
GE VersMax  
IC200CHXXX CARRIERS  
TORQUE TO 4.4-5.5 lb-in

**TAG #8**  
ISOLATED GROUND FOR SIGNAL ONLY.

**TAG #9**  
GND(TE)

**TAG #10**  
GND(PE)

**TAG #11**  
RECEPT FOR AUTODIALER ONLY

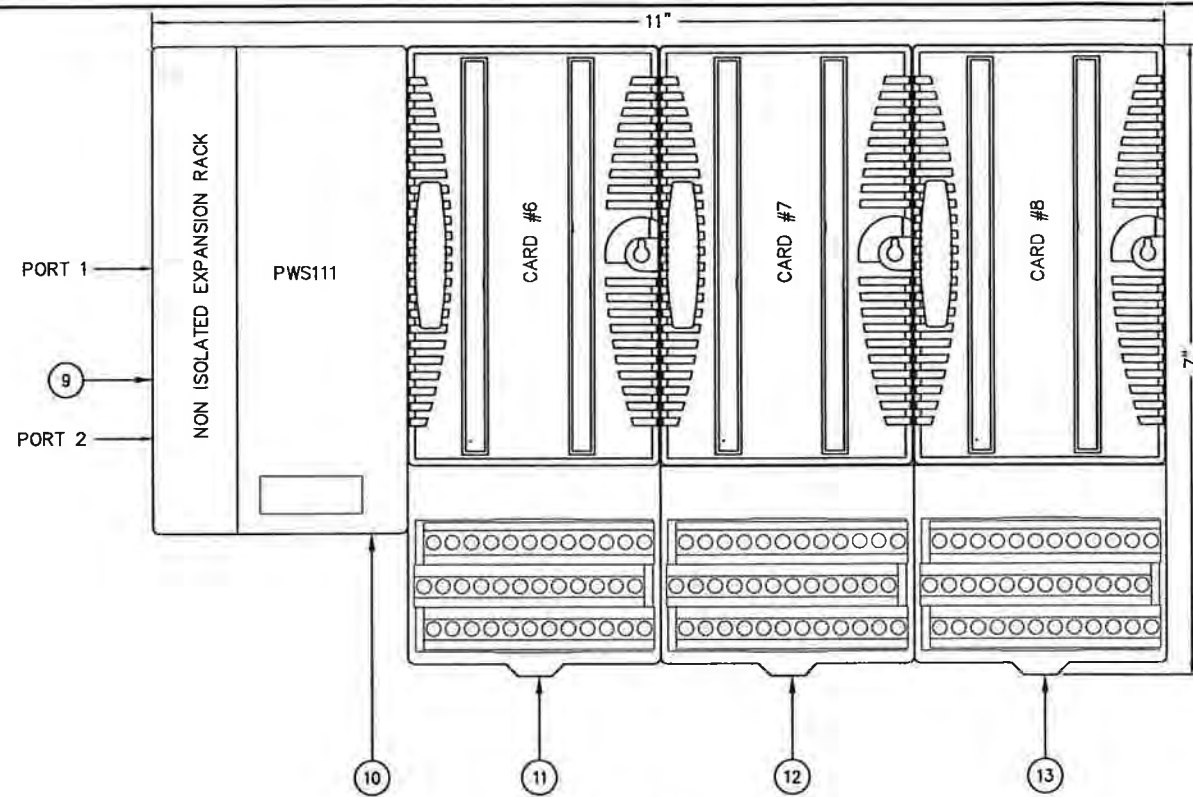


REV	DESCRIPTION / ISSUE	DATE	BY
1	AS BUILT	11/16/04	TRS
0	ISSUED FOR CONSTRUCTION	10/21/04	TRS

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FLAME-TROL IV BACKPLATE ASSEMBLY			
DRAWN BY: TRS	ENGINEER: RSR	APPROVED BY: LWZ	SIZE: D
SCALE: AS SHOWN	DATE: 08/10/04	PROJECT NO: 847042	

PROJECT NAME			
LANDFILL GAS ENCLOSED FLARE #EF63018			
GUDE LANDFILL			
ROCKVILLE, MD			
CUSTOMER:	SERIAL NO:	DWG NO:	SHEET:
MONTGOMERY COUNTY, MD	1953	EP2	1



PLC GROUP #2 CARD STACKUP

SCALE: FULL

PLC GROUP #1				
NO.	CARD	CARRIER	DESCRIPTION	SEE SHEET
1	IC200CPU001		PLC CPU	1953-E01
2	IC200PWR102		PLC POWER SUPPLY, (PWS117)	1953-E01
3	IC200MDD840	IC200CHS022	DIGITAL COMBINATION CARD, (20)-24VDC INPUTS, (12)-RELAY OUTPUTS	1953-E02
4	IC200ALG430	IC200CHS022	ANALOG COMBINATION CARD, (4)-4-20mA INPUTS, (2)-4-20mA OUTPUTS	1953-E03
5	IC200ALG630	IC200CHS002	7 CHANNEL THERMOCOUPLE CARD	1953-E04
6	IC200PWR102	IC200PWB001	PLC POWER SUPPLY, (PWS113)	1953-E01
7	IC200MDD840	IC200CHS022	DIGITAL COMBINATION CARD, (20)-24VDC INPUTS, (12)-RELAY OUTPUTS	1953-E07
8	IC200ALG630	IC200CHS002	7 CHANNEL THERMOCOUPLE CARD	1953-E08

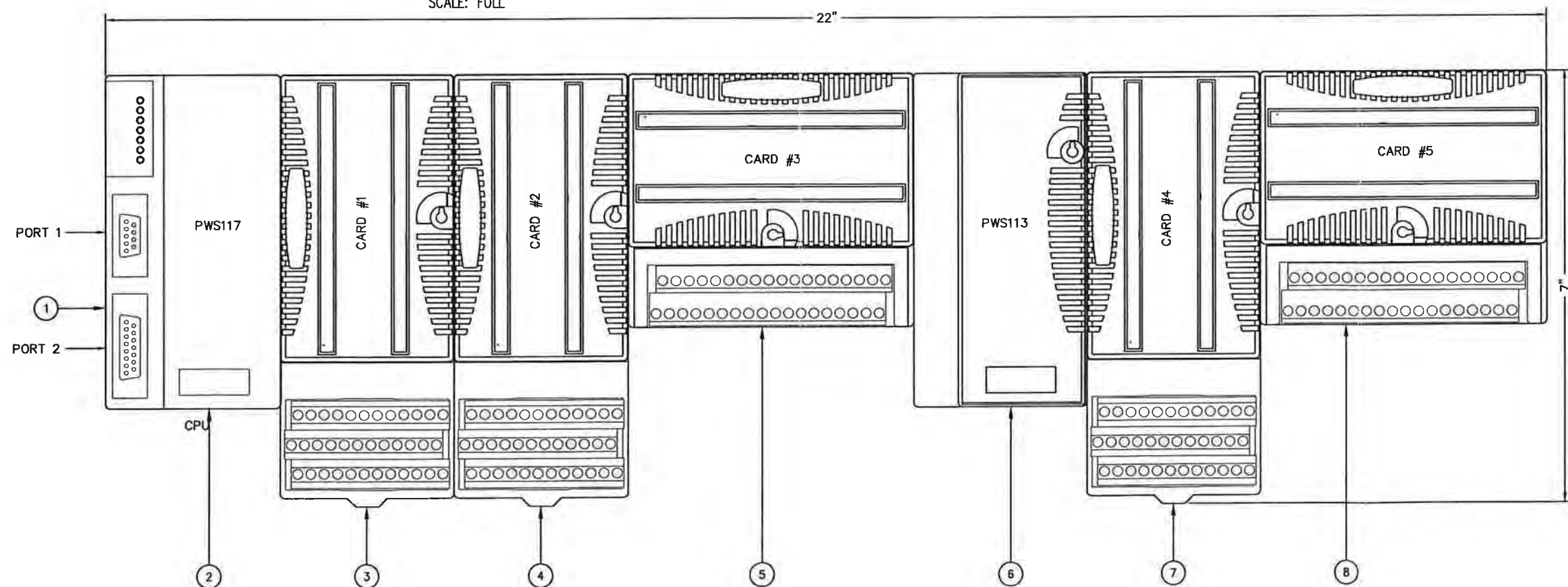
  

PLC GROUP #2				
NO.	CARD	CARRIER	DESCRIPTION	SEE SHEET
9	IC200ERM002		NON ISOLATED EXPANSION RACK	1953-E01
10	IC200PWR102		PLC POWER SUPPLY, (PWS111)	1953-E01
11	IC200ALG430	IC200CHS022	ANALOG COMBINATION CARD, (4)-4-20mA INPUTS, (2)-4-20mA OUTPUTS	1953-E10
12	IC200MDL940	IC200CHS022	16 CHANNEL RELAY OUTPUT CARD	1953-E11
13	IC200MDL940	IC200CHS022	16 CHANNEL RELAY OUTPUT CARD	1953-E11

USE IC200CBL600 EXPANSION CABLE TO CONNECT PLC GROUP #1 TO PLC GROUP #2

**AS BUILT**

NOV. 16, 2004  
NOTE: DRAWING DOES NOT REFLECT FIELD REVISIONS



PLC GROUP #1 CARD STACKUP

SCALE: FULL

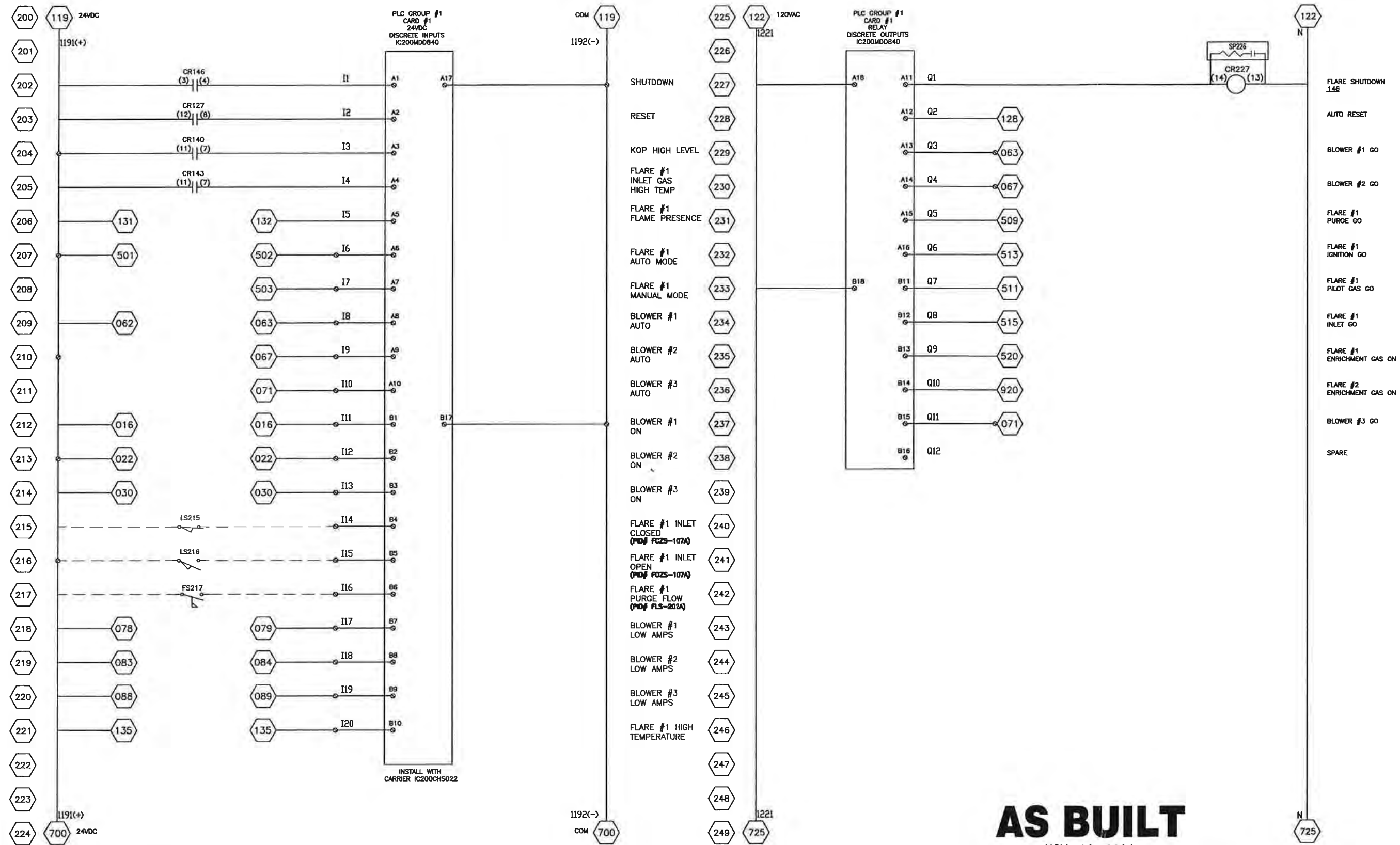


REV	DESCRIPTION / ISSUE	DATE	BY
1	AS BUILT	11/16/04	TRS
0	ISSUED FOR CONSTRUCTION	10/21/04	TRS

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FLAME-TROL IV PLC CARD STACK--UP			
DRAWN BY	ENGINEER	APPROVED BY	SIZE
TRS	RSR	LWZ	D
SCALE	DATE	PROJECT NO.	
AS SHOWN	08/10/04	847042	

PROJECT NAME			
LANDFILL GAS ENCLOSED FLARE #EF63018			
GUDE LANDFILL			
ROCKVILLE, MD			
CUSTOMER		SERIAL NO.	DATE
MONTGOMERY COUNTY, MD		1953	ER1
			1



**AS BUILT**  
NOV. 16, 2004

NOTE: DRAWING DOES NOT REFLECT FIELD REVISIONS



REV	DESCRIPTION / ISSUE	DATE	BY
1	AS BUILT	11/16/04	TRS
0	ISSUED FOR CONSTRUCTION	10/21/04	TRS

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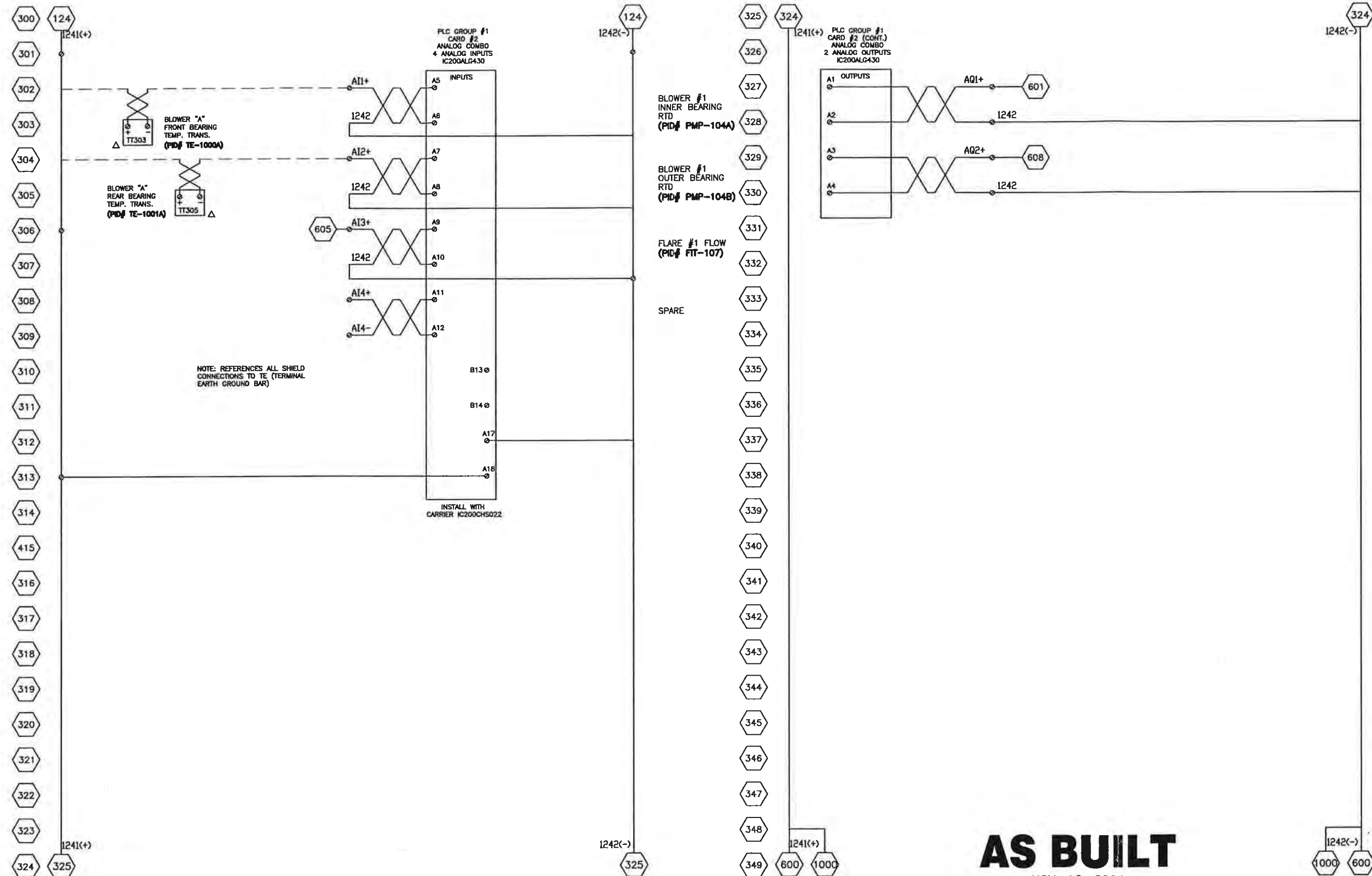
SYMBOL LEGEND

- ⊙ TERMINAL POINT (BACK PLATE)
- ⊞ TERMINAL POINT (SWING DOOR)
- △ SKID MOUNTED DEVICES
- SKID WIRING
- \_\_\_\_\_ 14 GA. WIRE

FLAME-TROL IV SCHEMATIC  
CARD #1 (DIGITAL INPUTS & OUTPUTS)

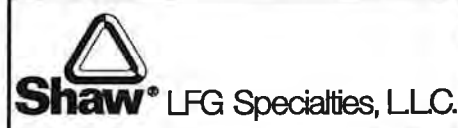
DRAWN BY: TRS	ENGINEER: RSR	APPROVED BY: LWZ	SIZE: D
SCALE: NONE	DATE: 08/10/04	PROJECT NO.:	847042

PROJECT NAME LANDFILL GAS ENCLOSED FLARE #EF63018 GUDE LANDFILL ROCKVILLE, MD		CLIENT MONTGOMERY COUNTY, MD	SERIAL NO. 1953	DWG NO. E2	SHEET 1
--	--	---------------------------------	--------------------	---------------	------------



**AS BUILT**

NOV. 16, 2004  
NOTE: DRAWING DOES NOT REFLECT FIELD REVISIONS



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1	AS BUILT	11/16/04	TRS
0	ISSUED FOR CONSTRUCTION	10/21/04	TRS

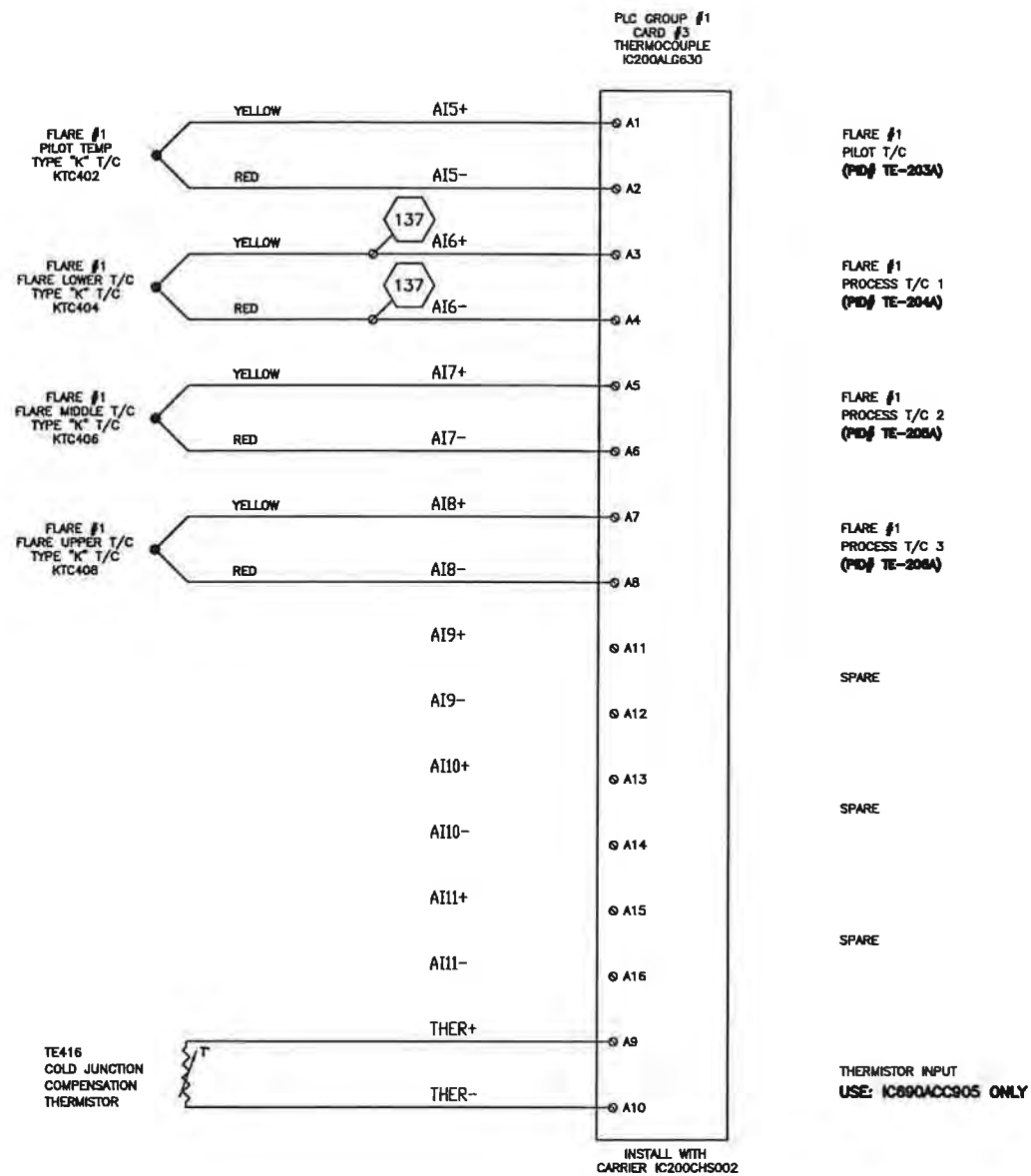
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SYMBOL LEGEND	
⊙	TERMINAL POINT (BACK PLATE)
⊠	TERMINAL POINT (SWING DOOR)
△	SKID MOUNTED DEVICES
---	SKID WIRING
---	14 GA. WIRE

FLAME-TROL IV SCHEMATIC CARD #2 (ANALOG I-O)			
DRAWN BY: TRS	ENGINEER: RSR	APPROVED BY: LWZ	SIZE: D
SCALE: NONE	DATE: 08/10/04	PROJECT NO: 847042	

PROJECT NAME			
LANDFILL GAS ENCLOSED FLARE #EF63018			
GUDE LANDFILL			
ROCKVILLE, MD			
CUSTOMER		SERIAL NO.	DWG NO.
MONTGOMERY COUNTY, MD		1953	E3
			SHEET 1

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**AS BUILT**

NOV. 16, 2004  
NOTE: DRAWING DOES NOT REFLECT FIELD REVISIONS



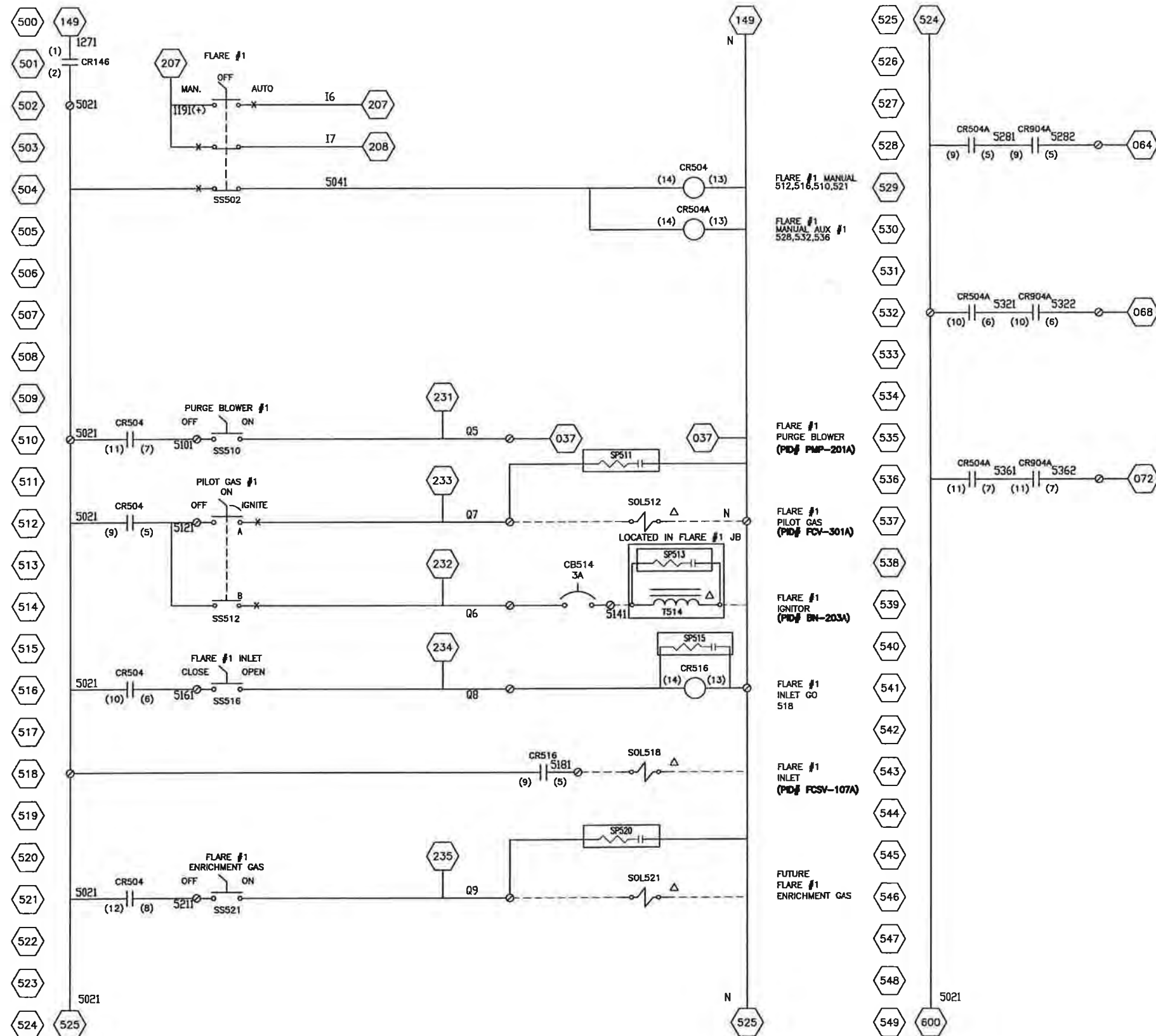
REV	DESCRIPTION / ISSUE	DATE	BY
1	AS BUILT	11/16/04	TRS
0	ISSUED FOR CONSTRUCTION	10/21/04	TRS

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SYMBOL LEGEND	
⊙	TERMINAL POINT (BACK PLATE)
⊠	TERMINAL POINT (SWING DOOR)
Δ	SKID MOUNTED DEVICES
---	SKID WIRING
---	14 GA. WIRE

FLAME-TROL IV SCHEMATIC CARD #3 (THERMOCOUPLE CONNECTIONS)			
DRAWN BY: TRS	ENGINEER: RSR	APPROVED BY: LWZ	SIZE: D
SCALE: NONE	DATE: 08/10/04	PROJECT NO.:	847042

PROJECT NAME			
LANDFILL GAS ENCLOSED FLARE #EF63018 GUDE LANDFILL ROCKVILLE, MD			
CUSTOMER:	SERIAL NO.:	DWG NO.:	SHEET:
MONTGOMERY COUNTY, MD	1953	E4	1



# AS BUILT

NOV. 16, 2004

NOTE: DRAWING DOES NOT REFLECT FIELD REVISIONS

NOTE: SUPPRESSORS ARE TO BE LOCATED AS CLOSE TO DEVICE AS POSSIBLE



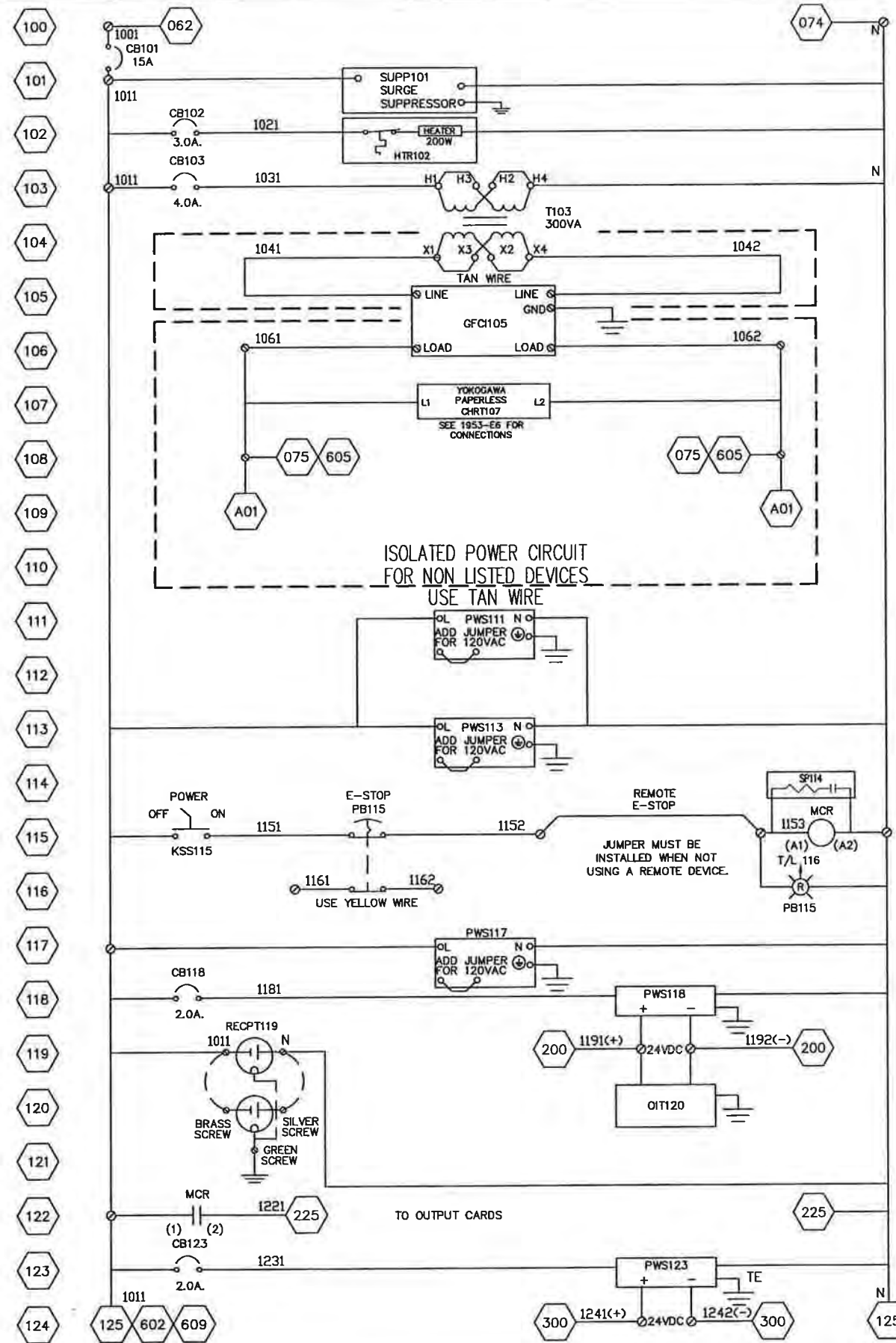
REV	DESCRIPTION / ISSUE	DATE	BY
1	AS BUILT	11/16/04	TRS
0	ISSUED FOR CONSTRUCTION	10/21/04	TRS

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SYMBOL LEGEND	
⊙	TERMINAL POINT (BACK PLATE)
⊖	TERMINAL POINT (SWING DOOR)
Δ	SKID MOUNTED DEVICES
---	SKID WIRING
---	14 GA. WIRE

FLAME-TROL IV SCHEMATIC MANUAL CONTROLS			
DRAWN BY: TRS	ENGINEER: RSR	APPROVED BY: LWZ	SHEET: D
SCALE: NONE	DATE: 08/10/04	PROJECT NO: 847042	

PROJECT NAME			
LANDFILL GAS ENCLOSED FLARE #EF63018			
GUDE LANDFILL			
ROCKVILLE, MD			
CUSTOMER		SERIAL NO:	DWG NO:
MONTGOMERY COUNTY, MD		1953	E5
			SHT: 1



200W PANEL HEATER

CHART RECORDER CONNECTIONS

PLC POWER SUPPLY

PLC POWER SUPPLY

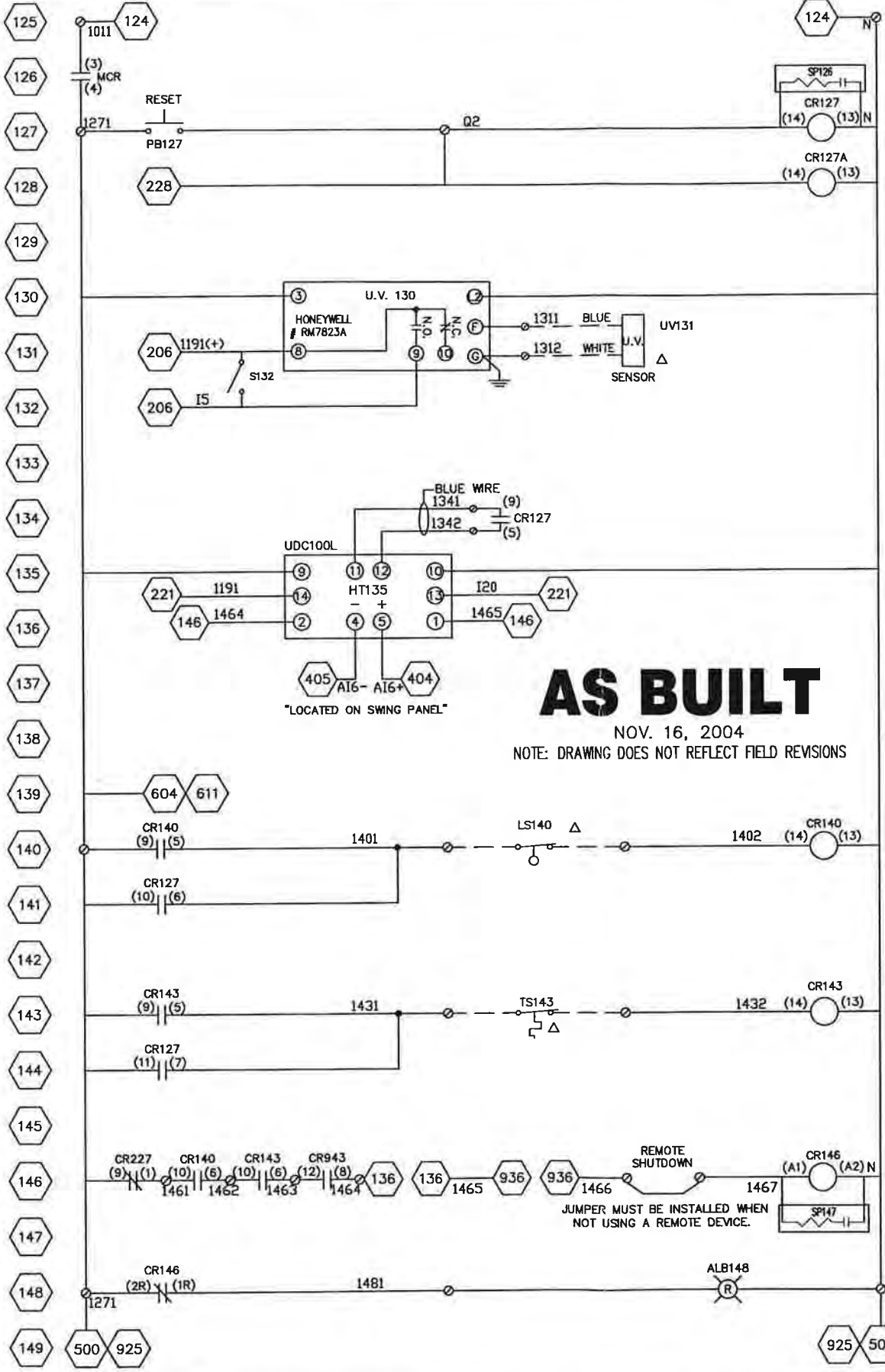
MASTER CONTROL RELAY 122,126

POWER ON

PLC POWER SUPPLY

24VDC OIT & DIGITAL POWER SUPPLY 55 WATTS

24VDC ANALOG POWER SUPPLY 55 WATTS



FLARE #1 UV FLAME RELAY (PID# BIA-203A)

FLARE #1 UV SENSOR (PID# BE-203A)

FLARE #1 HIGH LIMIT CONTROLLER (PID# THA-107A) SP=2000  
NOTE: MAX. SETPOINT IS 2000F

HIGH KOP LEVEL 140,146,204,A39

FLARE #1 HIGH GAS INLET TEMP. SHUTDOWN 143,146,205

SHUTDOWN RELAY 501,148,A29,202

REMOTE SHUTDOWN INDICATION

ALARM BEACON



2	AS BUILT	11/16/04	TRS
1	MODIFIED LOUVER POWER CONNECTIONS	11/02/04	TRS
0	ISSUED FOR CONSTRUCTION	10/21/04	TRS
REV	DESCRIPTION / ISSUE	DATE	BY

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SYMBOL LEGEND

⊙	TERMINAL POINT (BACK PLATE)
⊞	TERMINAL POINT (SWING DOOR)
△	SKID MOUNTED DEVICES
---	SKID WIRING
---	14 GA. WIRE

FLAME-TROL IV SCHEMATIC (POWER SUPPLIES AND INTERLOCKS)

DRAWN BY: TRS	DESIGNED BY: RSR	APPROVED BY: LWZ	SIZE: D
SCALE: NONE	DATE: 08/10/04	PROJECT NO: 847042	

PROJECT NAME: LANDFILL GAS ENCLOSED FLARE #EF63018

GUDE LANDFILL ROCKVILLE, MD

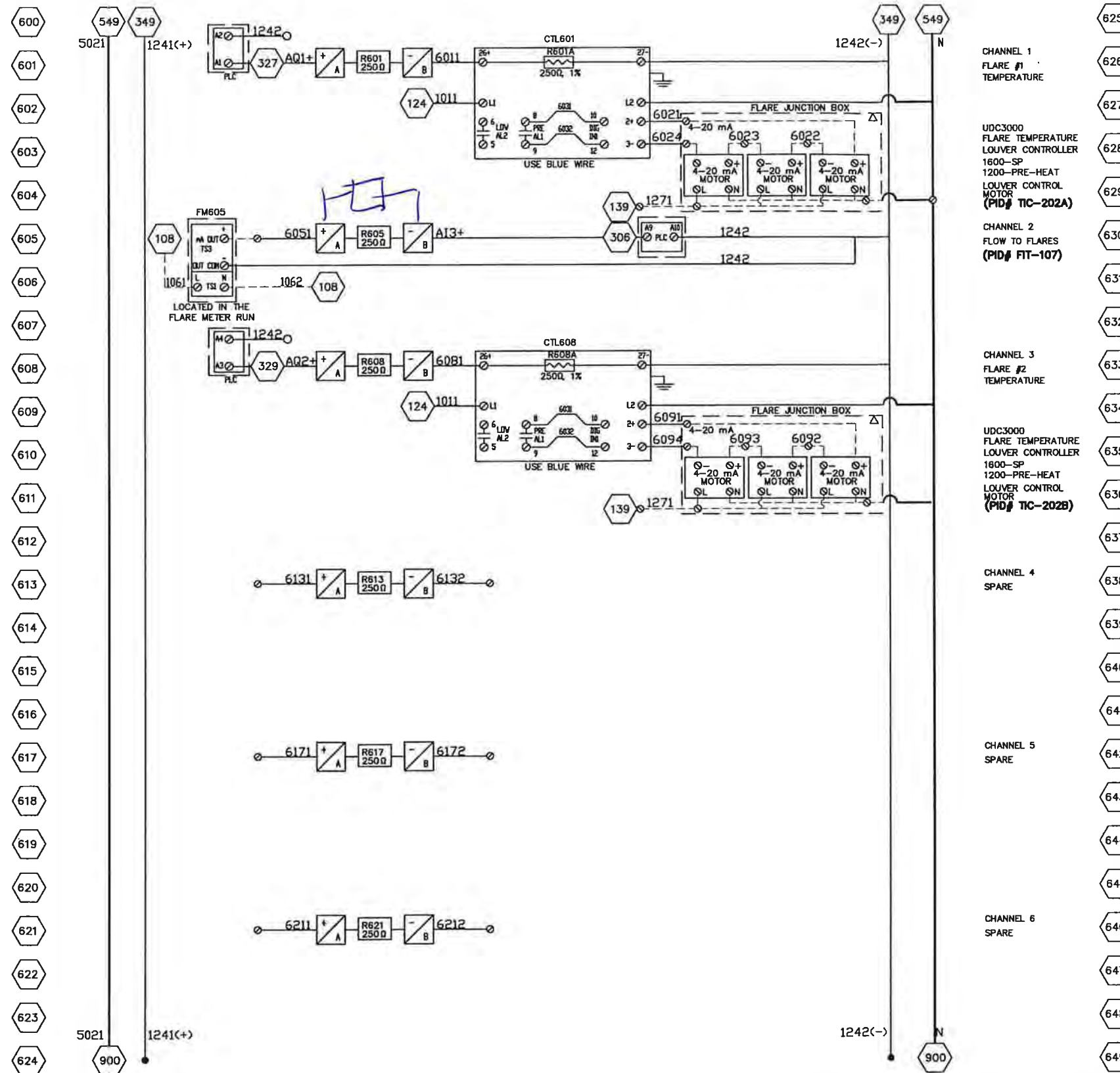
CUSTOMER: MONTGOMERY COUNTY, MD

SERIAL NO: 1953	DWG NO: E1	SHT: 1
-----------------	------------	--------



CHRT107 ANALOG CONNECTIONS  
(PID # QIR-107)  
SEE 1953-E1 FOR MAIN POWER CONNECTIONS

NOTES:  
1. ALL SHIELD CONNECTIONS SHALL BE REFERENCED TO TE (TERMINAL EARTH) GROUND BAR  
2. USE BELDEN 8761 FOR ANALOG SIGNALS.



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**AS BUILT**

NOV. 16, 2004  
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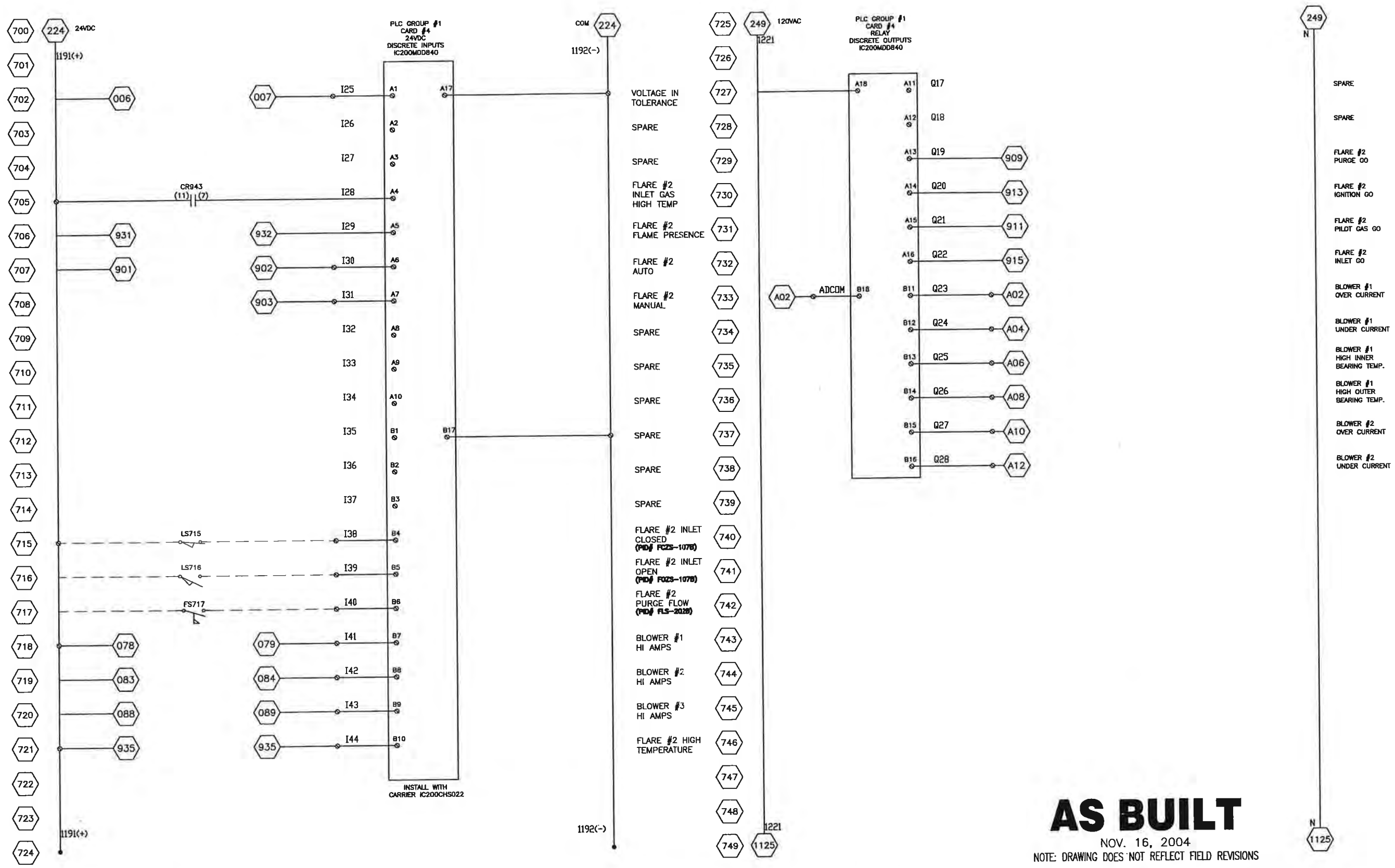
REV	DESCRIPTION / ISSUE	DATE	BY
2	AS BUILT	11/16/04	TRS
1	MODIFIED LOUVER POWER CONNECTIONS	11/02/04	TRS
0	ISSUED FOR CONSTRUCTION	10/21/04	TRS

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SYMBOL LEGEND	
⊙	TERMINAL POINT (BACK PLATE)
⊠	TERMINAL POINT (SWING DOOR)
△	SKID MOUNTED DEVICES
---	SKID WIRING
---	14 GA. WIRE

FLAME-TROL IV SCHEMATIC CHART RECORDER CONNECTIONS			
DRAWN BY: TRS	ENGINEER: RSR	APPROVED BY: LVZ	SIZE: D
SCALE: NONE	DATE: 08/10/04	PROJECT NO: 847042	

PROJECT NAME		CUSTOMER	
LANDFILL GAS ENCLOSED FLARE #EF63018		MONTGOMERY COUNTY, MD	
GUDE LANDFILL		SERIAL NO: 1953	DWG NO: E6
ROCKVILLE, MD			SHEET: 1



**AS BUILT**

NOV. 16, 2004  
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REV	DESCRIPTION / ISSUE	DATE	BY
1	AS BUILT	11/16/04	TRS
0	ISSUED FOR CONSTRUCTION	10/21/04	TRS

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**SYMBOL LEGEND**

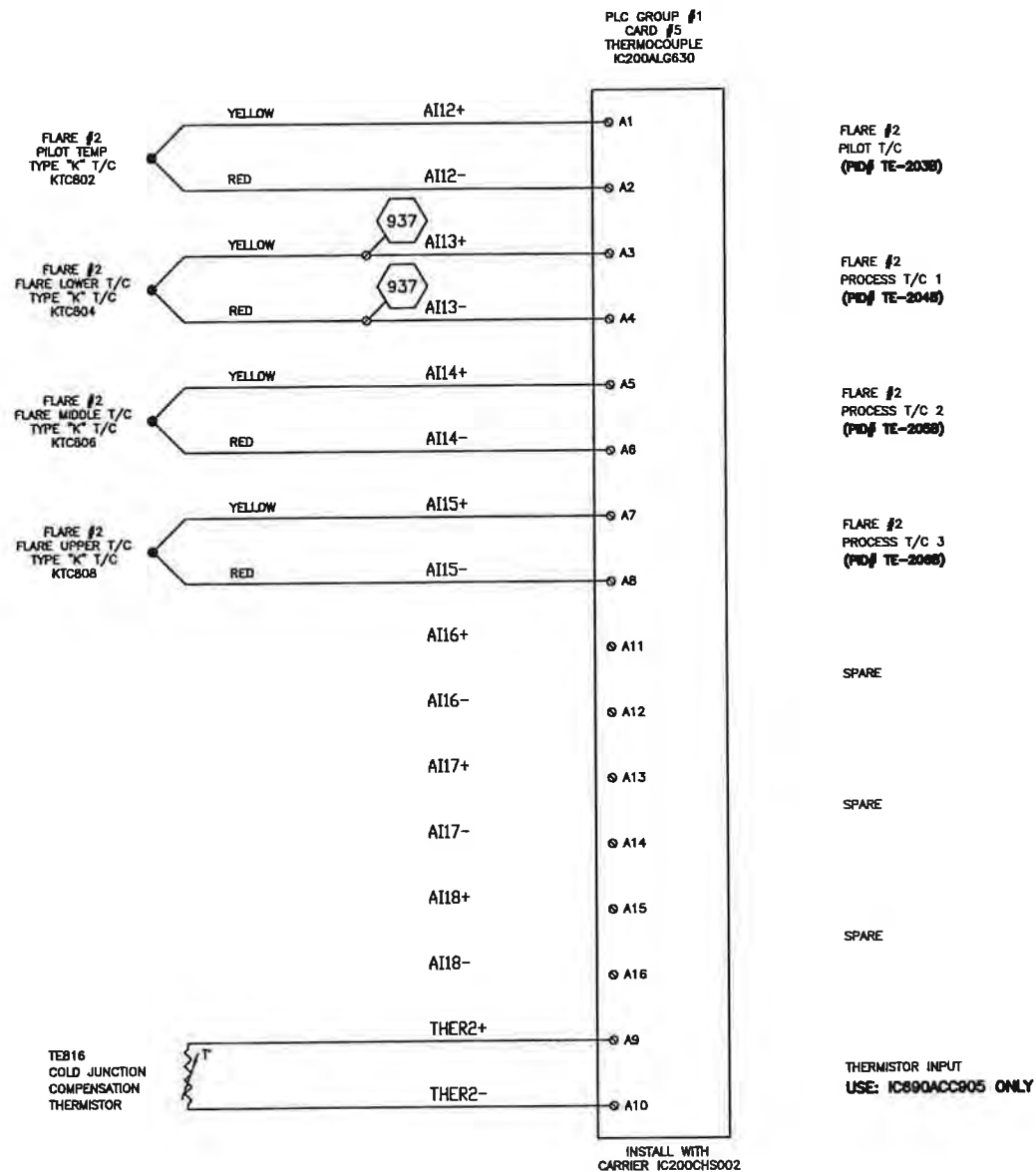
⊙	TERMINAL POINT (BACK PLATE)
⊠	TERMINAL POINT (SWING DOOR)
△	SKID MOUNTED DEVICES
---	SKID WIRING
---	14 GA. WIRE

**FLAME-TROL IV SCHEMATIC CARD #4 (DIGITAL INPUTS & OUTPUTS)**

DRAWN BY: TRS	ENGINEER: RSR	APPROVED BY: LWZ	SIZE: D
SCALE: NONE	DATE: 08/10/04	PROJECT NO: 847042	

<b>PROJECT NAME</b> LANDFILL GAS ENCLOSED FLARE #EF63018 GUDE LANDFILL ROCKVILLE, MD			
<b>CUSTOMER</b> MONTGOMERY COUNTY, MD	<b>SERIAL NO.</b> 1953	<b>DWG NO.</b> E7	<b>SHEET</b> 1

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SPACE  
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**AS BUILT**

NOV. 16, 2004  
NOTE: DRAWING DOES NOT REFLECT FIELD REVISIONS



REV	DESCRIPTION / ISSUE	DATE	BY
1	AS BUILT	11/16/04	TRS
0	ISSUED FOR CONSTRUCTION	10/21/04	TRS

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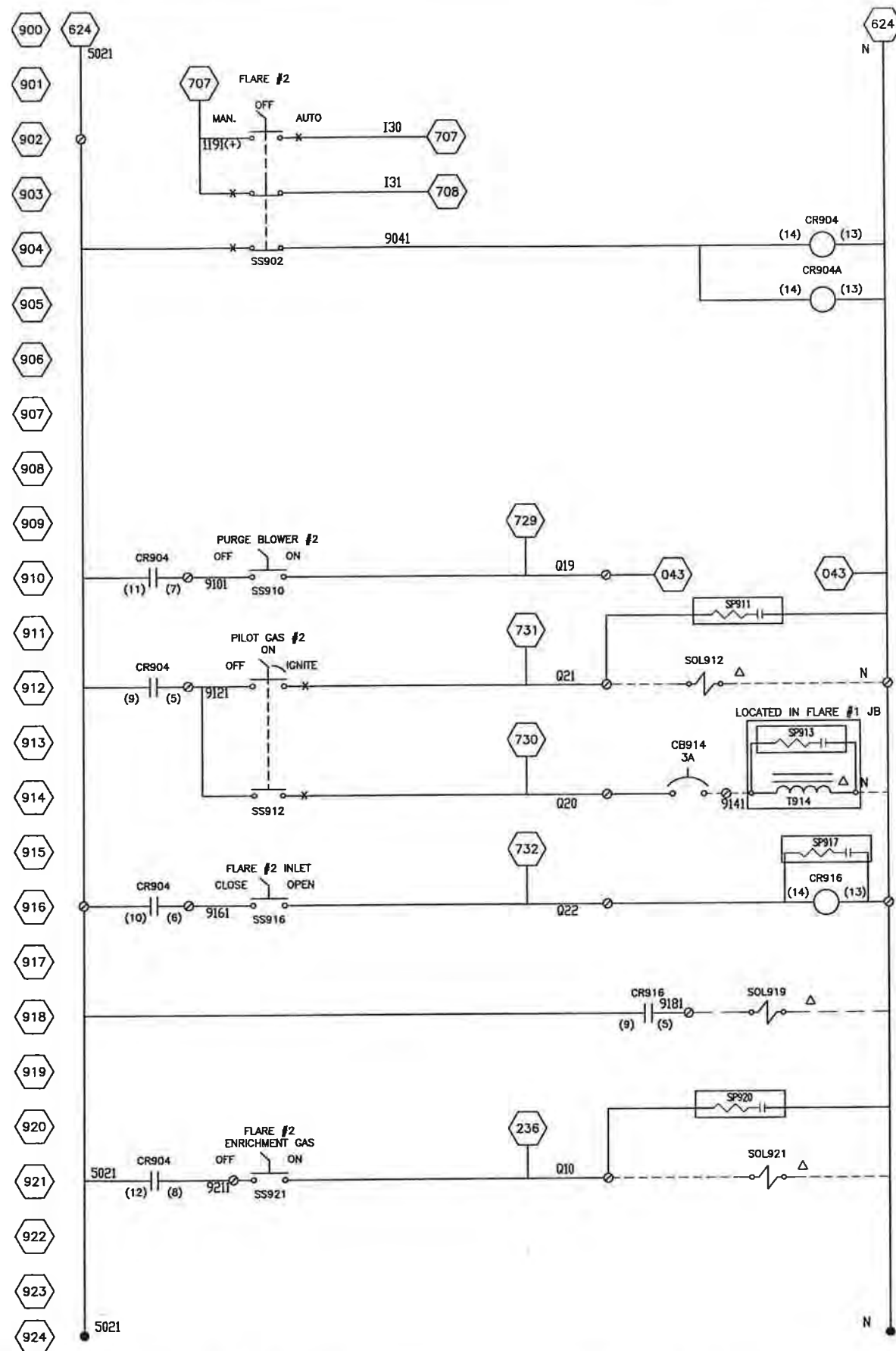
SYMBOL LEGEND

⊙	TERMINAL POINT (BACK PLATE)
⊠	TERMINAL POINT (SWING DOOR)
△	SKID MOUNTED DEVICES
---	SKID WIRING
---	14 GA. WIRE

FLAME-TROL IV SCHEMATIC  
CARD #5 (THERMOCOUPLE CONNECTIONS)

DRAWN BY:	ENGINEER:	APPROVED BY:	SIZE:
TRS	RSR	I.WZ	D
SCALE:	DATE:	PROJECT NO.:	
NONE	08/10/04	847042	

PROJECT NAME:		LANDFILL GAS ENCLOSED FLARE #EF63018		
		GUDE LANDFILL ROCKVILLE, MD		
CUSTOMER:	SERIAL NO.:	DWG NO.:	SHT.:	
MONTGOMERY COUNTY, MD	1953	EB	1	



624 N

FLARE #2 MANUAL  
912,916,910,921

FLARE #2 MANUAL AUX  
528,532,536

FLARE #2 PURGE BLOWER  
(PID# PMP-2018)

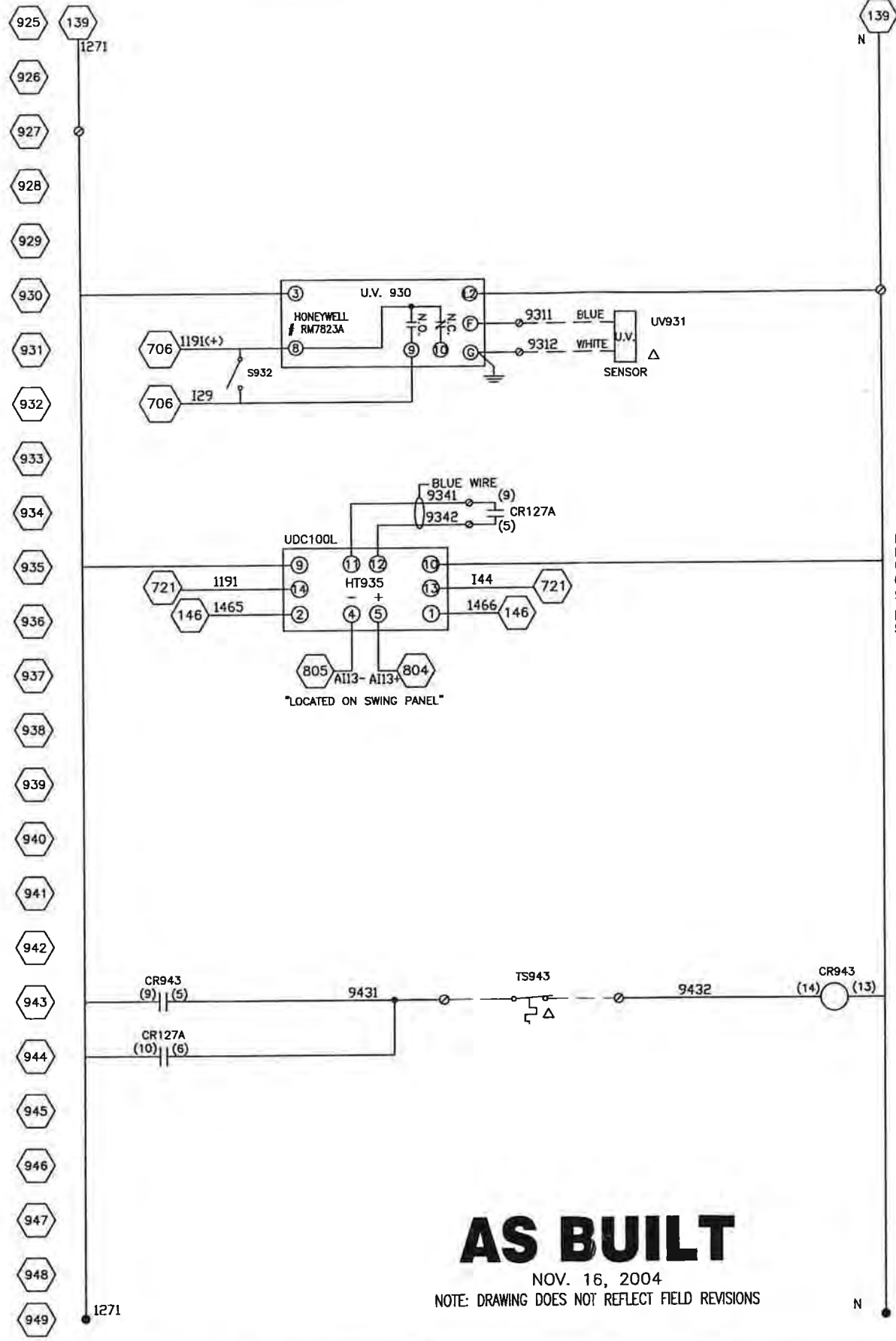
FLARE #2 PILOT GAS  
(PID# FCV-3018)

FLARE #2 IGNITOR  
(PID# BN-2038)

FLARE #2 INLET GO  
918

FLARE #2 INLET  
(PID# FCSV-1078)

FUTURE  
FLARE #2  
ENRICHMENT GAS



139 N

FLARE #2 UV FLAME RELAY  
(PID# BIA-2038)

FLARE #2 UV SENSOR  
(PID# BE-2038)

FLARE #2 HIGH LIMIT  
CONTROLLER  
(PID# TSH-2048)  
SP=2000  
NOTE: MAX.  
SETPOINT IS 2000°F

FLARE #2  
HIGH GAS INLET TEMP.  
SHUTDOWN  
943,705,146  
(PID# THA-1078)

**AS BUILT**

NOV. 16, 2004  
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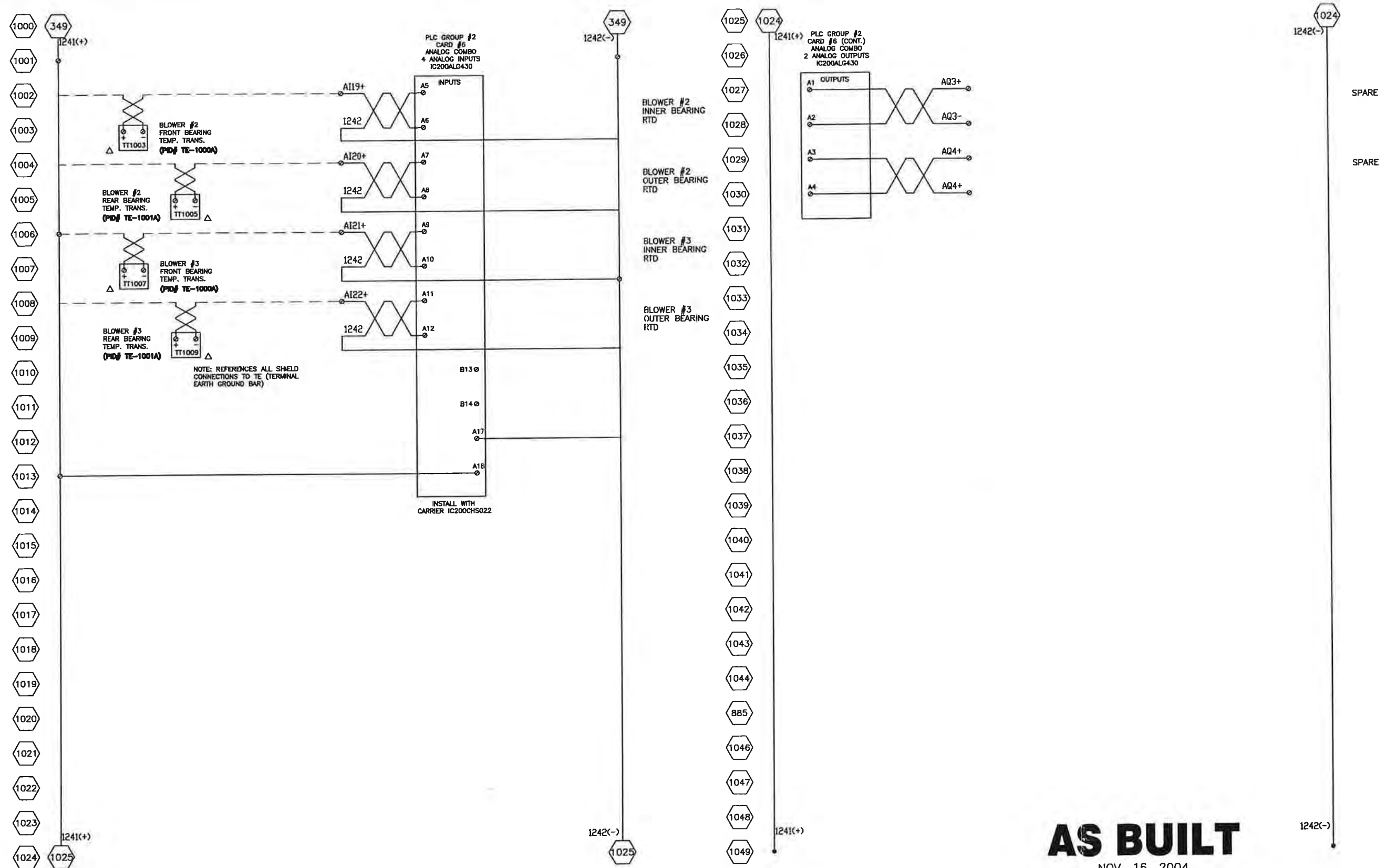
REV	DESCRIPTION / ISSUE	DATE	BY
1	AS BUILT	11/16/04	TRS
0	ISSUED FOR CONSTRUCTION	10/21/04	TRS

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SYMBOL LEGEND			
⊙	TERMINAL POINT (BACK PLATE)		
⊠	TERMINAL POINT (SWING DOOR)		
Δ	SKID MOUNTED DEVICES		
---	SKID WIRING		
---	14 GA. WIRE		

FLAME-TROL IV SCHEMATIC MANUAL CONTROLS			
DESIGN BY: TRS	CHECKED: RSR	APPROVED BY: LWZ	ISSUED BY: D
SCALE: NONE	DATE: 08/10/04	PROJECT NO: 847042	

PROJECT NAME			
LANDFILL GAS ENCLOSED FLARE #EF63018 GUDE LANDFILL ROCKVILLE, MD			
CUSTOMER:	SERIAL NO:	DWG NO:	SHEET:
MONTGOMERY COUNTY, MD	1953	E9	1



**AS BUILT**

NOV. 16, 2004

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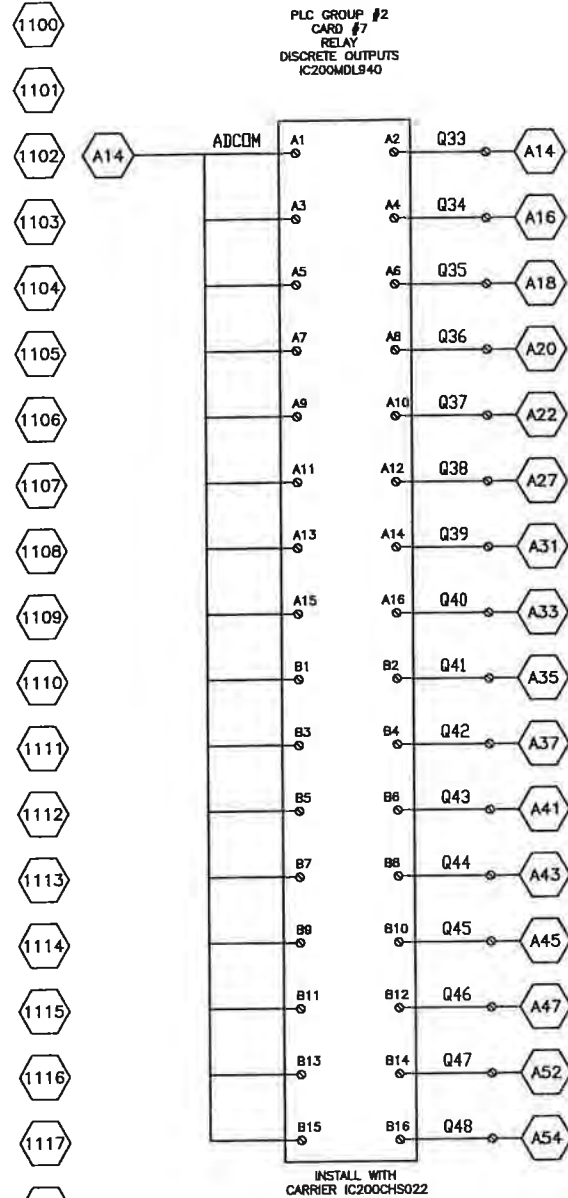
REV	DESCRIPTION / ISSUE	DATE	BY
1	AS BUILT	11/16/04	TRS
0	ISSUED FOR CONSTRUCTION	10/21/04	TRS

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⊚	TERMINAL POINT (SWING DOOR)
△	SKID MOUNTED DEVICES
---	SKID WIRING
---	14 GA. WIRE

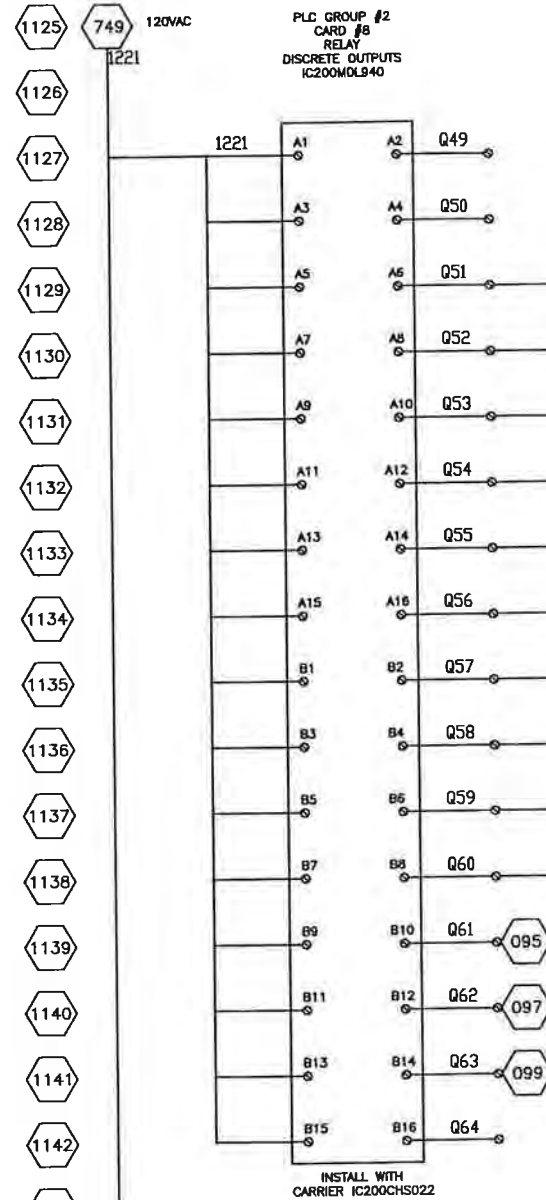
FLAME-TROL IV SCHEMATIC RTD CONNECTIONS			
DRAWN BY: TRS	CHKD BY: RSR	APPROVED BY: LWZ	SIZE: D
SCALE: NONE	DATE: 08/10/04	PROJECT NO: 847042	

PROJECT NAME			
LANDFILL GAS ENCLOSED FLARE #EF63018 GUDE LANDFILL ROCKVILLE, MD			
CUSTOMER:	SERIAL NO:	DWG NO:	SHT:
MONTGOMERY COUNTY, MD	1953	E10	1



INSTALL WITH  
CARRIER IC200CHS022

- 1100
  - 1101
  - 1102
  - 1103
  - 1104
  - 1105
  - 1106
  - 1107
  - 1108
  - 1109
  - 1110
  - 1111
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  - 1114
  - 1115
  - 1116
  - 1117
  - 1118
  - 1119
  - 1120
  - 1121
  - 1122
  - 1123
  - 1124
- BLOWER #2  
HIGH INNER  
BEARING TEMP.
  - BLOWER #2  
HIGH OUTER  
BEARING TEMP.
  - BLOWER #3  
OVER CURRENT
  - BLOWER #3  
UNDER CURRENT
  - BLOWER #3  
HIGH INNER  
BEARING TEMP.
  - BLOWER #3  
HIGH OUTER  
BEARING TEMP.
  - FLARE #1  
FLAME FAILURE
  - FLARE #1  
HIGH TEMP.
  - FLARE #1  
LOW TEMP.
  - INLET #1  
FAILURE
  - FLARE #2  
FLAME FAILURE
  - FLARE #2  
HIGH TEMP.
  - FLARE #2  
LOW TEMP.
  - INLET #2  
FAILURE
  - FLARE #2  
PILOT FAILURE
  - FLARE #2  
PILOT FAILURE



INSTALL WITH  
CARRIER IC200CHS022

- 1125
- 1126
- 1127
- 1128
- 1129
- 1130
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- 1139
- 1140
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- 1148
- 1149

- SPARE
- SPARE
- FLARE #1  
HIGH TEMPERATURE
- FLARE #1  
LOW TEMPERATURE
- FLARE #1  
FLAME FAILURE
- FLARE #1  
PILOT FAILURE
- FLARE #1  
INLET FAILURE
- FLARE #2  
HIGH TEMPERATURE
- FLARE #2  
LOW TEMPERATURE
- FLARE #2  
FLAME FAILURE
- FLARE #2  
PILOT FAILURE
- FLARE #2  
INLET FAILURE
- BLOWER OVER  
CURRENT
- BLOWER UNDER  
CURRENT
- BLOWER BEARING  
RTD FAULT
- SPARE

**AS BUILT**

NOV. 16, 2004

NOTE: DRAWING DOES NOT REFLECT FIELD REVISIONS



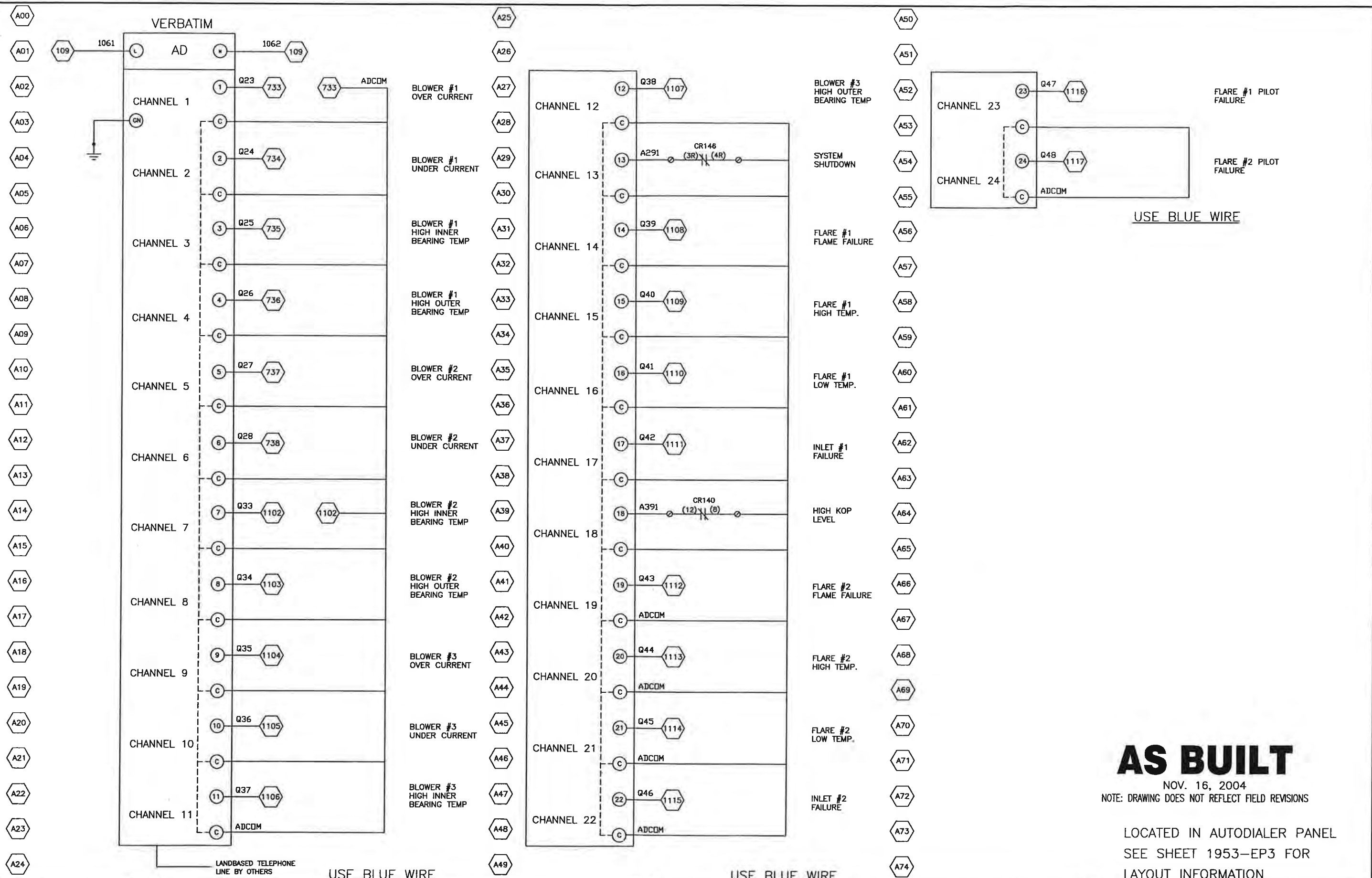
REV	DESCRIPTION / ISSUE	DATE	BY
2	AS BUILT	11/16/04	TRS
1	REVISED CONNECTIONS	10/27/04	TRS
0	ISSUED FOR CONSTRUCTION	10/21/04	TRS

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SYMBOL LEGEND			
⊙	TERMINAL POINT (BACK PLATE)		
⊠	TERMINAL POINT (SWING DOOR)		
△	SKID MOUNTED DEVICES		
---	SKID WIRING		
---	14 GA. WIRE		

FLAME-TROL IV SCHEMATIC CARD #4 (DIGITAL OUTPUTS)			
DRWN BY: TRS	CHKD BY: RSR	APPRD BY: LWZ	SIZE: D
SCALE: NONE	DATE: 08/10/04	PROJECT NO: 847042	

PROJECT NAME			
LANDFILL GAS ENCLOSED FLARE #EF63018 GUDE LANDFILL ROCKVILLE, MD			
CUSTOMER:	MONTGOMERY COUNTY, MD	SERIAL NO: 1953	DWG NO: E11
			DATE: 1



**AS BUILT**

NOV. 16, 2004  
NOTE: DRAWING DOES NOT REFLECT FIELD REVISIONS

LOCATED IN AUTODIALER PANEL  
SEE SHEET 1953-EP3 FOR  
LAYOUT INFORMATION



REV	DESCRIPTION / ISSUE	DATE	BY
1	AS BUILT	11/16/04	TRS
0	ISSUED FOR CONSTRUCTION	10/21/04	TRS

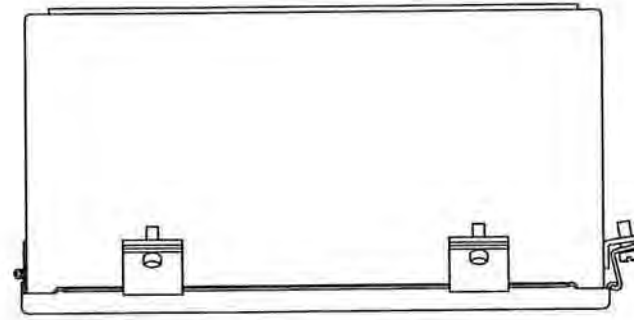
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FLAME-TROL IV AUTODIALER CONNECTIONS			
DRAWN BY: TRS	CHKD BY: RSR	APPROVED BY: LWZ	SIZE: D
SCALE: NONE	DATE: 08/10/04	PROJECT NO: B47042	

PROJECT NAME: LANDFILL GAS ENCLOSED FLARE #EF63018 GUDE LANDFILL ROCKVILLE, MD		CLIENT: MONTGOMERY COUNTY, MD	SERIAL NO: 1953	DWG NO: AD1	SHEET: 1
---	--	----------------------------------	--------------------	----------------	-------------

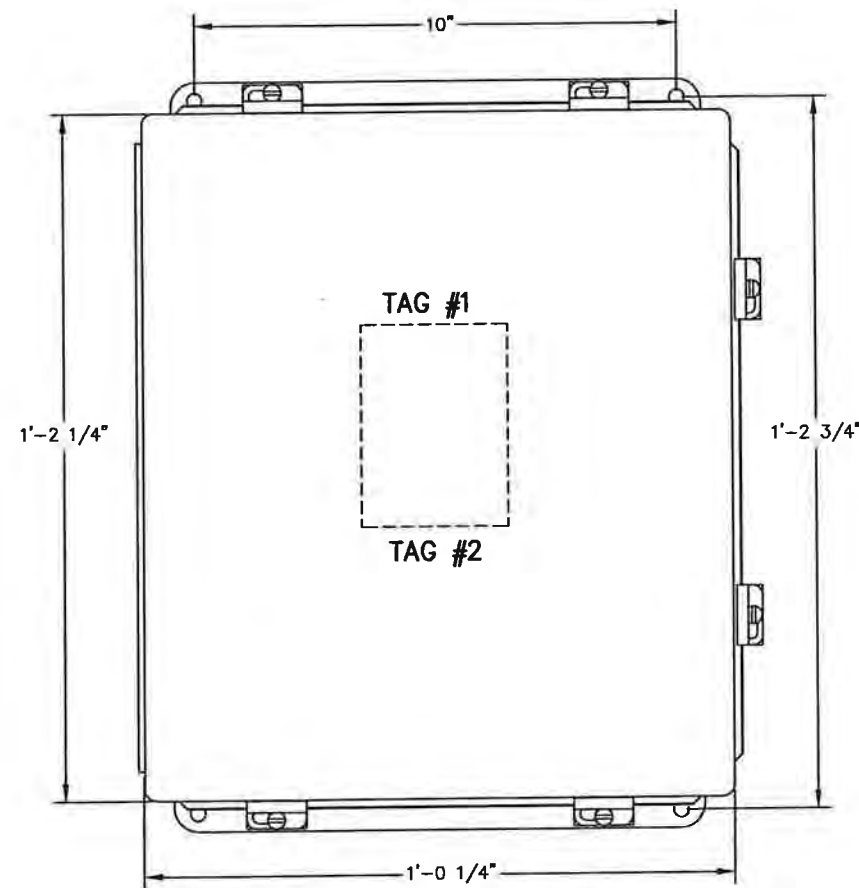
BILL OF MATERIAL

ITEM	QTY	DESCRIPTION	MANUFACTURER	SUPPLIER	PART NO.
1	1	ENCLOSURE NEMA 4 14x 12x 6	HOFFMAN	A-1412CHNF	EBX14X12N4
1	1	ENCLOSURE PLATE 14 x 12	HOFFMAN	A-14PT2	EBX14X12P
1	1	GROUND BAR	GE	TGK04	FLOOR STOCK
1	1	24 CHANNEL VERBATIM AUTODIALER	RACO	VSS24C	NON STOCK



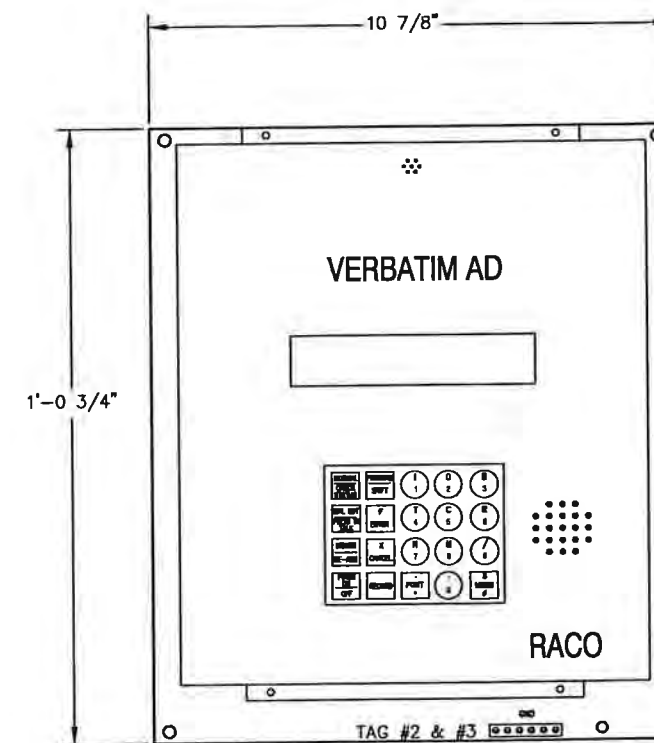
ENCLOSURE PROFILE

(PLAN)  
SCALE: 2:1



FRONT VIEW OF ENCLOSURE

(ELEVATION)  
SCALE: 2:1



BACKPLATE OF ENCLOSURE

SCALE: 2:1

**TAG #1**

Shaw LFG SPECIALTIES  
16406 U.S. RTE. 224 EAST  
FINDLAY, OH 45840-9761  
(419) 424-4999  
(800) 331-7683

FLAME CONTROL PANEL (J-BOX)  
MODEL NO. FLAMETROL IV  
SERIAL NO. 1953  
PANEL: AUTODIALER PANEL

Wiring Diagram: 1953-EP3  
Date Code: 11/2004

**TAG #2**

GROUND

**TAG #3**

GE TGK04  
TORQUE TO  
30 lb-in

**AS BUILT**

NOV. 16, 2004

NOTE: DRAWING DOES NOT REFLECT FIELD REVISIONS



REV	DESCRIPTION / ISSUE	DATE	BY
0	ISSUED FOR CONSTRUCTION	10/21/04	TRS

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**SYMBOL LEGEND**

⊙	TERMINAL POINT (BACK PLATE)
⊠	TERMINAL POINT (SWING DOOR)
△	SKID MOUNTED DEVICES
---	SKID WIRING
---	14 GA. WIRE

ENCLOSED FLARE #2 ELECTRICAL IGNITOR BOX FOR FLAME-TROL IV

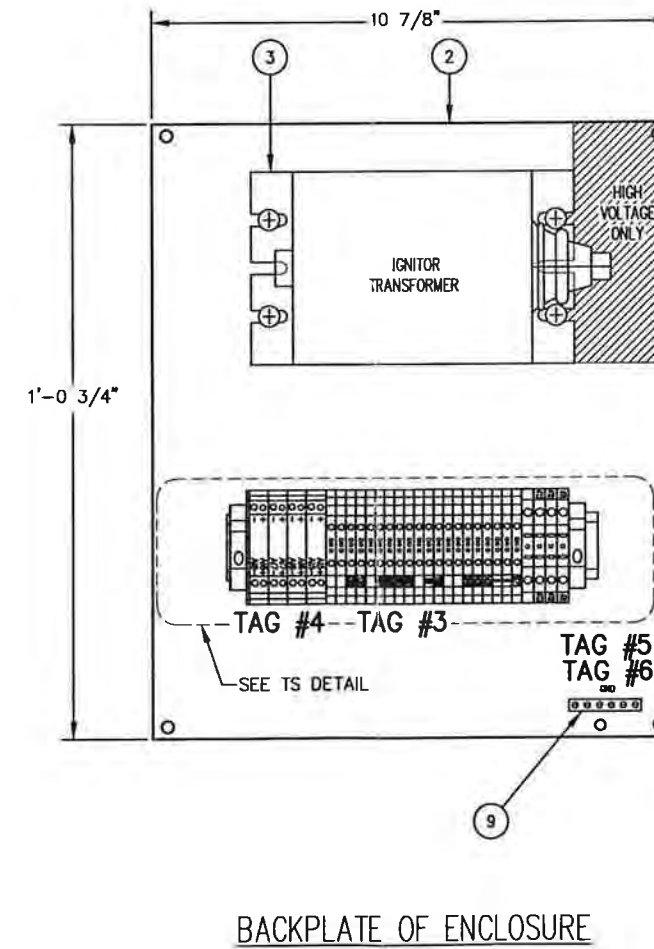
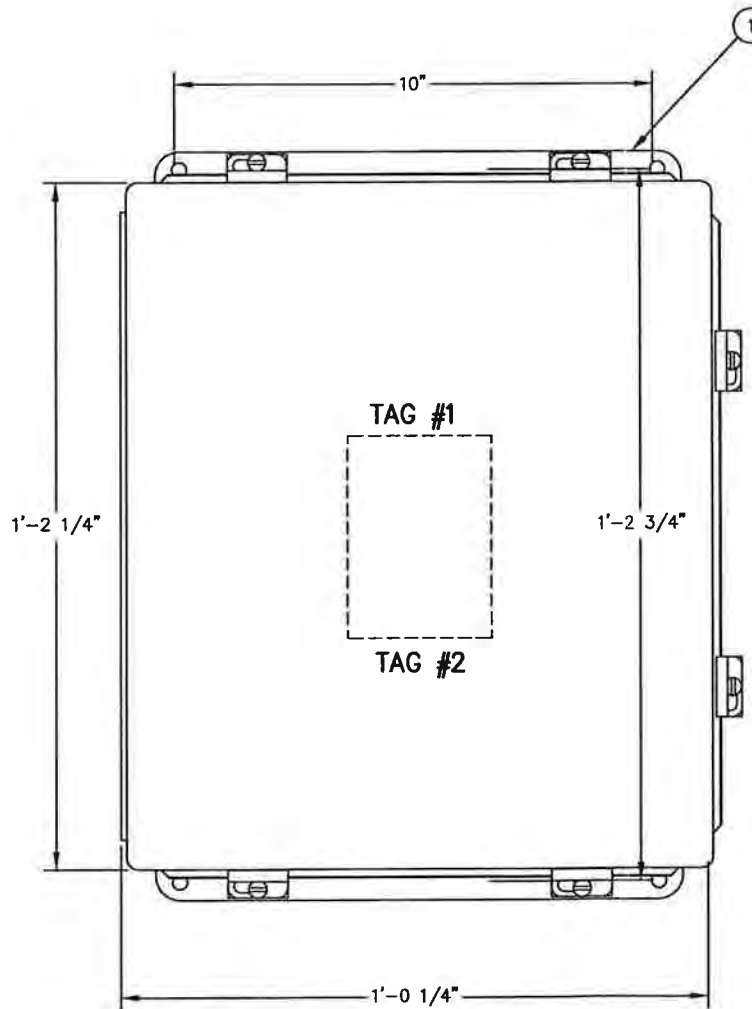
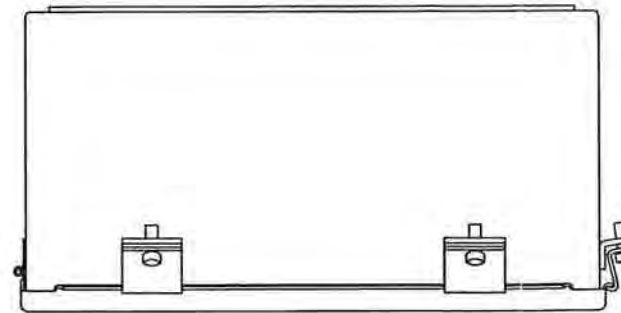
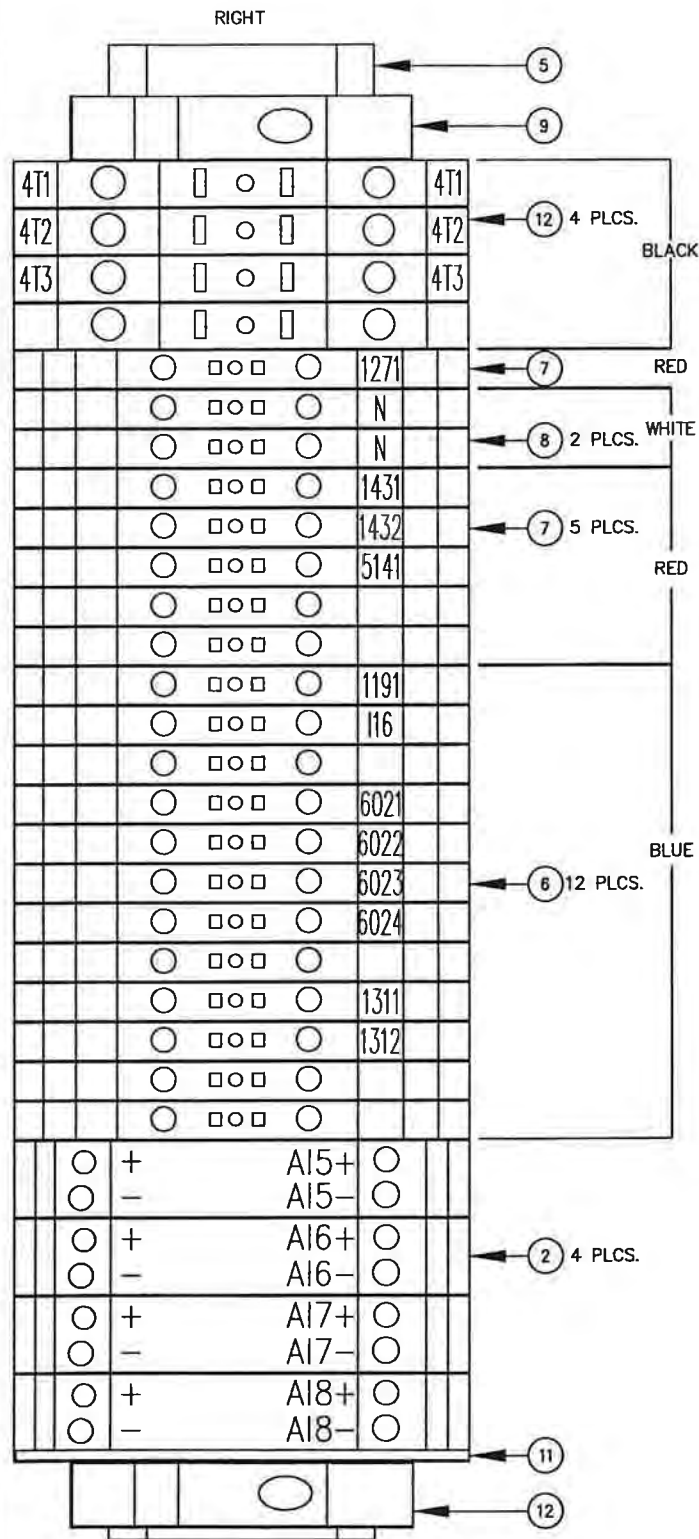
DRAWN BY: TRS	ENGINEER: RSR	APPROVED BY: LWZ	SIZE: D
SCALE: AS SHOWN	DATE: 08/10/04	PROJECT NO: 847042	

PROJECT NAME	LANDFILL GAS ENCLOSED FLARE #EF63018	SERIAL NO:	1953	DWG NO:	EP3	SHT:	1
CUSTOMER	MONTGOMERY COUNTY, MD						



**BILL OF MATERIAL**

ITEM	QTY	DESCRIPTION	MANUFACTURER	SUPPLIER	PART NO.
1	1	ENCLOSURE NEMA 4 14x 12x 6	HOFFMAN	A-1412CHNF	EBX14X12N4
2	1	ENCLOSURE PLATE 14 x 12	HOFFMAN	A-14P12	EBX14X12P
3	1	150 VA IGNITION TRANSFORMER (120 VAC PRI. 6 KVAC SEC.)	FRANCEFORMER	6EEGV-2	1881-PID
4	4	TYPE "K" T/C TERMINAL WDU 2.5/TC	WIEDMULLER	1024100000	ETB12TC-W
5	2	TERMINAL BLOCK END BLOCK WEW 35/2	WIEDMULLER	1061200000	FLOOR STOCK
6	12	TERMINAL BLOCK 22-12AWG 600 VAC WDU 2.5 BLUE	WIEDMULLER	1020080000	EWDU2.5BL
7	6	TERMINAL BLOCK 22-12AWG 600 VAC WDU 2.5 RED	WIEDMULLER	1020040000	EWDU2.5RT
8	2	TERMINAL BLOCK 22-12AWG 600 VAC WDU 2.5 WHITE	WIEDMULLER	1038000000	EWDU2.5WS
9	1	GROUND BAR	GE	TGK04	FLOOR STOCK
10	10*	DIN RAIL TS 35x7.5 (5mm SLOT)	WIEDMULLER	0514500000	FLOOR STOCK
11	1	TERMINAL BLOCK END PLATE WAP 2.5-10	WIEDMULLER	1050000000	FLOOR STOCK
12	4	TERMINAL BLOCK 20-10AWG 600 VAC WDU 4 BLACK	WIEDMULLER	1020110000	FLOOR STOCK
	2	BLANK TERMINAL LABELS FOR 5mm WS12/5 10 TAGS EACH	WIEDMULLER	1061060000	FLOOR STOCK



**TAG #1**

**Shaw LFG SPECIALTIES**  
16406 U.S. RTE. 224 EAST  
FINDLAY, OH 45840-9761  
(419) 424-4999  
(800) 331-7683

FLAME CONTROL PANEL (J-BOX)  
MODEL NO. FLAMETROL IV  
SERIAL NO. 1953  
PANEL: EF1 J-BOX

VOLTS - 480VAC, PHASE - 3PH  
FREQ - 60HZ

LARGEST MOTOR - 1/2HP, 1.1FLA

Wiring Diagram: 1953-EP4  
Date Code: 11/2004

**TAG #2**  
480 VAC

**TAG #3**  
WIEDMULLER WDU2.5  
TORQUE TO  
7.1 lb-in

**TAG #4**  
WIEDMULLER WDU2.5/TC  
TORQUE TO  
7.1 lb-in

**TAG #5**  
GROUND

**TAG #6**  
GE TKG04  
TORQUE TO  
30 lb-in

**AS BUILT**

NOV. 16, 2004  
NOTE: DRAWING DOES NOT REFLECT FIELD REVISIONS



REV	DESCRIPTION / ISSUE	DATE	BY
2	AS BUILT	11/16/04	TRS
1	MODIFIED LOUVER POWER CONNECTIONS	11/02/04	TRS
0	ISSUED FOR CONSTRUCTION	10/21/04	TRS

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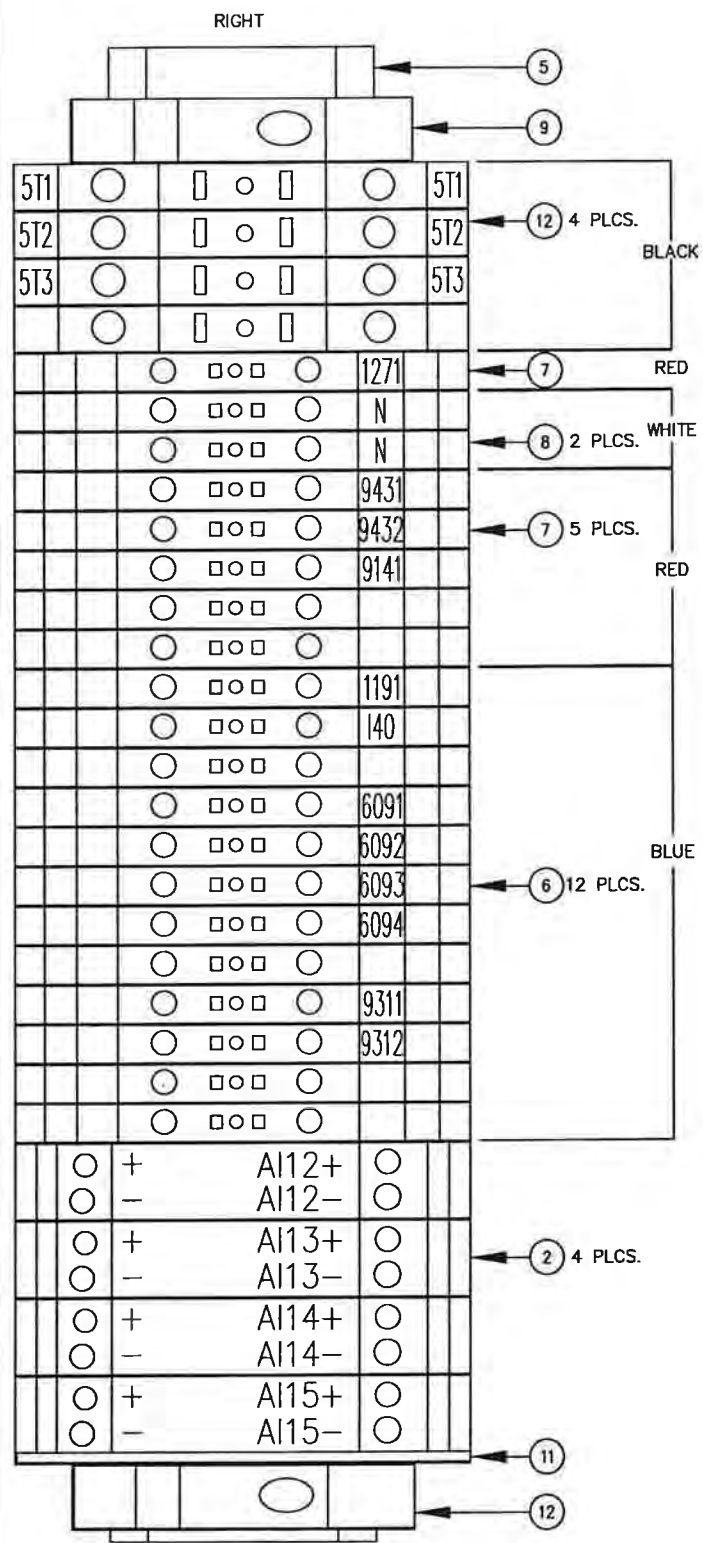
SYMBOL LEGEND			
⊙	TERMINAL POINT (BACK PLATE)		
⊠	TERMINAL POINT (SWING DOOR)		
△	SKID MOUNTED DEVICES		
---	SKID WIRING		
---	14 GA. WIRE		

ENCLOSED FLARE #1 ELECTRICAL IGNITOR BOX FOR FLAME-TROL IV			
DRAWN BY: TRS	ENGINEER: RSR	APPROVED BY: LWZ	SIZE: D
SCALE: AS SHOWN	DATE: 08/10/04	PROJECT NO.: B47042	

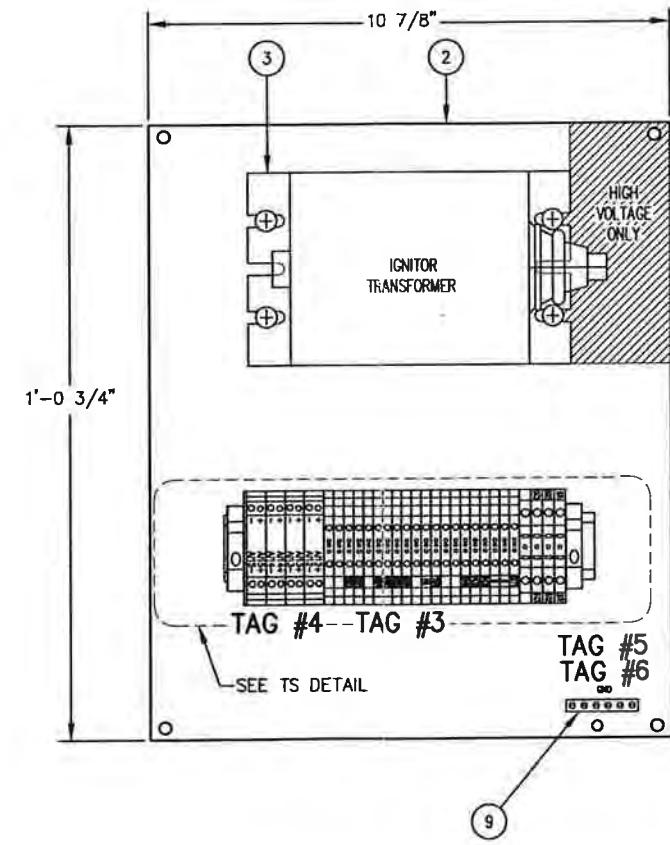
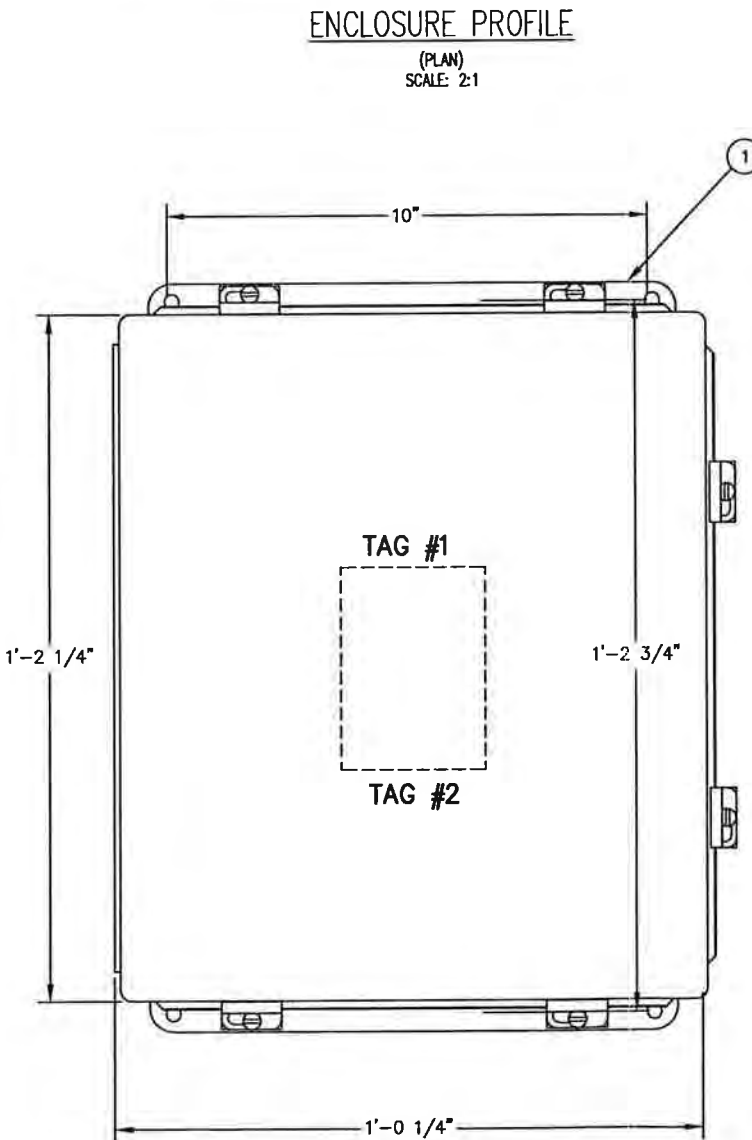
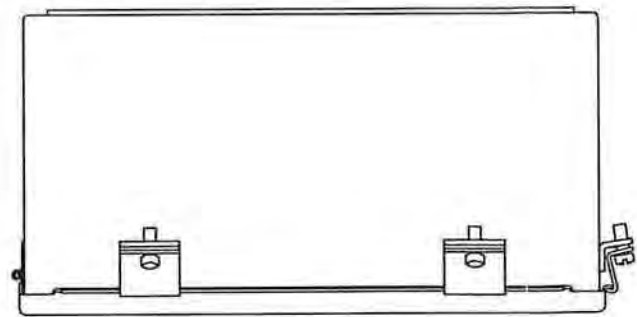
PROJECT NAME			
LANDFILL GAS ENCLOSED FLARE #EF63018			
GUDE LANDFILL ROCKVILLE, MD			
CUSTOMER:	MONTGOMERY COUNTY, MD	SERIAL NO.: 1953	DWG NO.: EP4

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION	MANUFACTURER	SUPPLIER	PART NO.
1	1	ENCLOSURE NEMA 4 14x 12x 6	HOFFMAN	A-1412CHNF	EBX14X12N4
2	1	ENCLOSURE PLATE 14 x 12	HOFFMAN	A-14P12	EBX14X12P
3	1	150 VA IGNITION TRANSFORMER (120 VAC PRI. 6 KVAC SEC.)	FRANCEFORMER	6EEGV-2	1881-PID
4	4	TYPE "K" T/C TERMINAL WDU 2.5/TC	WIEDMULLER	1024100000	ETB12TC-W
5	2	TERMINAL BLOCK END BLOCK WEW 35/2	WIEDMULLER	1061200000	FLOOR STOCK
6	12	TERMINAL BLOCK 22-12AWG 600 VAC WDU 2.5 BLUE	WIEDMULLER	1020080000	EWDU2.5BL
7	6	TERMINAL BLOCK 22-12AWG 600 VAC WDU 2.5 RED	WIEDMULLER	1020040000	EWDU2.5RT
8	2	TERMINAL BLOCK 22-12AWG 600 VAC WDU 2.5 WHITE	WIEDMULLER	1038000000	EWDU2.5WS
9	1	GROUND BAR	GE	TGK04	FLOOR STOCK
10	10*	DIN RAIL TS 35x7.5 (5mm SLOT)	WIEDMULLER	0514500000	FLOOR STOCK
11	1	TERMINAL BLOCK END PLATE WAP 2.5-10	WIEDMULLER	1050000000	FLOOR STOCK
12	4	TERMINAL BLOCK 20-10AWG 600 VAC WDU 4 BLACK	WIEDMULLER	1020110000	FLOOR STOCK
	2	BLANK TERMINAL LABELS FOR 5mm WS12/5 10 TAGS EACH	WIEDMULLER	1061060000	FLOOR STOCK



LEFT TS DETAIL  
SCALE: DOUBLE



**AS BUILT**

NOV. 16, 2004  
NOTE: DRAWING DOES NOT REFLECT FIELD REVISIONS

- TAG #1**
- Shaw LFG SPECIALTIES  
16406 U.S. RTE. 224 EAST  
FINDLAY, OH 45840-9761  
(419) 424-4999  
(800) 331-7683
- FLAME CONTROL PANEL (J-BOX)  
MODEL NO. FLAMETROL IV  
SERIAL NO. 1953  
PANEL: EF2 J-BOX
- VOLTS - 480VAC, PHASE - 3PH  
FREQ - 60HZ
- LARGEST MOTOR - 1/2HP, 1.1FLA
- Wiring Diagram: 1953-EP5  
Date Code: 11/2004
- TAG #2**
- 480 VAC
- TAG #3**
- WIEDMULLER WDU2.5  
TORQUE TO  
7.1 lb-in
- TAG #4**
- WIEDMULLER WDU2.5/TC  
TORQUE TO  
7.1 lb-in
- TAG #5**
- GROUND
- TAG #6**
- GE TGK04  
TORQUE TO  
30 lb-in



REV	DESCRIPTION / ISSUE	DATE	BY
2	AS BUILT	11/16/04	TRS
1	MODIFIED LOUVER POWER CONNECTIONS	11/02/04	TRS
0	ISSUED FOR CONSTRUCTION	10/21/04	TRS

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SYMBOL LEGEND			
○	TERMINAL POINT (BACK PLATE)		
□	TERMINAL POINT (SWING DOOR)		
△	SKID MOUNTED DEVICES		
---	SKID WIRING		
	14 GA. WIRE		

ENCLOSED FLARE #2, ELECTRICAL IGNITOR BOX FOR FLAME-TROL IV			
DRAWN BY: TRS	DESIGNED BY: RSR	APPROVED BY: LWZ	SIZE: D
SCALE: AS SHOWN	DATE: 08/10/04	PROJECT NO: B47042	

PROJECT NAME			
LANDFILL GAS ENCLOSED FLARE #EF63018 GUDE LANDFILL ROCKVILLE, MD			
CUSTOMER:	MONTGOMERY COUNTY, MD	SERIAL NO: 1953	ONE NO: EP5
			SHEET: 1

## **Appendix C**

### **CB&I-Provided Information**

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# Gude Well Pictures

DS02



EW1

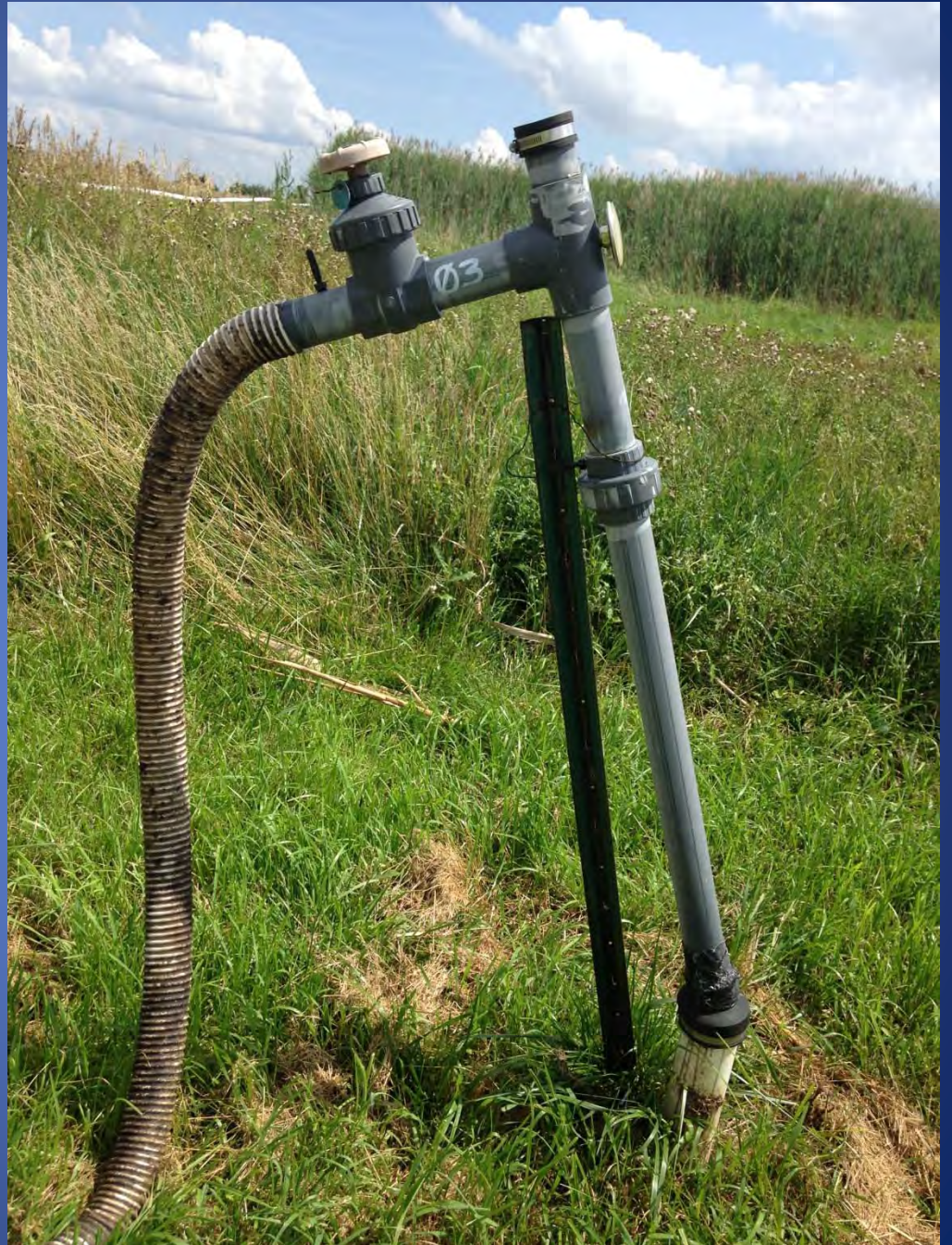


EW2





EW3



EW4



EW5



EW6



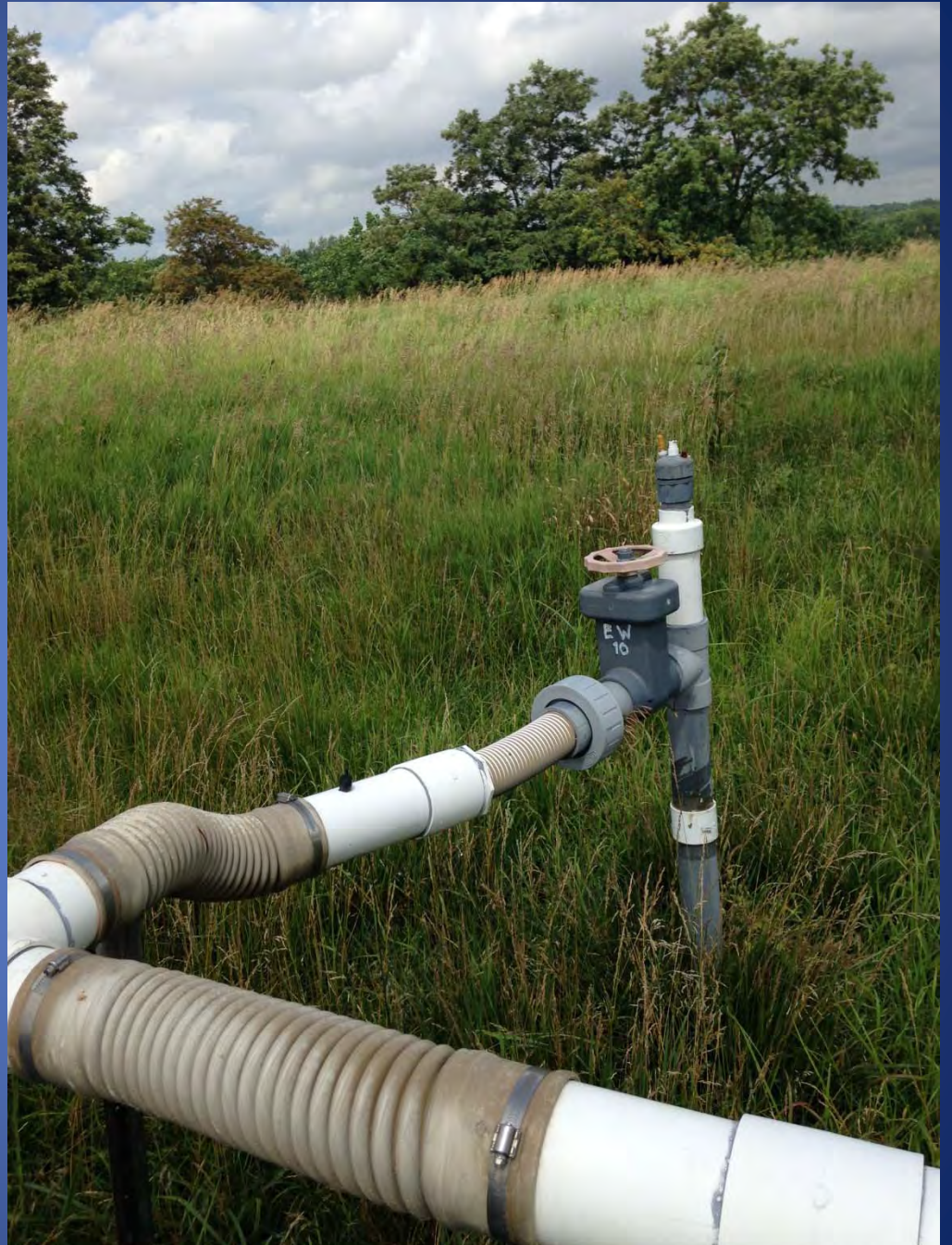
EW7



EW9



EW10



EW11





EW12



EW14



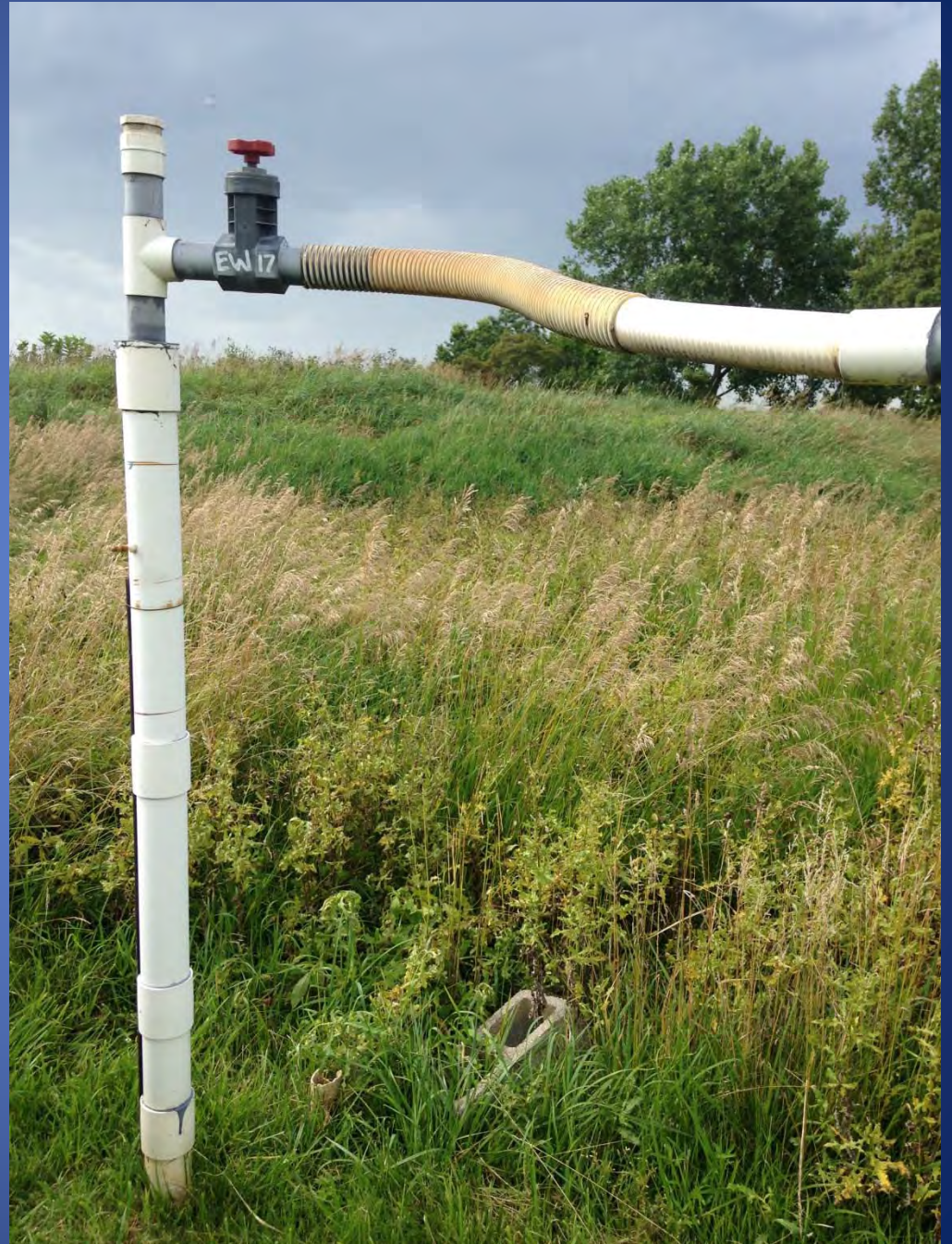
EW15



EW16



EW17



EW18



EW19



EW20





EW21



EW21



EW23



EW25



EW26



EW26



EW27



EW27





EW28



EW29



EW29



EW30



EW30



EW31



EW31





CB&I Environmental & Infrastructure, Inc.  
16406 US Route 224 East  
Findlay, Ohio 45840  
Tel: +1 419 424 4999  
Fax: +1 419 424 4991  
www.CBI.com

July 31, 2015

Ms. Amanda Moore  
Project Manager  
Northeast Maryland Waste Disposal Authority  
100 South Charles Street  
Tower II – Suite 402  
Baltimore, Maryland 21201

**Ref: Pre –Contract Commencement Inspection – GCCS  
Contract Control #00293  
Operation & Maintenance of the Oaks and Gude Landfill Gas to Energy (LFGTE) Systems  
Laytonsville, and Rockville, Montgomery County, Maryland**

Dear Ms. Moore:

As required by Section 3.9 of the Operation and Maintenance Agreement dated June 8, 2015, CB&I was to perform a visual pre-contract commencement inspection of the Oaks and Gude Landfill Gas to Energy facilities prior to mobilization. CB&I has completed the initial pre-contract commencement inspection for the Oaks and Gude Gas Collection and Control System (GCCS).

The GCCS inspections were completed from 6/30/15 through 7/17/15 by Mr. Kevin Rellinger, CB&I Operations Manager, and Scott Harteis, Jason Martin, and James Blecher, CB&I Technicians.

The intent of the pre-contract commencement visual inspection is to determine, to the extent that the conditions could be visibly assessed, any pre-existing damage or non-performed maintenance associated with the Oaks and Gude GCCS Landfill Systems.

Attached are the inspection notes/findings for the Oaks and Gude GCCS. In general, there do appear to be a number of maintenance items that have not been currently or completely performed as of the time of this inspection. Reference the attached list for details.

After your review, please let us know if these items have been addressed by the outgoing Operator or if these items are to be inherited by CB&I. Note that if these items remain unchanged upon our mobilization, this will significantly alters the initially intended maintenance schedule.





If you have any questions or require additional information, please feel free to contact me at 419-618-8253 or via e-mail: [kevin.rellinger@cbi.com](mailto:kevin.rellinger@cbi.com).

Respectfully submitted,

Kevin M. Rellinger  
Operations Manager  
CB&I Environmental & Infrastructure, Inc.

C: Rao Malladi, Montgomery County DEP - DSWS  
M. McGuigan, CB&I  
G. Autolitano, CB&I  
J. Esmet, CB&I  
File

Attachments



## **Oaks and Gude Landfill Gas to Energy GCCS Inspection – June 30, through 17, 2015**

The following notes/findings were prepared by Mr. Jason Martin, CB&I Well Field Technician, based on visual observations and inspections of the wellfield and its gas collection systems:

### **Oaks GCCS**

Initial visual inspection of the surrounding wellfield and facilities were completed on 6/24/15. Initial set-up of Montgomery county flare facilities were completed on 6/30/15. All other visual observations and hands-on inspections were completed after this date.

- Oaks Landfill consists of 15 vertical gas wells and 32 horizontal gas wells monitored monthly. The surrounding landscape is overgrown with mowed paths to each well for access. On 7/1/15 liquid levels on the vertical extraction wells were completed. The overall “average” depth of liquid in the vertical wells is 8.5 feet. The horizontal wells make up a majority of the LFG collection system and produce a majority of the LFG powering the engine plant. These wells cannot be measured for liquid build up.
- 16 of the horizontal gas wells are located below ground in fiberglass/plastic vaults. These wells are controlled by butterfly valves. During rainy conditions, the vaults fill up with surface water, making it difficult to collect gas readings or make adjustments to the wells. Recommend installing a valve extension on each of these horizontal wells to be accessed just below the cover of the valve vault. Also, install braided hoses to take LFG reads in the event the vaults are submerged. These horizontal wells were not visually labeled and require labeling for future locating of each well.
- The Kanaflex hoses are weathered showing age from UV rays. These hoses need to be replaced and secured correctly to prevent future oxygen intrusion. Sample fittings are also weathered, deteriorated and in need of replacement.
- On 7/7/15 liquid levels were inspected in each of the 6 sumps surrounding the landfill. The overall “average” depth of water was 4.6 feet. SCS Field Services had removed their sump pumps with no permanent pumping system currently in place. Condensate is discharged into a mobile container and disposed of at the treatment facility located on site at Oaks. On 7/9/15 and 7/10/15 sumps 4 & 5 were pumped in an effort to evaluate the reduction of liquid levels. These sumps recharge with liquid in a few hours and will require a high end pump to remove large amounts of liquid at a time. Total vertical depth of these sumps is between 15 and 20 feet. On 7/29/15 the sumps were vacuumed out to empty and to establish a clean baseline to operate going forward.
- One sump is located at the inlet of the engine plant with an installed pneumatic pump. The pump status will need to be evaluated in the future when the engine plant is down. The sump has available vacuum equal to the blower pressure and the pneumatic pump has air available and provided from the plant air compressor.



- On 7/21/15, the two utility flares at Oaks were evaluated. The sight glass for the knockout pot needs to be replaced. The oil filled bulbs on the blower need to be replaced. The shaft seals on the main blower bearing are leaking. The backup diesel motor requires new oil and fuel filters as well as a new air filter. The UV sensor on Flare 1r one needs to be cleaned and spark plug needs to be replaced. Thermocouples and insulation on Flare 1 need to be repaired. Flare 2 does not have either thermocouples or UV sensor.
- Updated as-built for site is needed.

### **Gude GCCS**

Initial visual inspection of the surrounding well field and facilities were completed on 6/24/15. Initial inspection of the well field started on 7/2/15.

- Gude Landfill consists of 105 vertical gas wells monitored monthly. The entire gas collection system is above ground with the exception of a few road crossings throughout the landfill. The header is primarily PVC pipe. The landscape is overgrown with mowed pathways to provide access to the gas wells. On 7/9/15 liquid level measurements were completed. The overall “average” depth of liquid in the vertical wells is 11.7 feet. Keep in mind this is only an average as the wells at Gude show large amounts of liquid within the vertical wells.
- Two sumps are located in the well field. Sump “A” is located closest to the plant and has a total depth of 16.5 feet. Sump “B” is located in the center of the well field and has a total depth of 12 feet. All connections for sump “B” are below grade including one valve that has an extended stem to operate open or shut. There is no gearbox on the stem and no markings to determine what location the valve is in when turning the stem. Recommend installing valves on each side of these sumps to allow the ability to isolate the sump from the LFG collection system and pump each sump without affecting plant operations. No current installation as-builds, for these sumps at this time. Permanent pumps could also be installed to allow pumps to commence during plant operation in order to avoid valve installation.
- One sump is located at the inlet of the plant. It is below grade and has an installed pneumatic pump. No evaluation of the pump status has been completed, due to the plant being in operation. The sump has available vacuum equal to the blower pressure and the pneumatic pump has air available and provided from the plant air compressor. This pump was previously under vacuum pulling in oxygen from the air discharge side of the pump. The installed pump should be serviced and inspected.
- The well field has many joints and connection points throughout the header system with a high potential of oxygen intrusion. The wellheads on the perimeter wells are new orifice plate type well heads and appear to be in good condition. The wellheads in the core of the landfill are primarily pitot tube type well heads. Many of the wellheads do not have pitot tubes installed. Flow readings are



inaccurate from these wells. Kanaflex hoses throughout the entire wellfield are weathered, aged and in need of replacement to prevent future issues. This can also be contributed to settlement throughout the landfill.

- The sample fittings throughout the entire wellfield are weathered, deteriorated and falling apart. Some of quick connection fittings on the gas header have been plugged with grass or dirt. These areas need to be replaced with new sample fittings to prevent oxygen intrusion. Some of the connections on the header are being held together by rubber Fernco's, which expand and contract and do not provide much surface area to grip the PVC header pipes. These areas are potential sources of oxygen intrusion. The sections of PVC pipe should be glued and coupled together. Many well casings have been replaced with flexible hoses and are being held up-right by metal fence posts. The flexible hoses on these wells need to be eliminated.
- On 7/21/15, the two enclosed flares at Gude were evaluated. Overall, both enclosed flares appear to be in good condition. The knockout pot needs a new sight glass. Flare 1 requires a new burner tip. There is only one louver motor enabled on each of the enclosed flares. Flare 1 does have a burner tube with a large hole in it and these should be replaced.
- Updated as-built for site is needed.



**Spare Parts List Requested for Oaks**

Item	Qty	Size
Kanalflex	300 ft	2"
Kanalflex	100 ft	3"
Barbed fittings	150	1/4"
Quick connects	300	1/4"
Power lock clamps	30	2"
Power lock clamps	30	3"
Adjustable hose clamps	40	2" & 4"
PVC pipe Sch 80	100ft	2"
HDPE Pipe	240ft	2"
HDPE Pipe - Perf	200ft	4"
HDPE Pipe	240ft	4"
HDPE Pipe	120ft	6"
HDPE Pipe	120ft	8"
Oil Fill Bulbs	4	
Oil Filters	4	
Fuel Filter	4	
UV Sensor	2	
Thermocouple	3	
Spark Plugs for Flare	2	
Electrofusion Coupling	4	4"
Electrofusion Coupling	4	6"
Electrofusion Coupling	4	8"
2" Landtec Wellhead	4	2"



**Spare Parts List Requested for Gude**

Item	Size	Qty	Unit
Kanalflex	2"	800	ft
Kanalflex	3"	200	ft
Barbed fittings	1/4"	150	ea
Quick connects	1/4"	300	ea
Power lock clamps	2"	50	ea
Adjustable hose clamps	2", 4", 6", 8", 10", 12"	60	ea
Flexible header hose	4"	15	ea
Flexible header hose	6"	15	ea
Flexible header hose	8"	5	ea
Flexible header hose	10"	5	ea
Flexible header hose	12"	5	ea
Fernco	2X4	40	ea
PVC pipe Sch 40	2"	400	ft
PVC pipe Sch 40	3"	100	ft
PVC pipe Sch 40	4"	400	ft
PVC pipe Sch 40	10"	100	ft
PVC Coupling Sch 40	2"	40	ea
PVC Coupling Sch 40	3"	20	ea
PVC Coupling Sch 40	4"	30	ea
PVC Coupling Sch 40	8"	5	ea
PVC Coupling Sch 40	10"	5	ea
Spark Plug for Flare		2	ea
Thermocouple		3	ea
Louver Motor		2	ea
Bearings for Blowers		2	ea

# Gude Well Pictures

EW150





EW151



EW152



EW153



EW154



EW154



EW155



EW155



## Probe 26





EW155



EW156



EW156



EW157



EW157



## New flex hose on the above ground header



## Old flex hose on the above ground header



# 4" flex hose





# Sump



# Gude Well Pictures

EW129



EW130



EW131



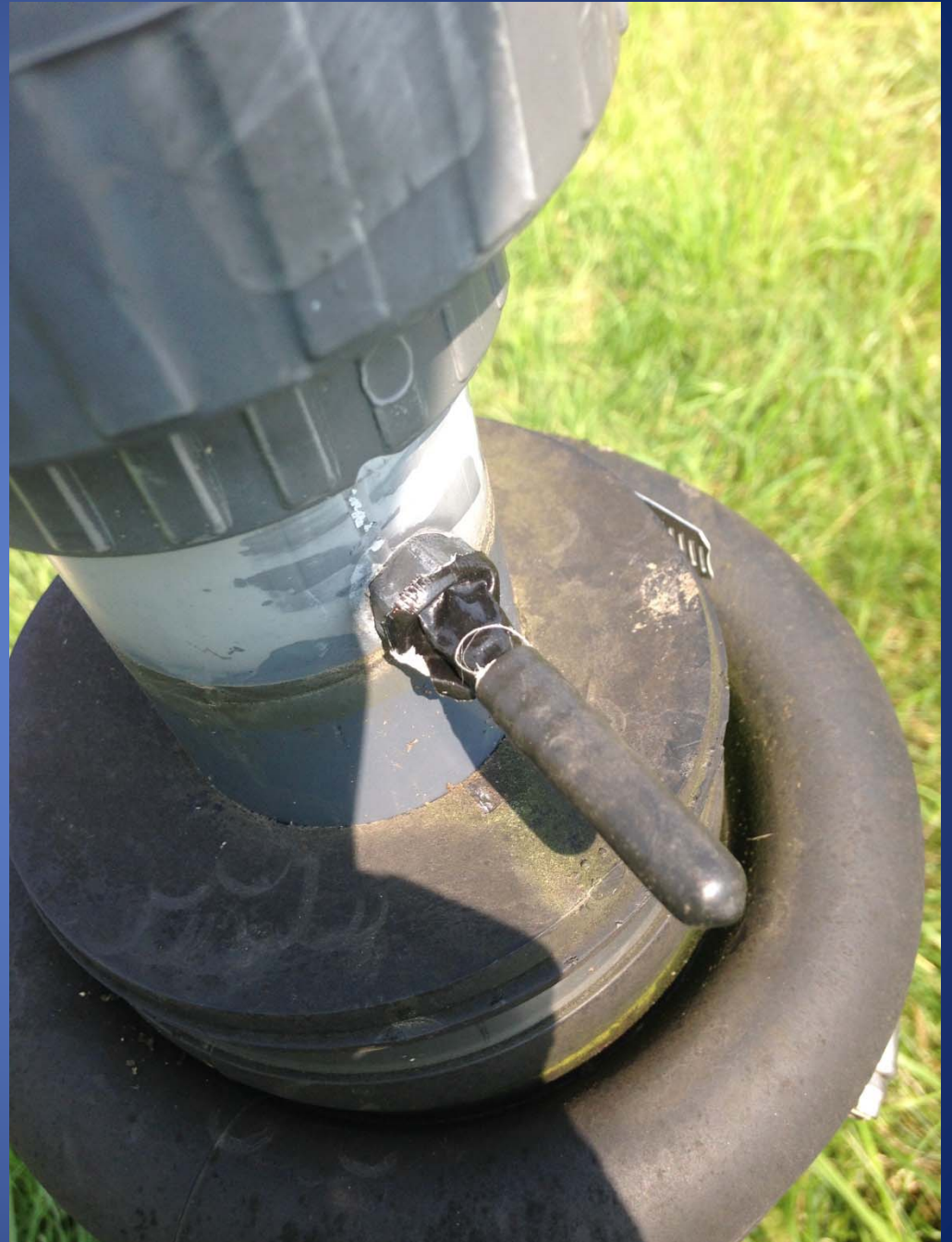
**EW131**



EW132



EW132





EW133



EW133



120 & 133



EW134



EW134



EW135



EW141



EW142





EW143



EW143



EW145



EW146



EW147



EW148



EW149



# Gude Well Pictures



EW112



EW113



EW114



**EW115**



EW117



EW117



EW118



**EW118**





EW119



**EW119**



EW120



EW120



EW121



EW121



EW122



EW122





EW123



EW123



EW124



EW124



EW124



EW125



EW126



EW127





EW128



# Gude Well Pictures

EW62



EW70



EW70



EW71



EW72



EW73





EW73



EW75



EW76



EW100



EW101



EW102



EW103



EW104





EW105



EW106



EW107



EW108



EW109



EW110



EW110



EW111





# Gude Well Pictures

EW32



EW34



EW35



EW36



**EW36**  
**Cracked cap**



EW36



EW37





EW38



EW39



EW43



EW43



EW44



EW44



EW50



EW51





EW52



EW57



**EW57**  
**No pitot tube**



EW62



**Appendix D**  
**Well Inspection Logs**

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**Landfill Gas Extraction Well  
Field Condition Assessment Inspection**

Site Name: Gude Landfill, Rockville Maryland

Date: 3/5/19

Well No. 3

*3" well!*

Weather Conditions: sunny Air Temperature: 30°

Height from Existing Grade to Bottom of Wellhead: 3.6' *+7" or less*

Depth to Water: 7.2 Total Depth: 43.0

Gas Quality Readings: CH<sub>4</sub> \_\_\_\_\_ CO<sub>2</sub> \_\_\_\_\_ O<sub>2</sub> \_\_\_\_\_ Balance \_\_\_\_\_

LFG Temperature at Wellhead: \_\_\_\_\_ LFG Flow at Wellhead: \_\_\_\_\_

Static Pressure: \_\_\_\_\_ Differential Pressure: \_\_\_\_\_ Atmospheric Pressure: \_\_\_\_\_

Wellhead – Overall Condition Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Adjustment Valve – Functional? Yes  No \_\_\_\_\_

Type \_\_\_\_\_

Comments \_\_\_\_\_

Sample Ports:

Upstream (below orifice plate) Size 1/4"

Material plastic

Dust Cap? Yes  No \_\_\_\_\_

Condition: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Downstream (above orifice plate) Size 1/4"

Material plastic

Dust Cap? Yes  No \_\_\_\_\_

Condition: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Temperature Probe? Yes  No   
Temperature Probe Port? Yes  No   
Condition: Good  Fair  Poor

Pitot Tube Sample Ports

N/A

Impact Pressure Port Size \_\_\_\_\_ Material \_\_\_\_\_  
Dust Cap? Yes  No   
Condition: Good  Fair  Poor   
Comments: \_\_\_\_\_

Static Pressure Port Size \_\_\_\_\_ Material \_\_\_\_\_  
Dust Cap? Yes  No   
Condition: Good  Fair  Poor   
Comments: \_\_\_\_\_

Flexible Hose

Approximate Length: 30"  
Hose Condition: Good  Fair  Poor   
Comments: \_\_\_\_\_  
Hose Clamps: Good  Fair  Poor   
Comments: \_\_\_\_\_  
Audible Leaks? Yes  No

Lateral or Header Piping

Size 3" Material pvc  
Overall Condition: Good  Fair  Poor

Overall Field Observations or Comments: \_\_\_\_\_



**Landfill Gas Extraction Well  
Field Condition Assessment Inspection**

Site Name: Gude Landfill, Rockville Maryland

Date: 3/5/19

Well No. 4

Weather Conditions: sunny Air Temperature: 30

Height from Existing Grade to Bottom of Wellhead: 7' to top of wellhead -

Depth to Water: 20.0 Total Depth: 33.5

*pitot tube  
gone  
all glude  
67" to  
bottom  
of tee*

Gas Quality Readings: CH<sub>4</sub> \_\_\_\_\_ CO<sub>2</sub> \_\_\_\_\_ O<sub>2</sub> \_\_\_\_\_ Balance \_\_\_\_\_

LFG Temperature at Wellhead: \_\_\_\_\_ LFG Flow at Wellhead: \_\_\_\_\_

Static Pressure: \_\_\_\_\_ Differential Pressure: \_\_\_\_\_ Atmospheric Pressure: \_\_\_\_\_

Wellhead – Overall Condition Good \_\_\_\_\_ Fair  Poor \_\_\_\_\_

Adjustment Valve – Functional? Yes 3" No \_\_\_\_\_

Type Spears Gate

Comments \_\_\_\_\_

Sample Ports:

Upstream (below orifice plate) N/A Size \_\_\_\_\_

Material \_\_\_\_\_

Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_

Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Downstream (above orifice plate) N/A Size \_\_\_\_\_

Material \_\_\_\_\_

Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_

Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Temperature Probe? Yes  No   
Temperature Probe Port? Yes  No   
Condition: Good  Fair  Poor

Pitot Tube Sample Ports

Impact Pressure Port Size 1/4" Material plastic bulb  
Dust Cap? Yes  No   
Condition: Good  Fair  Poor   
Comments: \_\_\_\_\_

Static Pressure Port Size 1/4" Material plastic  
Dust Cap? Yes  No   
Condition: Good  Fair  Poor   
Comments: \_\_\_\_\_

Flexible Hose

Approximate Length: 24"  
Hose Condition: Good  Fair  Poor   
Comments: 3" mfr. tube  
Hose Clamps: Good  Fair  Poor   
Comments: \_\_\_\_\_  
Audible Leaks? Yes  No

Lateral or Header Piping

Size 3" Material pvc  
Overall Condition: Good  Fair  Poor

Overall Field Observations or Comments: \_\_\_\_\_  
Cap taped on to prevent air leaks  
Tall stickup - stood on jeep bumper to access

**Landfill Gas Extraction Well  
Field Condition Assessment Inspection**

Site Name: Gude Landfill, Rockville Maryland

Date: 3/5/19

Well No. 6

Weather Conditions: sunny Air Temperature: 30°

Height from Existing Grade to Bottom of Wellhead: 60" 52

Depth to Water: 24.9 Total Depth: 34.3

Gas Quality Readings: CH<sub>4</sub> \_\_\_\_\_ CO<sub>2</sub> \_\_\_\_\_ O<sub>2</sub> \_\_\_\_\_ Balance \_\_\_\_\_

LFG Temperature at Wellhead: \_\_\_\_\_ LFG Flow at Wellhead: \_\_\_\_\_

Static Pressure: \_\_\_\_\_ Differential Pressure: \_\_\_\_\_ Atmospheric Pressure: \_\_\_\_\_

Wellhead – Overall Condition Good \_\_\_\_\_ Fair  Poor \_\_\_\_\_

Adjustment Valve – Functional? Yes \_\_\_\_\_ No \_\_\_\_\_

Type 1" gate valve

Comments \_\_\_\_\_

*3" valve  
2" stack up  
1" valve  
(!)*

Sample Ports:

Upstream (below orifice plate) N/A Size \_\_\_\_\_  
Material \_\_\_\_\_

Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_  
Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Downstream (above orifice plate) N/A Size \_\_\_\_\_  
Material \_\_\_\_\_

Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_  
Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Temperature Probe? Yes  No   
Temperature Probe Port? Yes  No   
Condition: Good  Fair  Poor

Quick connect

Pitot Tube Sample Ports

Tube intact, 1 leg only

Impact Pressure Port Size 1/4 Material plastic bush  
Dust Cap? Yes  No   
Condition: Good  Fair  Poor   
Comments: \_\_\_\_\_

Static Pressure Port Size 1/4" Material bush  
Dust Cap? Yes  No   
Condition: Good  Fair  Poor   
Comments: \_\_\_\_\_

QC  
temp +  
VOC

Flexible Hose

Approximate Length: 3'7"  
Hose Condition: Good  Fair  Poor   
Comments: \_\_\_\_\_  
Hose Clamps: Good  Fair  Poor   
Comments: No clamps - glued to 90 + Bushing  
Audible Leaks? Yes  No

Lateral or Header Piping

Size 3" Material buried pvc  
Overall Condition: Good  Fair  Poor

Overall Field Observations or Comments: \_\_\_\_\_

**Landfill Gas Extraction Well  
Field Condition Assessment Inspection**

Site Name: Gude Landfill, Rockville Maryland

Date: 3/5/19

Well No. 7

Weather Conditions: sunny Air Temperature: 30°

Height from Existing Grade to Bottom of Wellhead: 46" tall 3" PVC

Depth to Water: 44.6 Total Depth: 51.0

Gas Quality Readings: CH<sub>4</sub> \_\_\_\_\_ CO<sub>2</sub> \_\_\_\_\_ O<sub>2</sub> \_\_\_\_\_ Balance \_\_\_\_\_

LFG Temperature at Wellhead: \_\_\_\_\_ LFG Flow at Wellhead: \_\_\_\_\_

Static Pressure: \_\_\_\_\_ Differential Pressure: \_\_\_\_\_ Atmospheric Pressure: \_\_\_\_\_

Wellhead – Overall Condition No wellhead Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Adjustment Valve – Functional? Yes \_\_\_\_\_ No \_\_\_\_\_

Type \_\_\_\_\_

Comments N/A

Sample Ports:

Upstream (below orifice plate) N/A Size \_\_\_\_\_

Material \_\_\_\_\_

Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_

Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Downstream (above orifice plate) N/A Size \_\_\_\_\_

Material \_\_\_\_\_

Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_

Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Temperature Probe? Yes  No   
Temperature Probe Port? Yes  No   
Condition: Good  Fair  Poor

Pitot Tube Sample Ports

Impact Pressure Port Size  Material   
Dust Cap? Yes  No   
Condition: Good  Fair  Poor   
Comments: \_\_\_\_\_

Static Pressure Port Size  Material   
Dust Cap? Yes  No   
Condition: Good  Fair  Poor   
Comments: \_\_\_\_\_

Flexible Hose

Approximate Length: \_\_\_\_\_  
Hose Condition: Good  Fair  Poor   
Comments: \_\_\_\_\_  
Hose Clamps: Good  Fair  Poor   
Comments: \_\_\_\_\_  
Audible Leaks? Yes  No

Lateral or Header Piping

Size \_\_\_\_\_ Material   
Overall Condition: Good  Fair  Poor

Overall Field Observations or Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Landfill Gas Extraction Well  
Field Condition Assessment Inspection**

Site Name: Gude Landfill, Rockville Maryland

Date: 3/5/19

Well No. 9

*2" PVC, no wellhead,*

Weather Conditions: sunny Air Temperature: 30°

Height from Existing Grade to Bottom of Wellhead: 3.1'

Depth to Water: 16.6 Total Depth: 46.6

Gas Quality Readings: CH<sub>4</sub> \_\_\_\_\_ CO<sub>2</sub> \_\_\_\_\_ O<sub>2</sub> \_\_\_\_\_ Balance \_\_\_\_\_

LFG Temperature at Wellhead: \_\_\_\_\_ LFG Flow at Wellhead: \_\_\_\_\_

Static Pressure: \_\_\_\_\_ Differential Pressure: \_\_\_\_\_ Atmospheric Pressure: \_\_\_\_\_

Wellhead – Overall Condition N/A Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Adjustment Valve – Functional? Yes \_\_\_\_\_ No \_\_\_\_\_

Type \_\_\_\_\_

Comments No valve or wellhead

Sample Ports: N/A

Upstream (below orifice plate) Size \_\_\_\_\_

Material \_\_\_\_\_

Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_

Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Downstream (above orifice plate) Size \_\_\_\_\_

Material \_\_\_\_\_

Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_

Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Temperature Probe? Yes N/A No       
Temperature Probe Port? Yes      No       
Condition: Good      Fair      Poor     

Pitot Tube Sample Ports

N/A  
Impact Pressure Port Size      Material       
Dust Cap? Yes      No       
Condition: Good      Fair      Poor       
Comments:     

Static Pressure Port Size      Material       
Dust Cap? Yes      No       
Condition: Good      Fair      Poor       
Comments:     

Flexible Hose

N/A  
Approximate Length:       
Hose Condition: Good      Fair      Poor       
Comments:       
Hose Clamps: Good      Fair      Poor       
Comments:       
Audible Leaks? Yes      No     

Lateral or Header Piping

adjacent 4" - not hooked up.  
Size      Material       
Overall Condition: Good      Fair      Poor     

Overall Field Observations or Comments:



**Landfill Gas Extraction Well  
Field Condition Assessment Inspection**

Site Name: Gude Landfill, Rockville Maryland

Date: 3/5/19

Well No. 11

Weather Conditions: sunny Air Temperature: 30°

*2" well sticking - Franco below grade 2-3"*

Height from Existing Grade to Bottom of Wellhead: 3' 6" to top of well

Depth to Water: 23.7 Total Depth: 37.5'

*33" - bottom 2" tee*

Gas Quality Readings: CH<sub>4</sub> \_\_\_\_\_ CO<sub>2</sub> \_\_\_\_\_ O<sub>2</sub> \_\_\_\_\_ Balance \_\_\_\_\_

LFG Temperature at Wellhead: \_\_\_\_\_ LFG Flow at Wellhead: \_\_\_\_\_

Static Pressure: \_\_\_\_\_ Differential Pressure: \_\_\_\_\_ Atmospheric Pressure: \_\_\_\_\_

Wellhead - Overall Condition Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Adjustment Valve - Functional? Yes  No \_\_\_\_\_

Type 1" spears

Comments \_\_\_\_\_

Sample Ports:

*N/A*

Upstream (below orifice plate) Size \_\_\_\_\_

Material \_\_\_\_\_

Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_

Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Downstream (above orifice plate) *N/A* Size \_\_\_\_\_

Material \_\_\_\_\_

Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_

Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Temperature Probe? Yes  No   
Temperature Probe Port? Yes  No   
Condition: Good  Fair  Poor

Quick connect (?)

Pitot Tube Sample Ports

Impact Pressure Port Size 1/4" Material barb plastic  
Dust Cap? Yes  No   
Condition: Good  Fair  Poor   
Comments: \_\_\_\_\_

Static Pressure Port Size 1/4" Material barb brass  
Dust Cap? Yes  No   
Condition: Good  Fair  Poor   
Comments: \_\_\_\_\_

*pitot tube intact*

Flexible Hose

Approximate Length: None - glued to LFC-Header w/ bushing  
Hose Condition: Good  Fair  Poor   
Comments: \_\_\_\_\_  
Hose Clamps: Good  Fair  Poor   
Comments: \_\_\_\_\_  
Audible Leaks? Yes  No

Lateral or Header Piping

Size 4" Material pvc  
Overall Condition: Good  Fair  Poor

Overall Field Observations or Comments: \_\_\_\_\_

*system pressure port - quick connect*

**Landfill Gas Extraction Well  
Field Condition Assessment Inspection**

Site Name: Gude Landfill, Rockville Maryland

Date: 3/5/19

Well No. 12

Weather Conditions: sunny Air Temperature: 30°

Height from Existing Grade to Bottom of Wellhead: 42" 13" to cap.

Depth to Water: ~ 37-17 Total Depth: 47.0  
tough read.

~~Gas Quality Readings: CH<sub>4</sub> \_\_\_\_\_ CO<sub>2</sub> \_\_\_\_\_ O<sub>2</sub> \_\_\_\_\_ Balance \_\_\_\_\_~~

~~LFG Temperature at Wellhead: \_\_\_\_\_ LFG Flow at Wellhead: \_\_\_\_\_~~

~~Static Pressure: \_\_\_\_\_ Differential Pressure: \_\_\_\_\_ Atmospheric Pressure: \_\_\_\_\_~~

Wellhead – Overall Condition Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Adjustment Valve – Functional? Yes  No \_\_\_\_\_

Type 2" spans

Comments \_\_\_\_\_

Sample Ports: N/A

Upstream (below orifice plate) Size \_\_\_\_\_

Material \_\_\_\_\_

Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_

Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Downstream (above orifice plate) N/A Size \_\_\_\_\_

Material \_\_\_\_\_

Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_

Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Temperature Probe? Yes \_\_\_\_\_ No  \_\_\_\_\_  
Temperature Probe Port? Yes  \_\_\_\_\_ No \_\_\_\_\_  
Condition: Good \_\_\_\_\_ Fair  \_\_\_\_\_ Poor \_\_\_\_\_

Pitot Tube Sample Ports

*tube intact*

Impact Pressure Port Size 1/4" Material quick connect  
Dust Cap? Yes \_\_\_\_\_ No  \_\_\_\_\_  
Condition: Good \_\_\_\_\_ Fair  \_\_\_\_\_ Poor \_\_\_\_\_  
Comments: \_\_\_\_\_

Static Pressure Port Size 1/4" Material barb plastic  
Dust Cap? Yes  \_\_\_\_\_ No \_\_\_\_\_  
Condition: Good  \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_  
Comments: \_\_\_\_\_

Flexible Hose

Approximate Length: 12"  
Hose Condition: Good  \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_  
Comments: 3" mfr.  
Hose Clamps: Good  \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_  
Comments: \_\_\_\_\_  
Audible Leaks? Yes \_\_\_\_\_ No \_\_\_\_\_

Lateral or Header Piping

Size 3" Material PVC  
Overall Condition: Good  \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Overall Field Observations or Comments: \_\_\_\_\_

**Landfill Gas Extraction Well  
Field Condition Assessment Inspection**

Site Name: Gude Landfill, Rockville Maryland

Date: 3/5/19

Well No. 14

Weather Conditions: sunny Air Temperature: 30° *Cap screwed to well casing. Did not open —*

Height from Existing Grade to Bottom of Wellhead: \_\_\_\_\_

Depth to Water: \_\_\_\_\_ Total Depth: \_\_\_\_\_ *3" pvc.*

Gas Quality Readings: CH<sub>4</sub> \_\_\_\_\_ CO<sub>2</sub> \_\_\_\_\_ O<sub>2</sub> \_\_\_\_\_ Balance \_\_\_\_\_

LFG Temperature at Wellhead: \_\_\_\_\_ LFG Flow at Wellhead: \_\_\_\_\_

Static Pressure: \_\_\_\_\_ Differential Pressure: \_\_\_\_\_ Atmospheric Pressure: \_\_\_\_\_

Wellhead – Overall Condition Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Adjustment Valve – Functional? Yes \_\_\_\_\_ No \_\_\_\_\_

Type \_\_\_\_\_

Comments \_\_\_\_\_

Sample Ports:

Upstream (below orifice plate) Size \_\_\_\_\_

Material \_\_\_\_\_

Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_

Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Downstream (above orifice plate) Size \_\_\_\_\_

Material \_\_\_\_\_

Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_

Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Temperature Probe? Yes \_\_\_\_\_ No \_\_\_\_\_

Temperature Probe Port? Yes \_\_\_\_\_ No \_\_\_\_\_

Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Pitot Tube Sample Ports

Impact Pressure Port Size \_\_\_\_\_ Material \_\_\_\_\_

Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_

Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Static Pressure Port Size \_\_\_\_\_ Material \_\_\_\_\_

Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_

Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Flexible Hose

Approximate Length: \_\_\_\_\_

Hose Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Hose Clamps: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Audible Leaks? Yes \_\_\_\_\_ No \_\_\_\_\_

Lateral or Header Piping

Size \_\_\_\_\_ Material \_\_\_\_\_

Overall Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Overall Field Observations or Comments: \_\_\_\_\_

\_\_\_\_\_

**Landfill Gas Extraction Well  
Field Condition Assessment Inspection**

Site Name: Gude Landfill, Rockville Maryland

Date: 3/5/19

Well No. 16

Weather Conditions: sunny Air Temperature: \_\_\_\_\_

Height from Existing Grade to Bottom of Wellhead: 4.5' to cap

Depth to Water: 40.5 Total Depth: 44.3'

*2" insert  
glued 3" well  
bushing  
8"  
to bottom  
of tee.*

Gas Quality Readings: CH<sub>4</sub> \_\_\_\_\_ CO<sub>2</sub> \_\_\_\_\_ O<sub>2</sub> \_\_\_\_\_ Balance \_\_\_\_\_

LFG Temperature at Wellhead: \_\_\_\_\_ LFG Flow at Wellhead: \_\_\_\_\_

Static Pressure: \_\_\_\_\_ Differential Pressure: \_\_\_\_\_ Atmospheric Pressure: \_\_\_\_\_

Wellhead – Overall Condition Good \_\_\_\_\_ Fair  Poor \_\_\_\_\_

Adjustment Valve – Functional? Yes  No \_\_\_\_\_

Type 2" spear

Comments \_\_\_\_\_

Sample Ports: NA - pitot tube  
Upstream (below orifice plate) Size 1/4"  
Material brass

Dust Cap? Yes  No \_\_\_\_\_  
Condition: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Downstream (above orifice plate) Size 1/4"  
Material brass

Dust Cap? Yes  No \_\_\_\_\_  
Condition: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Temperature Probe? Yes  No  *plastic*  
Temperature Probe Port? Yes  No   
Condition: Good  Fair  Poor

Pitot Tube Sample Ports

Impact Pressure Port Size *1/4"* Material *brass*  
Dust Cap? Yes  No   
Condition: Good  Fair  Poor   
Comments: \_\_\_\_\_  
*tube intact*

Static Pressure Port Size *1/4"* Material *brass*  
Dust Cap? Yes  No   
Condition: Good  Fair  Poor   
Comments: \_\_\_\_\_

Flexible Hose  
Approximate Length: *N/A* *teraco 2" to 3" length*  
Hose Condition: Good  Fair  Poor   
Comments: \_\_\_\_\_  
Hose Clamps: Good  Fair  Poor   
Comments: \_\_\_\_\_  
Audible Leaks? Yes  No

Lateral or Header Piping  
Size *3"* Material *PVC*  
Overall Condition: Good  Fair  Poor

Overall Field Observations or Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



**Landfill Gas Extraction Well  
Field Condition Assessment Inspection**

Site Name: Gude Landfill, Rockville Maryland

Date: 3/5/19

Well No. 100

Weather Conditions: sunny Air Temperature: 30°

Height from Existing Grade to Bottom of Wellhead: 3.6'

Depth to Water: 20.7 Total Depth: 26.2 5" union

Gas Quality Readings: CH<sub>4</sub> \_\_\_\_\_ CO<sub>2</sub> \_\_\_\_\_ O<sub>2</sub> \_\_\_\_\_ Balance \_\_\_\_\_

LFG Temperature at Wellhead: \_\_\_\_\_ LFG Flow at Wellhead: \_\_\_\_\_

Static Pressure: \_\_\_\_\_ Differential Pressure: \_\_\_\_\_ Atmospheric Pressure: \_\_\_\_\_

Wellhead – Overall Condition Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Adjustment Valve – Functional? Yes  No \_\_\_\_\_

Type 2" sprays

Comments \_\_\_\_\_

Sample Ports:

Upstream (below orifice plate) Size 1/4"

Material plastic

Dust Cap? Yes  No \_\_\_\_\_

Condition: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Downstream (above orifice plate) Size 1/4"

Material plastic

Dust Cap? Yes  No \_\_\_\_\_

Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Temperature Probe? Yes \_\_\_\_\_ No \_\_\_\_\_  
Temperature Probe Port? Yes \_\_\_\_\_ No \_\_\_\_\_  
Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Pitot Tube Sample Ports

Impact Pressure Port Size \_\_\_\_\_ Material \_\_\_\_\_  
Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_  
Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_  
Comments: \_\_\_\_\_

Static Pressure Port Size \_\_\_\_\_ Material \_\_\_\_\_  
Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_  
Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_  
Comments: \_\_\_\_\_

Flexible Hose

Approximate Length: 3'  
Hose Condition: Good \_\_\_\_\_ Fair  Poor \_\_\_\_\_  
Comments: \_\_\_\_\_  
Hose Clamps: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_  
Comments: \_\_\_\_\_  
Audible Leaks? Yes \_\_\_\_\_ No \_\_\_\_\_

Lateral or Header Piping

*2' stub to*

Size 8" Material PVC  
Overall Condition: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Overall Field Observations or Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Landfill Gas Extraction Well  
Field Condition Assessment Inspection**

Site Name: Gude Landfill, Rockville Maryland

Date: 3/5/19

Well No. 106

Weather Conditions: sunny Air Temperature: 30°

Height from Existing Grade to Bottom of Wellhead: 4'7" 12" unim

Depth to Water: 38.3 Total Depth: 40.7

~~Gas Quality Readings: CH<sub>4</sub> \_\_\_\_\_ CO<sub>2</sub> \_\_\_\_\_ O<sub>2</sub> \_\_\_\_\_ Balance \_\_\_\_\_~~

~~LFG Temperature at Wellhead: \_\_\_\_\_ LFG Flow at Wellhead: \_\_\_\_\_~~

~~Static Pressure: \_\_\_\_\_ Differential Pressure: \_\_\_\_\_ Atmospheric Pressure: \_\_\_\_\_~~

Wellhead – Overall Condition      Good       Fair \_\_\_\_\_      Poor \_\_\_\_\_

Adjustment Valve – Functional?      Yes       No \_\_\_\_\_

Type \_\_\_\_\_

Comments \_\_\_\_\_

Sample Ports:

Upstream (below orifice plate)      Size 1/4

Material plastic

Dust Cap? Yes  No \_\_\_\_\_

Condition: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Downstream (above orifice plate)      Size 1/4"

Material plastic

Dust Cap? Yes  No \_\_\_\_\_

Condition: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Temperature Probe? Yes  No   
Temperature Probe Port? Yes  No   
Condition: Good  Fair  Poor

Pitot Tube Sample Ports N/A

Impact Pressure Port Size  Material   
Dust Cap? Yes  No   
Condition: Good  Fair  Poor   
Comments: \_\_\_\_\_

Static Pressure Port Size  Material   
Dust Cap? Yes  No   
Condition: Good  Fair  Poor   
Comments: \_\_\_\_\_

Flexible Hose  
Approximate Length: 4' 2"  
Hose Condition: Good  Fair  Poor   
Comments: \_\_\_\_\_  
Hose Clamps: Good  Fair  Poor   
Comments: \_\_\_\_\_  
Audible Leaks? Yes  No

Lateral or Header Piping  
Size  Material   
Overall Condition: Good  Fair  Poor

Overall Field Observations or Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Landfill Gas Extraction Well  
Field Condition Assessment Inspection**

Site Name: Gude Landfill, Rockville Maryland

Date: 3/5/19

Well No. 114

Weather Conditions: sunny Air Temperature: 30°

Height from Existing Grade to Bottom of Wellhead: \_\_\_\_\_

Depth to Water: 37.8 Total Depth: 37.8

*40' remote to top.*

Gas Quality Readings: CH<sub>4</sub> \_\_\_\_\_ CO<sub>2</sub> \_\_\_\_\_ O<sub>2</sub> \_\_\_\_\_ Balance \_\_\_\_\_

LFG Temperature at Wellhead: \_\_\_\_\_ LFG Flow at Wellhead: \_\_\_\_\_

Static Pressure: \_\_\_\_\_ Differential Pressure: \_\_\_\_\_ Atmospheric Pressure: \_\_\_\_\_

Wellhead – Overall Condition      Good       Fair \_\_\_\_\_      Poor \_\_\_\_\_

Adjustment Valve – Functional?    Yes     No \_\_\_\_\_

Type 2" sprays

Comments \_\_\_\_\_

Sample Ports:

Upstream (below orifice plate)      Size 1/4"

Material plastic

Dust Cap? Yes  No \_\_\_\_\_

Condition: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Downstream (above orifice plate)      Size 1/4"

Material plastic

Dust Cap? Yes  No \_\_\_\_\_

Condition: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Temperature Probe? Yes \_\_\_\_\_ No   
Temperature Probe Port? Yes  No \_\_\_\_\_  
Condition: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Pitot Tube Sample Ports

N/A

Impact Pressure Port Size \_\_\_\_\_ Material \_\_\_\_\_  
Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_  
Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_  
Comments: \_\_\_\_\_

N/A

Static Pressure Port Size \_\_\_\_\_ Material \_\_\_\_\_  
Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_  
Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_  
Comments: \_\_\_\_\_

Flexible Hose

Approximate Length: 62'  
Hose Condition: Good \_\_\_\_\_ Fair  Poor \_\_\_\_\_  
Comments: \_\_\_\_\_  
Hose Clamps: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_  
Comments: \_\_\_\_\_  
Audible Leaks? Yes \_\_\_\_\_ No \_\_\_\_\_

Lateral or Header Piping

Size 6" Material PVC  
Overall Condition: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Overall Field Observations or Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Landfill Gas Extraction Well  
Field Condition Assessment Inspection**

Site Name: Gude Landfill, Rockville Maryland

Date: 3/5/19

Well No. 116 - remote

Weather Conditions: sunny Air Temperature: 30°

Height from Existing Grade to Bottom of Wellhead: \_\_\_\_\_

Depth to Water: 32.9 Total Depth: 33.8'

remote  
27" ↑  
to top  
4" casing

Gas Quality Readings: CH<sub>4</sub> \_\_\_\_\_ CO<sub>2</sub> \_\_\_\_\_ O<sub>2</sub> \_\_\_\_\_ Balance \_\_\_\_\_

LFG Temperature at Wellhead: \_\_\_\_\_ LFG Flow at Wellhead: \_\_\_\_\_

Static Pressure: \_\_\_\_\_ Differential Pressure: \_\_\_\_\_ Atmospheric Pressure: \_\_\_\_\_

Wellhead – Overall Condition Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Adjustment Valve – Functional? Yes  No \_\_\_\_\_

Type 2" 4 pieces

Comments \_\_\_\_\_

Sample Ports:

Upstream (below orifice plate) Size 1/4"

Material plastic

Dust Cap? Yes  No \_\_\_\_\_

Condition: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Downstream (above orifice plate) Size 1/4"

Material plastic

Dust Cap? Yes  No \_\_\_\_\_

Condition: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Temperature Probe? Yes \_\_\_\_\_ No    
Temperature Probe Port? Yes  No \_\_\_\_\_   
Condition: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Pitot Tube Sample Ports

Impact Pressure Port Size NA Material \_\_\_\_\_   
Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_   
Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_   
Comments: \_\_\_\_\_

Static Pressure Port N/A Size \_\_\_\_\_ Material \_\_\_\_\_   
Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_   
Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_   
Comments: \_\_\_\_\_

Flexible Hose

Approximate Length: 80'   
Hose Condition: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_   
Comments: \_\_\_\_\_   
Hose Clamps: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_   
Comments: \_\_\_\_\_   
Audible Leaks? Yes \_\_\_\_\_ No \_\_\_\_\_

Lateral or Header Piping

Size \_\_\_\_\_ Material \_\_\_\_\_   
Overall Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Overall Field Observations or Comments: \_\_\_\_\_



**Landfill Gas Extraction Well  
Field Condition Assessment Inspection**

Site Name: Gude Landfill, Rockville Maryland

Date: 3/5/19

Well No. 133

Weather Conditions: sunny Air Temperature: 30°

Height from Existing Grade to Bottom of Wellhead: 4.7' remote

Depth to Water: 20.9 Total Depth: 37.2

Gas Quality Readings: CH<sub>4</sub> \_\_\_\_\_ CO<sub>2</sub> \_\_\_\_\_ O<sub>2</sub> \_\_\_\_\_ Balance \_\_\_\_\_

LFG Temperature at Wellhead: \_\_\_\_\_ LFG Flow at Wellhead: \_\_\_\_\_

Static Pressure: \_\_\_\_\_ Differential Pressure: \_\_\_\_\_ Atmospheric Pressure: \_\_\_\_\_

Wellhead – Overall Condition Good \_\_\_\_\_ Fair  Poor \_\_\_\_\_

Adjustment Valve – Functional? Yes  No \_\_\_\_\_

*Siamese pipe traps water*

Type \_\_\_\_\_

Comments \_\_\_\_\_

Sample Ports:

Upstream (below orifice plate) Size 1/4"

Material plastic barb

Dust Cap? Yes  No \_\_\_\_\_

Condition: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Downstream (above orifice plate) Size 1/4"

Material plastic

Dust Cap? Yes  No \_\_\_\_\_

Condition: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Temperature Probe? Yes \_\_\_\_\_ No  \_\_\_\_\_  
Temperature Probe Port? Yes  \_\_\_\_\_ No \_\_\_\_\_  
Condition: Good  \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Pitot Tube Sample Ports N/A

Impact Pressure Port Size \_\_\_\_\_ Material \_\_\_\_\_  
Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_  
Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_  
Comments: \_\_\_\_\_

Static Pressure Port Size N/A \_\_\_\_\_ Material \_\_\_\_\_  
Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_  
Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_  
Comments: \_\_\_\_\_

Flexible Hose

Approximate Length: 30" \_\_\_\_\_  
Hose Condition: Good \_\_\_\_\_ Fair  \_\_\_\_\_ Poor \_\_\_\_\_  
Comments: \_\_\_\_\_  
Hose Clamps: Good  \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_  
Comments: \_\_\_\_\_  
Audible Leaks? Yes \_\_\_\_\_ No \_\_\_\_\_

Lateral or Header Piping

Size 8' \_\_\_\_\_ Material PVC \_\_\_\_\_  
Overall Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Overall Field Observations or Comments: \_\_\_\_\_

**Landfill Gas Extraction Well  
Field Condition Assessment Inspection**

Site Name: Gude Landfill, Rockville Maryland

Date: 3/5/19

Well No. 134

Weather Conditions: sunny Air Temperature: 30°

Height from Existing Grade to Bottom of Wellhead: remote 5.3'

Depth to Water: 14.1 Total Depth: 27.4

Gas Quality Readings: CH<sub>4</sub> \_\_\_\_\_ CO<sub>2</sub> \_\_\_\_\_ O<sub>2</sub> \_\_\_\_\_ Balance \_\_\_\_\_

LFG Temperature at Wellhead: \_\_\_\_\_ LFG Flow at Wellhead: \_\_\_\_\_

Static Pressure: \_\_\_\_\_ Differential Pressure: \_\_\_\_\_ Atmospheric Pressure: \_\_\_\_\_

Wellhead – Overall Condition Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Adjustment Valve – Functional? Yes \_\_\_\_\_ No \_\_\_\_\_

Type \_\_\_\_\_

Comments \_\_\_\_\_

Sample Ports:

Upstream (below orifice plate) Size 1/4

Material plastic

Dust Cap? Yes  No \_\_\_\_\_

Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Downstream (above orifice plate) Size \_\_\_\_\_

Material \_\_\_\_\_

Dust Cap? Yes  No \_\_\_\_\_

Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Temperature Probe? Yes  No   
Temperature Probe Port? Yes  No   
Condition: Good  Fair  Poor

Pitot Tube Sample Ports *N/A*  
Impact Pressure Port Size  Material   
Dust Cap? Yes  No   
Condition: Good  Fair  Poor   
Comments: \_\_\_\_\_

Static Pressure Port Size  Material   
Dust Cap? Yes  No   
Condition: Good  Fair  Poor   
Comments: \_\_\_\_\_

Flexible Hose *4.8'*  
Approximate Length: \_\_\_\_\_  
Hose Condition: Good  Fair  Poor   
Comments: \_\_\_\_\_  
Hose Clamps: Good  Fair  Poor   
Comments: \_\_\_\_\_  
Audible Leaks? Yes  No

Lateral or Header Piping  
Size *8'* Material *PVC*  
Overall Condition: Good  Fair  Poor

Overall Field Observations or Comments: \_\_\_\_\_

\_\_\_\_\_

**Landfill Gas Extraction Well  
Field Condition Assessment Inspection**

Site Name: Gude Landfill, Rockville Maryland

Date: 3/5/19

Well No. 135

Weather Conditions: Sunny Air Temperature: 30°

Height from Existing Grade to Bottom of Wellhead: 2.9'

Depth to Water: 14.1' Total Depth: 22.0'

*10" top casing  
to top union*

~~Gas Quality Readings: CH<sub>4</sub> \_\_\_\_\_ CO<sub>2</sub> \_\_\_\_\_ O<sub>2</sub> \_\_\_\_\_ Balance \_\_\_\_\_~~

~~LFG Temperature at Wellhead: \_\_\_\_\_ LFG Flow at Wellhead: \_\_\_\_\_~~

~~Static Pressure: \_\_\_\_\_ Differential Pressure: \_\_\_\_\_ Atmospheric Pressure: \_\_\_\_\_~~

Wellhead – Overall Condition Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Adjustment Valve – Functional? Yes \_\_\_\_\_ No \_\_\_\_\_

Type Spears 2" gate

Comments \_\_\_\_\_

Sample Ports:

Upstream (below orifice plate) Size 1/4" plastic

Material \_\_\_\_\_

Dust Cap? Yes  No \_\_\_\_\_

Condition: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Downstream (above orifice plate) Size 1/4"

Material plastic

Dust Cap? Yes  No \_\_\_\_\_

Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Temperature Probe? Yes \_\_\_\_\_ No    
Temperature Probe Port? Yes  No \_\_\_\_\_   
Condition: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Pitot Tube Sample Ports

N/A

Impact Pressure Port Size \_\_\_\_\_ Material \_\_\_\_\_   
Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_   
Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_   
Comments: \_\_\_\_\_

Static Pressure Port Size \_\_\_\_\_ Material \_\_\_\_\_   
Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_   
Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_   
Comments: \_\_\_\_\_

Flexible Hose

Approximate Length: 3'   
Hose Condition: Good \_\_\_\_\_ Fair  Poor \_\_\_\_\_   
Comments: \_\_\_\_\_   
Hose Clamps: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_   
Comments: \_\_\_\_\_   
Audible Leaks? Yes \_\_\_\_\_ No \_\_\_\_\_ N/A

Lateral or Header Piping

Size 4" short Material PVC to 8" header   
Overall Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Overall Field Observations or Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Landfill Gas Extraction Well  
Field Condition Assessment Inspection**

Site Name: Gude Landfill, Rockville Maryland

Date: 3/5/19

Well No. 147

Weather Conditions: sunny Air Temperature: 30°

Height from Existing Grade to Bottom of Wellhead: 3.5' 6" well casing

Depth to Water: 42.8 Total Depth: 43.6 10" to sch. 80. drain

Gas Quality Readings: CH<sub>4</sub> \_\_\_\_\_ CO<sub>2</sub> \_\_\_\_\_ O<sub>2</sub> \_\_\_\_\_ Balance \_\_\_\_\_

LFG Temperature at Wellhead: \_\_\_\_\_ LFG Flow at Wellhead: \_\_\_\_\_

Static Pressure: \_\_\_\_\_ Differential Pressure: \_\_\_\_\_ Atmospheric Pressure: \_\_\_\_\_

Wellhead – Overall Condition Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Adjustment Valve – Functional? Yes  No \_\_\_\_\_

Type 2" spear

Comments \_\_\_\_\_

Sample Ports:

Upstream (below orifice plate) Size 1/4"

Material plastic

Dust Cap? Yes  No \_\_\_\_\_

Condition: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Downstream (above orifice plate) Size 1/4"

Material plastic

Dust Cap? Yes  No \_\_\_\_\_

Condition: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Temperature Probe? Yes \_\_\_\_\_ No   
Temperature Probe Port? Yes  No \_\_\_\_\_  
Condition: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

*vac. part  
quick connect*

Pitot Tube Sample Ports

Impact Pressure Port Size \_\_\_\_\_ Material \_\_\_\_\_  
Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_  
Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_  
Comments: \_\_\_\_\_

Static Pressure Port Size \_\_\_\_\_ Material \_\_\_\_\_  
Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_  
Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_  
Comments: \_\_\_\_\_

Flexible Hose

Approximate Length: 50"  
Hose Condition: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_  
Comments: \_\_\_\_\_  
Hose Clamps: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_  
Comments: \_\_\_\_\_  
Audible Leaks? Yes \_\_\_\_\_ No \_\_\_\_\_

Lateral or Header Piping

Size 4" Material pvc  
Overall Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Overall Field Observations or Comments: \_\_\_\_\_



**Landfill Gas Extraction Well  
Field Condition Assessment Inspection**

Site Name: Gude Landfill, Rockville Maryland

Date: 3/5/19

Well No. 157

Weather Conditions: sunny Air Temperature: 30°

Height from Existing Grade to Bottom of Wellhead: remote 4.4'

Depth to Water: ~~36.7~~ Total Depth: 41.3

Gas Quality Readings: CH<sub>4</sub> \_\_\_\_\_ CO<sub>2</sub> \_\_\_\_\_ O<sub>2</sub> \_\_\_\_\_ Balance \_\_\_\_\_

LFG Temperature at Wellhead: \_\_\_\_\_ LFG Flow at Wellhead: \_\_\_\_\_

Static Pressure: \_\_\_\_\_ Differential Pressure: \_\_\_\_\_ Atmospheric Pressure: \_\_\_\_\_

Wellhead – Overall Condition Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Adjustment Valve – Functional? Yes  No \_\_\_\_\_

Type spring

Comments 2"

Sample Ports:

Upstream (below orifice plate) Size 1/4"

Material plastic

Dust Cap? Yes  No \_\_\_\_\_

Condition: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Downstream (above orifice plate) Size 1/4"

Material plastic

Dust Cap? Yes  No \_\_\_\_\_

Condition: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Comments: \_\_\_\_\_

Temperature Probe? Yes  No   
Temperature Probe Port? Yes  No   
Condition: Good  Fair  Poor

Pitot Tube Sample Ports

N/A

Impact Pressure Port Size \_\_\_\_\_ Material \_\_\_\_\_  
Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_  
Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_  
Comments: \_\_\_\_\_

Static Pressure Port Size \_\_\_\_\_ Material \_\_\_\_\_  
Dust Cap? Yes \_\_\_\_\_ No \_\_\_\_\_  
Condition: Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_  
Comments: \_\_\_\_\_

Flexible Hose

Approximate Length: 27"  
Hose Condition: Good \_\_\_\_\_ Fair  Poor \_\_\_\_\_  
Comments: \_\_\_\_\_  
Hose Clamps: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_  
Comments: \_\_\_\_\_  
Audible Leaks? Yes \_\_\_\_\_ No \_\_\_\_\_

Lateral or Header Piping

Size 4" lateral Material PVC  
Overall Condition: Good  Fair \_\_\_\_\_ Poor \_\_\_\_\_

Overall Field Observations or Comments: \_\_\_\_\_

## **Appendix E**

### **Field Investigation Photo Logs**

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EW-3



EW-4



EW-6



EW-7





EW-9



EW-11



EW-12



EW-14



EW-16



EW-100



EW-106



EW-114





EW-116



EW-133



EW-134



EW-135



EW-147



EW-157



Abandoned Header near Former EW-19



Abandoned Header near Former EW-20



# **Appendix F**

*Historical Disposal Records*

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**Montgomery County**  
**Historical Waste Disposal Records and Projections at the Gude Landfill**

<b>Fiscal Year (FY)</b>	<b>Waste Volume (Tons)</b>	<b>Variation Per Year (%)</b>	<b>Waste Volume Reduction (50%)</b>	<b>Tip Fee Per Ton (\$/Ton)</b>	<b>Comments</b>
FY64	269,971	---	134,986	---	Notes 1 and 2
FY65	279,080	3.26%	139,540	---	Notes 1 and 2
FY66	288,496	3.26%	144,248	---	Notes 1 and 2
FY67	298,229	3.26%	149,115	---	Notes 1 and 2
FY68	308,291	3.26%	154,146	---	Notes 1 and 2
FY69	318,693	3.26%	159,346	---	Notes 1 and 2
FY70	329,445	3.26%	164,723	---	Notes 1 and 2
FY71	340,560	3.26%	170,280	---	Notes 1 and 2
FY72	352,051	3.26%	176,025	---	Notes 1 and 2
FY73	363,928	3.26%	181,964	---	Notes 1 and 2
FY74	376,207	3.26%	376,207	---	Note 3
FY75	388,900	3.26%	388,900	---	Note 3
FY76	382,600	1.65%	382,600	\$8.00	Note 4
FY77	378,500	1.08%	378,500	\$8.70	Note 4
FY78	406,400	6.87%	406,400	\$9.50	Note 4
FY79	422,700	3.86%	422,700	\$12.00	Note 4
FY80	404,800	4.42%	404,800	\$12.00	Note 4
FY81	417,000	2.93%	417,000	\$14.00	Note 4
FY82	408,632	2.05%	408,632	\$14.00	Note 4
<b>19 Year Operation</b>		3.26%	5,160,111		
<b>Historical Waste Volume Estimate</b>			4,800,000		
<b>Variance</b>			8%		

Note 1. Waste volumes from FY64 - FY74 are back-calculated (e.g. projected) based on the average variation in waste tonnage records for FY75 - FY82.

Note 2. County Incinerator operated at Gude Landfill from approximately 1964 - 1973. Assume 50% waste reduction for waste volumes from FY64 - FY73.

Note 3. County Incinerator closed and was dismantled 1973 - 1975. Assume zero waste reduction for waste volumes from FY74 - FY75.

Note 4. Records generated by Bob Wilson, former Central Operations Chief, Montgomery County DSWS, June 25, 1990 and in FY01.

RE: Montgomery County, Maryland  
Quantity of Waste Disposal at the landfill

TIP FEE PER TON

FY 75	388900	8.00	} Gude
FY 76	382600	8.70	
FY 77	378500	9.50	
FY 78	406400	12.00	
FY 79	422700	12.00	
FY 80	404800	14.00	
FY 81	417000	14.00	
FY 82	408632	22.00	} Oaks 7,013,468
FY 83	341214	31.00	
FY 84	352207	31.00	
FY 85	459632	31.00	
FY 86	508869	31.00	
FY 87	550690	38.00	
FY 88	587110	42.00	
FY 89	642492	46.00	
FY 90	671853	53.00	
FY 91	633303	61.00	
FY 92	505064	71.00	
FY 93	398260	73.00	
FY 94	510534	57.00	
FY 95	488860	59.00	
FY 96	144714	59.00	
FY 97	166548	44.00	
TIPFEE		44.00	
FY 98	52,178*	44.00	
FY 99		44.00	
FY 00		44.00	

\* 52,178 → Oaks

121,322 - 52,178 → Outside County

June 25, 1990

CHRONOLOGY OF SOLID WASTE ACTIVITIES  
Montgomery County 1965-1990

1965-1969

- o COG Black & Veatch Study  
Rail haul not feasible
- o Incinerator at Southlawn
- o Southlawn Landfill acquired & opened
- o Incinerator ash at Southlawn Landfill
- o COG Black & Veatch  
Regional landfill not recommended

1970

- o County plans then drops new 1,000 TPD incinerator & Bulkies Shredder
- o Decision to seek new landfill
- o Sanitary Landfill Advisory Committee established
- o Travilah Quarry recommended by Committee  
Considered & dropped

1971

- o Gude Nursery selected then dropped for Landfill to study more sites
- o Decision to expand Southlawn Landfill into ravine
- o Green Assoc. Study 4 Landfill sites
- o Decision to search for long-term plan
- o Decision on temporary solution  
Expand Southlawn Landfill onto part of Gude & Fairland Landfills,  
both 3-year use.

1972

- o Per Study-Rail haul not recommended
- o HRA search for long-term landfill
- o Per Study of alternate disposal systems-recommended  
Refuse derived fuel/Pepco system

1973-1975

- o Council - Rail haul as temporary measure until refuse derived fuel on line
- o Rail haul bids fail - no sites found
- o Council directs new rail haul bid effort
- o Incinerator closed & dismantled
- o Executive recommends Site 33
- o Site 30
  - Council selects site 30 for 3-5 year life use
  - Study of Site 30
  - Design of Site 30
  - Acquire Site 30
- o Gude & Fairland landfills acquired, designed, opened; Southlawn reclaimed
- o Council adopts RDF/Pepeco as long-term system
- o Transfer Station & Resource Recovery site selected - 355 & Shady Grove Road
- o GFCC preliminary design of Resource Recovery Facility & PEPCO Study
- o Transfer Station and Resource Recovery Facility site acquired

1976

- o Rail haul bids fail
- o State denies Site 30 permit
- o Gude/Southlawn reaches permit design contours Fairland finished & closed
- o Council puts Resource Recovery project on hold to watch new plants

1977

- o Redesign of Gude/Southlawn Landfill - Weston
- o New landfill site search - Dames & Moore - 12 candidate sites
- o Emergency State Health Order - requires Landfill permits by June, 1978
- o County officials visit Resource Recovery plants