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TRISTEN RUYBALID
HARVEST FOUR CORNERS, LLC
1755 ARROYO DRIVE
BLOOMFIELD, NM 87413
UNITED STATES US

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HARVEST MIDSTREAM

1755 Arroyo Drive
Bloomfield, NM 87413
Phone 505-632-4600
Fax 505-632-4682
harvestmidstream.com

March 28, 2019

Part 70 Program
Environmental Programs Division
Air Quality Program
398 Ouray Drive
Ignacio, CO 81137

Re: Part 70 Permit V-SUIT-2017
Harvest Four Corners, LLC's Ignacio Gas Plant
Six-month Report and Annual Compliance Certification

Dear Madam/Sir:

Please find enclosed the six-month monitoring report covering the period July 1, 2018 through December 31, 2018, submitted in accordance with condition 1.6.6 of Part 70 Operating Permit V-SUIT-2017for Harvest Four Corners LLC's Ignacio Gas Plant. This report includes Form SixMon and Form Certification of Truth, Accuracy and Completeness (CTAC) and supporting documentation.

In accordance with condition 1.2.2, please find enclosed the Annual Compliance Certification (ACC), including Form CTAC, for the period January 1, 2018 through December 31, 2018.

Note that, as per the November 5, 2018 administrative revision, Harvest Four Corners, LLC has purchased the Ignacio Gas Plant from Williams Four Corners LLC, and has taken ownership of the facility as of October 1, 2018.

If you have any questions, please call me at (505) 632-4475.

Sincerely,

(b) (6)

[redacted]

Kijun Hong
Environmental Specialist
enclosures

Southern Ute Indian Tribe - Air Quality Program

Six-Month Compliance Form (SIXMON) Cover Sheet

Instructions:	Please fill out the worksheet below. Start in the General Information section and work your way down. The reporting period should be the 6-month period, or shorter period, required by your Title V permit. • Enter information into BLUE **CELLS ONLY** • Once information is entered, press the "Tab" key on your keyboard • If you enter something incorrectly: ◦ Select the cell with the incorrect response ◦ Press the "Backspace" key and then press "Tab" ◦ Select the cell again and input the correct information ◦ Press "Tab" to proceed • Select "Yes" in cell G61 in order to proceed to the SIXMON (B) worksheet

General Information
(enter information into BLUE cells only)

Operator:	Harvest Four Corners, LLC		
Facility Name:	Ignacio Gas Plant		
Account ID:	2-036		
Permit Number:	V-SUIT-0027 -2017	Version Number:	
Contact Person:	Kijun Hong		
Contact Email:	khong@harvestmidstream.com		
Contact Phone #:	505-632-4475		
Date *(mm/dd/yyyy)* :			
Reporting Period:	7/1/2018	Beginning Date *(mm/dd/yyyy)*	
	to		
	12/31/2018	Ending Date *(mm/dd/yyyy)*	

Based on the information provided, the list below shows all significant emission units permitted at this facility. Please input any additional emission units that will be included in your report into the **BLUE** cells in the list below.

Emission Units to be included in report:

12
12a
13
14
15
16
17
18
19

20
21
22
23
24
32
33
25
26
27
28
30
31
29

Continue to SIXMON Worksheet?	Yes	

Southern Ute Indian Tribe - Air Quality Program

Form SIXMON
Six-Month Monitoring Report

Instructions:	• Enter information into **BLUE CELLS ONLY** • Once information is entered, press the "Tab" key on your keyboard • If you enter something incorrectly: ◦ Select the cell with the incorrect response ◦ Press the "Backspace" key and then press "Tab" ◦ Select the cell again and input the correct information ◦ Press "Tab" to proceed

A. General Information

Operator:	Harvest Four Corners, LLC		
Facility Name:	Ignacio Gas Plant		
Account ID:	2-036		
Permit Number:	V-SUIT-0027 -2017 .00		
Reporting Period:	7/1/2018	to	12/31/2018

B. Monitoring Report

Use this page to summarize all required monitoring, data, or analyses for the reporting period.

For non-CFR citations, such as Reservation Air Code citations, please only cite the permit term.

When entering emission units, please enter them from left to right. Do not fill in from top to bottom.

Cite the permit term/condition which requires this monitoring, data, or analysis:

	Part	Subpart	CFR Citation	Permit Citation
40 CFR	60	KKK	60.636	III.1.2.5.1

Describe the permit term/condition below:								
Each owner or operator shall submit semiannual reports								
List subject emission units below (start in cell A24):								
18	19	20	21					

Is there a separate monitoring report?	Yes	
Was this report previously submitted to AQP?	No	
Is the additional report attached?	Yes	
Describe the monitoring, data, or analysis below:		
Attachment A - 1/15/19 Trihydro semiannual KKK monitoring report		
Do you need to report more required monitoring, data, or analyses?	Yes	

Cite the permit term/condition which requires this monitoring, data, or analysis:

	Part	Subpart	CFR Citation	Permit Citation
40 CFR	60	KKKK	60.4375(b)	III.1.4.4.1

Describe the permit term/condition below:								
Submit reports of annual performance tests for turbines not using water or steam injection to control NOx emissions.								
List subject emission units below (start in cell A42):								
27	28	29	30	31				

Is there a separate monitoring report?	Yes	
Was this report previously submitted to AQP?	Yes	
Date Submitted *(mm/dd/yyyy)* :	6/19/2018	
Describe the monitoring, data, or analysis below:		
Report of the May 9, 2018 KKKK testing for Units 29 and 30. Results of the previously submitted report demonstrate NOx emissions of less than 75% of the applicable standard, thus allowing biennial testing as per 60.4340(a). Results of the July 10-11, 2017 tests of Units 27, 28 and 31 document emissions less than 75% of the standard, thus allowing for no testing of these units during 2018		
Do you need to report more required monitoring, data, or analyses?	Yes	

Cite the permit term/condition which requires this monitoring, data, or analysis:

	Part	Subpart	CFR Citation	Permit Citation
40 CFR	60	OOOO	60.5422(b) & 60.487(a	III.1.5.6.2.6

Describe the permit term/condition below:								
Submit semiannual reports for units subject to NSPS OOOO VOC requirements								
List subject emission units below (start in cell A60):								
18	19	20	21					

Is there a separate monitoring report?	Yes	
Was this report previously submitted to AQP?	No	
Is the additional report attached?	Yes	
Describe the monitoring, data, or analysis below:		
Attachment B - 1/15/19 Trihydro semiannual OOOO monitoring report		
Do you need to report more required monitoring, data, or analyses?	Yes	

Cite the permit term/condition which requires this monitoring, data, or analysis:

	Part	Subpart	CFR Citation	Permit Citation
40 CFR	60	OOOOa	0.5422a(b) & 60.487(a	III.1.6.6.1

Describe the permit term/condition below:								
Submit semiannual reports for units subject to NSPS OOOOa VOC requirements								
List subject emission units below (start in cell A78):								
18	19	20	21					

Is there a separate monitoring report?	Yes	
Was this report previously submitted to AQP?	No	
Is the additional report attached?	Yes	
Describe the monitoring, data, or analysis below:		
Attachment C - 1/15/19 Trihydro semiannual OOOOa monitoring report		
Do you need to report more required monitoring, data, or analyses?	Yes	

Cite the permit term/condition which requires this monitoring, data, or analysis:

	Part	Subpart	CFR Citation	Permit Citation
40 CFR	63	HH	775(e)(2)(i) & 63.10(e	III.2.1.7.3.1

Describe the permit term/condition below:								
Submit semiannual reports for units subject to NESHAP HH HAP requirements								
List subject emission units below (start in cell A96):								
18	19	20	21					

Is there a separate monitoring report?	Yes	
Was this report previously submitted to AQP?	No	
Is the additional report attached?	Yes	
Describe the monitoring, data, or analysis below:		
Attachment D - 1/15/19 Trihydro semiannual HH monitoring report		
Do you need to report more required monitoring, data, or analyses?	Yes	

Cite the permit term/condition which requires this monitoring, data, or analysis:

	Part	Subpart	CFR Citation	Permit Citation
40 CFR	63	ZZZZ	63.6640(f)	III.2.2.3.5

Describe the permit term/condition below:								
The permittee must follow the operation requirments specified in order to be considered an emergency engine.								
List subject emission units below (start in cell A114):								
25	26							

Is there a separate monitoring report?	No	
Describe the monitoring, data, or analysis below:		
Unit 25 ran 32.2 hours during 2018 and Unit 26 ran 27.9 hours, all for maintenance and testing requirements.		
Do you need to report more required monitoring, data, or analyses?	Yes	

Cite the permit term/condition which requires this monitoring, data, or analysis:

Part	Subpart	CFR Citation	Permit Citation

40 CFR	63	DDDDD	63.7540(a)(10)	III.2.3.4.1.1

Describe the permit term/condition below:								
The permittee must conduct an annual tune-up of the boiler or process heater to demonstrate continuous compliance as specified in subpart DDDDD.								
List subject emission units below (start in cell A132):								
12	12a	13	14					

Is there a separate monitoring report?	Yes	
Was this report previously submitted to AQP?	No	
Is the additional report attached?	Yes	
Describe the monitoring, data, or analysis below:		
Attachment E - Affected units each have a heat input greater than 10 MMBtu/hr and are thus subject to annual tune-ups. The report for the 2018 tune-ups of Units 12, 13 & 14 is in Attachment C. Unit 12a did not operate during 2018, and therefore did not undergo tune-up.		
Do you need to report more required monitoring, data, or analyses?	Yes	

Cite the permit term/condition which requires this monitoring, data, or analysis:

	Part	Subpart	CFR Citation	Permit Citation
40 CFR				III.4.2.4

Describe the permit term/condition below:								
VOC emissions attributable to equipment leaks at the amine treatment system shall not exceed 0.72 tpy. Compliance with the annual limit shall be determined on a rolling 12-month total.								
List subject emission units below (start in cell A150):								
17								

Is there a separate monitoring report?	Yes	
Was this report previously submitted to AQP?	No	
Is the additional report attached?	Yes	
Describe the monitoring, data, or analysis below:		
Attachment F contains record of the rolling 12-month VOC emissions for the amine unit equipment leaks.		
Do you need to report more required monitoring, data, or analyses?	Yes	

Cite the permit term/condition which requires this monitoring, data, or analysis:

	Part	Subpart	CFR Citation	Permit Citation
40 CFR				III.4.2.5

Describe the permit term/condition below:
The amine treatment system shall be limited to monthly and yearly production limitations. Compliance shall be determined monthly, with yearly limitations compliance demonstrated on a rolling 12-month total.
List subject emission units below (start in cell A168):

17								

Is there a separate monitoring report?	Yes	
Was this report previously submitted to AQP?	No	
Is the additional report attached?	Yes	
Describe the monitoring, data, or analysis below:		
Attachment G contains record of the monthly and rolling 12-month gas throughput and amine circulation rate for the amine unit.		
Do you need to report more required monitoring, data, or analyses?	Yes	

Cite the permit term/condition which requires this monitoring, data, or analysis:

	Part	Subpart	CFR Citation	Permit Citation
40 CFR				III.4.4.3

Describe the permit term/condition below:								
The hours of operation of the West Dehydrator shall be recorded and used with other available information to quantify and report annual emissions.								
List subject emission units below (start in cell A186):								
15								

Is there a separate monitoring report?	Yes	
Was this report previously submitted to AQP?	No	
Is the additional report attached?	Yes	
Describe the monitoring, data, or analysis below:		
Record of the hours of operation and dehy operating parameters were used to run GLYCalc, whose input/output files are found in Attachment H.		
Do you need to report more required monitoring, data, or analyses?	Yes	

Cite the permit term/condition which requires this monitoring, data, or analysis:

	Part	Subpart	CFR Citation	Permit Citation
40 CFR				III.4.4.4

Describe the permit term/condition below:								
A model run using the most recent version of GLYCalc and a current extended analysis shall be performed annually.								
List subject emission units below (start in cell A204):								
15								

Is there a separate monitoring report?	Yes	
Was this report previously submitted to AQP?	No	
Is the additional report attached?	Yes	

Describe the monitoring, data, or analysis below:		
Attachment H includes the 8/30/2018 annual extended gas analysis and the GLYCalc input/output records as referenced above in III.4.4.3.		
Do you need to report more required monitoring, data, or analyses?	Yes	

Cite the permit term/condition which requires this monitoring, data, or analysis:

	Part	Subpart	CFR Citation	Permit Citation
40 CFR				III.4.5.2

Describe the permit term/condition below:								
The fuel flow to the thermal oxidizer shall not exceed 55 MMBtu/hr and the fuel flow shall be monitored by a continuous recording device.								
List subject emission units below (start in cell A222):								
22								

Is there a separate monitoring report?	Yes	
Was this report previously submitted to AQP?	No	
Is the additional report attached?	Yes	
Describe the monitoring, data, or analysis below:		
Attachment G contains record of the monthly average hourly supplemental fuel flow to the thermal oxidizer.		
Do you need to report more required monitoring, data, or analyses?	Yes	

Cite the permit term/condition which requires this monitoring, data, or analysis:

	Part	Subpart	CFR Citation	Permit Citation
40 CFR				III.4.5.5

Describe the permit term/condition below:								
A stack test shall be performed annually to determine the effectiveness of the thermal oxidizer in controlling VOC emissions.								
List subject emission units below (start in cell A240):								
22								

Is there a separate monitoring report?	Yes	
Was this report previously submitted to AQP?	Yes	
Date Submitted *(mm/dd/yyyy)* :	6/19/2018	
Describe the monitoring, data, or analysis below:		
The May 9, 2018 test of the thermal oxidizer demonstrates that the actual reduction efficiency of the unit is better than 99%, and that actual VOC emissions are less than the short-term allowable emission rate of 1.16 lb/hr VOC. The table in Attachment I demonstrates that the 12-month rolling VOC emission rate is less than the long-term allowable emission rate of 5.1 tpy VOC.		
Do you need to report more required monitoring, data, or analyses?	No	

Southern Ute Indian Tribe - Air Quality Program

Form SIXMON
Six-Month Monitoring Report

Instructions:	• Enter information into **BLUE CELLS ONLY** • Once information is entered, press the "Tab" key on your keyboard • If you enter something incorrectly: ◦ Select the cell with the incorrect response ◦ Press the "Backspace" key and then press "Tab" ◦ Select the cell again and input the correct information ◦ Press "Tab" to proceed

A. General Information

Operator:	Harvest Four Corners, LLC		
Facility Name:	Ignacio Gas Plant		
Account ID:	2-036		
Permit Number:	V-SUIT-0027	-2017	.00
Reporting Period:	7/1/2018	to	12/31/2018

C. Deviation Report

Use this page to summarize all deviations from permit terms and conditions during the reporting period.

For non-CFR citations, such as Reservation Air Code citations, please only cite the permit term.

When entering emission units, please enter them from left to right. Do not fill in from top to bottom.

Select deviation category:	Emission Limit

Cite the permit term/condition for which there is a deviation:

	Part	Subpart	CFR Citation	Permit Citation
40 CFR				III.4.2.1.1

Describe the permit term/condition below:

The thermal oxidizer shall be operated such that it is capable of destroying VOC emitted from the amine regenerator still vent by at least 99%

List subject emission units below (start in cell A28):

17	22							

Describe the deviation below:

A steam PSV on the heat recovery system of the thermal oxidizer malfunctioned and tripped, causing the amine unit to vent to atmosphere for 10 minutes before being shut down.

	Date *(mm/dd/yyyy)*	Time *24-hr (00:00)*
Deviation Start:	10/18/2018	11:50
Is this deviation ongoing?	No	
Deviation End:	10/18/2018	12:00

Emission unit(s) this deviation timeframe applies to (start in cell H38):	17	22

Was this deviation previously reported to AQP?	Yes	
Date reported to AQP *(mm/dd/yyyy)*:	10/19/2018	
More deviation timeframes to report for this permit term?	No	
Describe the probable cause(s) of the deviation(s) below:		
Failure of PSV		

Was this an emergency situation?	Yes	
List corrective actions and/or preventative measures taken below:		
Affected units were shut down as expediently as possible. Faulty PSV was replaced, and affected units were re-started.		

Do you need to report more deviations?	No	

Southern Ute Indian Tribe - Air Quality Program

Certification of Truth, Accuracy, and Completeness

This workbook allows two options for certifying truth, accuracy, and completeness:

Option 1: Generate electronic signature within this workbook

Instructions:

Select cell A18 (blue cell)
Go to "Insert" tab and click "Signature Line" in the Text group
Select "Microsoft Office Signature Line"
Fill in name, title, and email information in the dialog box and click ok
Double-click the new signature line, type in your name, click enter

*Signature must be from a responsible official, as defined in Reservation Air Code §1-103

I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the statements and information contained in this workbook are true, accurate and complete.

(b) (6)

X [redacted]

Travis Jones
EHS Manager

January 15, 2019

Mr. Kijun Hong
Environmental Specialist
Harvest Four Corners, LLC
1755 Arroyo Dr.
Bloomfield, NM 87413

RE: NSPS KKK, OOOO, and OOOOa Leak Detection and Repair (LDAR) Monitoring Report – Ignacio Gas Plant, Harvest Four Corners, LLC, Ignacio, Colorado

Dear Mr. Hong:

During July through December 2018, Trihydro Corporation (Trihydro) completed routine monthly monitoring for fugitive emissions as required by the Leak Detection and Repair (LDAR) program for the Harvest Four Corners (Harvest) Ignacio Gas Plant located near Ignacio, Colorado. The monitoring activities were completed to satisfy the requirements of the New Source Performance Standards (NSPS) Subpart KKK, Subpart OOOO, and Subpart OOOOa regulations. This report serves as the semiannual report required for submittal to the regulatory agencies.

NSPS Subpart KKK Requirements

Subpart KKK requires that a semiannual report be submitted for each process unit and month within the reporting period. The semiannual report must include:

- The number of valves, pressure-relief devices (PRDs), pumps, and compressors for which leaks were detected.
- The number of valves, PRDs, pumps, and compressors for which leaks were not repaired as required or placed on the delay of repair (DOR) list.
- The facility is required to report the reason for each DOR, the dates of process unit shutdowns that occurred within the reporting period, and revisions to the component inventory.

Subpart KKK Results

In accordance with USEPA Method 21 protocol, Trihydro personnel monitored components in volatile organic compound (VOC) service or in wet gas service. During the 6-month reporting period 6 leaks were detected from the components monitored. Repairs were completed on each of the components identified as leaking and received a passing inspection within the 15-day deadline. The number of valves, pumps, pressure-relief devices, and compressors for which leaks were detected during the reporting period are included in Attachment A.

During the reporting period, 6 components were added to and 18 components were removed from the Subpart KKK inventory. The revisions made to the component inventory are provided in Attachment A.

NSPS Subpart OOOO and Subpart OOOOa Requirements

Subpart OOOO and Subpart OOOOa requires that a semiannual report be submitted for each process unit and month within the reporting period. The semiannual report must include:

- The number of valves, PRDs, pumps, compressors, and connectors for which leaks were detected.
- The number of valves, PRDs, pumps, compressors, and connectors for which leaks were not repaired as required or placed on the DOR list.
- The facility is required to report the reason for each DOR, the dates of process unit shutdowns that occurred within the reporting period, and revisions to the component inventory.

Subpart OOOO and OOOOa Results

In accordance with United States EPA Method 21 protocol, Trihydro personnel monitored components in VOC service or in wet gas service. During the 6-month reporting period 11 leaks were detected from the components monitored. Repairs were completed on each of the components identified as leaking and received a passing inspection within the 15-day deadline. The number of valves, pumps, PRDs, compressors, and connectors for which leaks were detected during the reporting period are presented in Attachment B and Attachment C.

There were no components added or removed from the initial Subpart OOOO inventory during the reporting period and is reported in Attachment B. There were 2 components added to and 31 components removed from the initial Subpart OOOOa component inventory during the reporting period and is reported in Attachment C.

The facility reported no process unit shutdowns lasting longer than 24 hours during the reporting period.

If you have any questions and/or comments about this report, please do not hesitate to call us at (307) 745-7474.

Sincerely,
Trihydro Corporation

(b) (6) [redacted]

Brian Palmer
Group Manager – LDAR Field Services

(b) (6) [redacted]

Jeremy Sell
Business Unit Manager – Air & Process

12Z-012-006

Attachments

ATTACHMENT A

NSPS KKK REPORT DATA

Semi-Annual Report

From: 7/1/2018 To: 12/31/2018, Rule: NSPS - KKK

Harvest Midstream - Ignacio

Unit: **Storage and Loading**

# Components:	Valves: 858		Pumps: 13		Compressors: 0		PRVs: 37	
# Added:	0		0		0		6	
# Perm. OOS:	10		0		0		8	
Month:	Leaking:	Not Repaired in Repair Period:	Leaking:	Not Repaired in Repair Period:	Leaking:	Not Repaired in Repair Period:	Leaking:	Not Repaired in Repair Period:
July 2018	1	0	0	0	0	0	0	0
August 2018	0	0	0	0	0	0	0	0
September 2018	0	0	0	0	0	0	0	0
October 2018	3	0	0	0	0	0	0	0
November 2018	0	0	0	0	0	0	0	0
December 2018	0	0	0	0	0	0	0	0

Delay of Repairs:

No Delay of Repairs Performed.

Late Repairs:

No Late Repairs.

Signature:

Semi-Annual Report

From: 7/1/2018 To: 12/31/2018, Rule: NSPS - KKK

Harvest Midstream - Ignacio

Unit: **TXP**

# Components:	Valves: 682		Pumps: 8		Compressors: 0		PRVs: 5	
# Added:	0		0		0		0	
# Perm. OOS:	0		0		0		0	
Month:	Leaking:	Not Repaired in Repair Period:	Leaking:	Not Repaired in Repair Period:	Leaking:	Not Repaired in Repair Period:	Leaking:	Not Repaired in Repair Period:
July 2018	0	0	0	0	0	0	0	0
August 2018	0	0	0	0	0	0	0	0
September 2018	2	0	0	0	0	0	0	0
October 2018	0	0	0	0	0	0	0	0
November 2018	0	0	0	0	0	0	0	0
December 2018	0	0	0	0	0	0	0	0

Delay of Repairs:

No Delay of Repairs Performed.

Late Repairs:

No Late Repairs.

Signature:

ATTACHMENT B

NSPS OOOO REPORT DATA

Semi-Annual Report

From: 7/1/2018 To: 12/31/2018, Rule: NSPS - OOOO

Harvest Midstream - Ignacio

Unit: **INLET**

Count:	Valves: 958		Pumps: 5		Compressors: 3		PRVs: 22		Connectors: 6862	
# Added:	0		0		0		0		0	
# Removed:	0		0		0		0		0	
Month:	Leaking:	Not Repaired in Repair Period:	Leaking:	Not Repaired in Repair Period:	Leaking:	Not Repaired in Repair Period:	Leaking:	Not Repaired in Repair Period:	Leaking:	Not Repaired in Repair Period:
Jul 2018	0	0	0	0	0	0	0	0	0	0
Aug 2018	3	0	0	0	0	0	0	0	0	0
Sep 2018	0	0	0	0	0	0	0	0	0	0
Oct 2018	0	0	0	0	0	0	0	0	0	0
Nov 2018	0	0	0	0	0	0	0	0	0	0
Dec 2018	0	0	0	0	0	0	0	0	0	0

Delay of Repairs:

No Delay of Repairs Performed.

Late Repairs:

No Late Repairs.

Signature:

ATTACHMENT C

NSPS OOOOa REPORT DATA

Semi-Annual Report

From: 7/1/2018 To: 12/31/2018, Rule: NSPS - OOOOa

Harvest Midstream - Ignacio

Unit: **Amine Treatment**

Count:	Valves: 403		Pumps: 0		Compressors: 0		PRVs: 12		Connectors: 1438	
# Added:	0		0		0		0		0	
# Removed:	0		0		0		0		4	
Month:	Leaking:	Not Repaired in Repair Period:	Leaking:	Not Repaired in Repair Period:	Leaking:	Not Repaired in Repair Period:	Leaking:	Not Repaired in Repair Period:	Leaking:	Not Repaired in Repair Period:
Jul 2018	0	0	0	0	0	0	0	0	0	0
Aug 2018	1	0	0	0	0	0	0	0	0	0
Sep 2018	0	0	0	0	0	0	0	0	2	0
Oct 2018	0	0	0	0	0	0	0	0	0	0
Nov 2018	0	0	0	0	0	0	0	0	0	0
Dec 2018	0	0	0	0	0	0	0	0	0	0

Delay of Repairs:

No Delay of Repairs Performed.

Late Repairs:

No Late Repairs.

Signature:

Semi-Annual Report

From: 7/1/2018 To: 12/31/2018, Rule: NSPS - OOOOa

Harvest Midstream - Ignacio

Unit: **Dehy/Molesieve**

Count:	Valves: 233		Pumps: 1		Compressors: 0		PRVs: 11		Connectors: 893	
# Added:	0		0		0		1		1	
# Removed:	2		0		0		0		25	
Month:	Leaking:	Not Repaired in Repair Period:	Leaking:	Not Repaired in Repair Period:	Leaking:	Not Repaired in Repair Period:	Leaking:	Not Repaired in Repair Period:	Leaking:	Not Repaired in Repair Period:
Jul 2018	0	0	0	0	0	0	0	0	0	0
Aug 2018	2	0	0	0	0	0	0	0	0	0
Sep 2018	0	0	0	0	0	0	0	0	1	0
Oct 2018	0	0	0	0	0	0	0	0	0	0
Nov 2018	2	0	0	0	0	0	0	0	0	0
Dec 2018	0	0	0	0	0	0	0	0	0	0

Delay of Repairs:

No Delay of Repairs Performed.

Late Repairs:

No Late Repairs.

Signature:

Attachment D

January 15, 2019

Mr. Kijun Hong
Environmental Specialist
Harvest Four Corners, LLC
1755 Arroyo Dr.
Bloomfield, NM 87413

RE: Semiannual MACT Subpart HH LDAR Monitoring Report – Harvest Four Corners, LLC - Ignacio Gas Plant, Ignacio, Colorado

Dear Mr. Hong:

During July through December 2018, routine monthly Leak Detection and Repair (LDAR) monitoring for fugitive emissions was completed for Harvest Four Corners (Harvest) Ignacio Gas Plant located near Ignacio, Colorado. The monitoring activities were completed to satisfy the requirements of the Maximum Achievable Control Technology (MACT) Subpart HH regulation. This report serves as the semiannual report required for submittal to the regulatory agencies.

MACT Subpart HH Requirements

Subpart HH requires that a semiannual report be submitted for each process unit and month within the reporting period. The semiannual report must include:

- The number of valves, pressure-relief devices (PRDs), pumps, and compressors for which leaks were detected.
- The number of valves, PRDs, pumps, and compressors for which leaks were not repaired as required or placed on the delay of repair (DOR) list.
- The facility is required to report the reason for each DOR, the dates of process unit shutdowns that occurred within the reporting period, and revisions to the component inventory.

Results

In accordance with United States Environmental Protection Agency (EPA) Method 21 protocol, Trihydro personnel monitored components in volatile hazardous air pollutant (VHAP) service with concentrations greater than 10 percent by weight. During the 6-month reporting period 1 leak was detected from the components monitored. Repairs were completed on the component identified as leaking and received a

passing inspection within the 15-day deadline. The number of valves, pumps, PRDs, and compressors for which leaks were detected during the reporting period are included in Attachment A.

There were 6 components added to and 4 components removed from the Subpart MACT HH inventory during the reporting period and is reported in Attachment A.

The facility reported no process unit shutdowns during the reporting period.

If you have any questions and/or comments concerning this matter, please do not hesitate to call us at (307) 745-7474.

Sincerely,
Trihydro Corporation

(b) (6) [redacted]

Brian Palmer
Group Manager – LDAR Field Services

(b) (6) [redacted]

Jeremy Sell
Business Unit Manager – Air & Process

12Z-012-006

Attachment

ATTACHMENT A

MACT HH SEMIANNUAL REPORT DATA

Semi-Annual Report

From: 7/1/2018 To: 12/31/2018, Rule: MACTHH

Harvest Midstream - Ignacio

Unit: **FRAC**

# Components:	Valves: 35		Pumps: 0		Compressors: 0		PRVs: 0	
# Added:	0		0		0		0	
# Perm. OOS:	0		0		0		0	
Month:	Leaking:	Not Repaired in Repair Period:	Leaking:	Not Repaired in Repair Period:	Leaking:	Not Repaired in Repair Period:	Leaking:	Not Repaired in Repair Period:
July 2018	0	0	0	0	0	0	0	0
August 2018	0	0	0	0	0	0	0	0
September 2018	0	0	0	0	0	0	0	0
October 2018	0	0	0	0	0	0	0	0
November 2018	0	0	0	0	0	0	0	0
December 2018	0	0	0	0	0	0	0	0

Delay of Repairs:

No Delay of Repairs Performed.

Late Repairs:

No Late Repairs.

Signature:

Semi-Annual Report

From: 7/1/2018 To: 12/31/2018, Rule: MACTHH

Harvest Midstream - Ignacio

Unit: **INLET**

# Components:	Valves: 260		Pumps: 2		Compressors: 0		PRVs: 1	
# Added:	0		0		0		0	
# Perm. OOS:	0		0		0		0	
Month:	Leaking:	Not Repaired in Repair Period:	Leaking:	Not Repaired in Repair Period:	Leaking:	Not Repaired in Repair Period:	Leaking:	Not Repaired in Repair Period:
July 2018	0	0	0	0	0	0	0	0
August 2018	0	0	0	0	0	0	0	0
September 2018	0	0	0	0	0	0	0	0
October 2018	0	0	0	0	0	0	0	0
November 2018	0	0	0	0	0	0	0	0
December 2018	0	0	0	0	0	0	0	0

Delay of Repairs:

No Delay of Repairs Performed.

Late Repairs:

No Late Repairs.

Signature:

Semi-Annual Report

From: 7/1/2018 To: 12/31/2018, Rule: MACTHH

Harvest Midstream - Ignacio

Unit: **Storage and Loading**

# Components:	Valves: 225		Pumps: 6		Compressors: 0		PRVs: 11	
# Added:	0		0		0		6	
# Perm. OOS:	2		0		0		2	
Month:	Leaking:	Not Repaired in Repair Period:	Leaking:	Not Repaired in Repair Period:	Leaking:	Not Repaired in Repair Period:	Leaking:	Not Repaired in Repair Period:
July 2018	0	0	0	0	0	0	0	0
August 2018	0	0	0	0	0	0	0	0
September 2018	0	0	0	0	0	0	0	0
October 2018	1	0	0	0	0	0	0	0
November 2018	0	0	0	0	0	0	0	0
December 2018	0	0	0	0	0	0	0	0

Delay of Repairs:

No Delay of Repairs Performed.

Late Repairs:

No Late Repairs.

Signature:

Attachment E

HARVEST MIDSTREAM

1755 Arroyo Drive
Bloomfield, NM 87413
Phone: 505/632-4700
Fax: 505-632-4782
Harvestmidstream.com

January 21, 2019

Air Toxics and Technical Enforcement Program, 8ENF-AT
U.S. Environmental Protection Agency
1595 Wynkoop Street
Denver, CO 80202

Part 70 Program
Environmental Programs Division
Air Quality Program
398 Ouray Drive
Ignacio, CO 81137

RE: Harvest Four Corners, LLC – Ignacio Gas Plant
Part 71 Permit # V-SUIT-0027-2017.00
NESHAP Subpart DDDDD Periodic Compliance Report

To Whom It May Concern:

This submittal serves as the periodic compliance report pursuant to NESHAP Subpart DDDDD 40 CFR 63.7550(c) for the Harvest Four Corners, LLC (Harvest) – Ignacio Gas Plant (Facility) located at 3746 County Road 307 Durango, Colorado. The existing process heaters/boilers burn only gas 1 fuel and are therefore not subject to the emission limits in Tables 1 and 2 or 11 through 13, or the operating limits in Table 4 per §63.7500(e) but must meet the work practice standards of this Subpart.

EU ID #	Heat rating (MMBtu/hr)	Heater Type (§63.7490)	Tune-Up Frequency (Table 3 to Subpart DDDDD)
12	18.5	Existing Process Heater	Annual
12a	13.02	Existing Process Heater	Annual
13	18	Existing Boiler	Annual
14	18	Existing Boiler	Annual

The compliance period for these units is from January 1, 2018 through December 31, 2018. The annual tune-ups and burner inspections for EU ID#'s 12, 13 and 14 were performed on January 24 & 25, 2018. EU ID# 12a was out of service during the entire compliance period.

If you have any questions or require additional information, please contact Kijun Hong at (505) 632-4475 or by email at khong@harvestmidstream.com.

As Responsible Official for this facility, I, Travis Jones, certify under penalty of law, based on information and belief formed after reasonable inquiry, the statements and information contained in these documents are true, accurate and complete.

Respectfully submitted,
(b) (6) [redacted]

Travis Jones
EH&S Manager - Responsible Official
Harvest Four Corners, LLC

Attachment F

Unit: **17 - Amine Treatment System**

Condition III.4.2.4

Equipment leaks limited to 0.72 tpy VOC

	Valves	Connectors	Pump Seals	Compressor Seals	PRV's	Open-End
Gas	110	118	0	0	7	30
ine, Aqueous	499	341	16	0	7	182
Condensate	18	7	0	0	0	3

		Allowable Emissions 0.72 tpy	
Component additions / deletions		Monthly Emissions Tons	Baseline Rolling 12-month Total, tons
Jul-18	No modifications	0.0592	0.71
Aug-18	No modifications	0.0592	0.71
Sep-18	No modifications	0.0592	0.71
Oct-18	No modifications	0.0592	0.71
Nov-18	No modifications	0.0592	0.71
Dec-18	No modifications	0.0592	0.71

Attachment G

Unit: **17 - Amine Treatment System**

Condition III.4.2.5

Allowable Inlet gas flowrate and amine circulation rate

	natural gas throughput		amine circ rate
permit limit =>	15,208	182,500	2500
DATE (mm/yy)	throughput (mmcf/mo)	throughput (mmcf/yr)	rate (gpm)
Aug-18	11,004	123,870	1615
Sep-18	10,877	123,853	1652
Oct-18	11,150	124,116	1651
Nov-18	10,743	124,150	1678
Dec-18	10,742	124,229	1639

Attachment H

West Dehy 2018 input.txt

GRI-GLYCalc VERSION 4.0 - SUMMARY OF INPUT VALUES

Case Name: West Dehy 2018
File Name: C:\backup\Harvest\Colorado\Ignacio - SUIT\compliance\Title V semi\2018\GLYCalc 2018\West Dehy 2018.ddf
Date: March 24, 2019

DESCRIPTION:

Description: 8/30/18 ext gas analysis
2018 avg annual operating parameters

Annual Hours of Operation: 8760.0 hours/yr

WET GAS:

Temperature: 100.00 deg. F
Pressure: 715.00 psig
Wet Gas Water Content: Saturated

Component	Conc. (vol %)
Carbon Dioxide	0.0050
Nitrogen	1.1210
Methane	86.6580
Ethane	6.5680
Propane	3.1380
Isobutane	0.5340
n-Butane	0.9150
Isopentane	0.2960
n-Pentane	0.2290
Cyclopentane	0.0210
n-Hexane	0.0563
Cyclohexane	0.0320
Other Hexanes	0.0394
Heptanes	0.0760
Methylcyclohexane	0.0523
2,2,4-Trimethylpentane	0.0072
Benzene	0.0099
Toluene	0.0231
Ethylbenzene	0.0022

Xylenes	0.0192
C8+ Heavies	0.1974

DRY GAS:

Flow Rate:	332.0 MMSCF/day
Water Content:	3.0 lbs. H2O/MMSCF

LEAN GLYCOL:

Glycol Type:	TEG
Water Content:	1.5 wt% H2O
Flow Rate:	28.0 gpm

PUMP:

Glycol Pump Type: Electric/Pneumatic

FLASH TANK:

Flash Control:	Recycle/recompression
Temperature:	103.0 deg. F
Pressure:	75.0 psig

REGENERATOR OVERHEADS CONTROL DEVICE:

Control Device:	Condenser
Temperature:	90.0 deg. F
Pressure:	12.0 psia

Control Device:	Combustion Device
Destruction Efficiency:	98.0 %

```
          Excess Oxygen:      25.0 %
Ambient Air Temperature:      68.0 deg. F
```

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

Case Name: West Dehy 2018
File Name: C:\backup\Harvest\Colorado\Ignacio - SUIT\compliance\Title V semi\2018\GLYCalc 2018\West Dehy 2018.ddf
Date: March 24, 2019

DESCRIPTION:

Description: 8/30/18 ext gas analysis
2018 avg annual operating parameters

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	0.0751	1.802	0.3288
Ethane	0.0855	2.051	0.3743
Propane	0.1394	3.345	0.6105
Isobutane	0.0384	0.922	0.1682
n-Butane	0.0800	1.919	0.3502
Isopentane	0.0174	0.416	0.0760
n-Pentane	0.0168	0.402	0.0734
Cyclopentane	0.0046	0.111	0.0202
n-Hexane	0.0034	0.081	0.0148
Cyclohexane	0.0063	0.152	0.0277
Other Hexanes	0.0024	0.057	0.0104
Heptanes	0.0037	0.088	0.0160
Methylcyclohexane	0.0064	0.155	0.0282
2,2,4-Trimethylpentane	0.0002	0.004	0.0007
Benzene	0.0136	0.327	0.0597
Toluene	0.0167	0.400	0.0730
Ethylbenzene	0.0009	0.021	0.0038
Xylenes	0.0093	0.223	0.0407
C8+ Heavies	0.0002	0.006	0.0011

Total Emissions	0.5200	12.481	2.2778
Total Hydrocarbon Emissions	0.5200	12.481	2.2778
Total VOC Emissions	0.3595	8.629	1.5747
Total HAP Emissions	0.0440	1.056	0.1928
Total BTEX Emissions	0.0405	0.971	0.1773

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Methane	3.8095	91.429	16.6858
Ethane	4.6104	110.649	20.1935
Propane	10.0323	240.775	43.9414
Isobutane	3.7149	89.158	16.2713
n-Butane	9.2398	221.754	40.4701
Isopentane	3.9715	95.316	17.3951
n-Pentane	4.1254	99.011	18.0695
Cyclopentane	1.7994	43.185	7.8813
n-Hexane	2.1974	52.738	9.6248
Cyclohexane	5.7100	137.039	25.0097
Other Hexanes	1.1279	27.070	4.9403
Heptanes	6.6750	160.199	29.2364
Methylcyclohexane	12.1280	291.072	53.1206
2,2,4-Trimethylpentane	0.2977	7.145	1.3039
Benzene	15.3259	367.821	67.1274
Toluene	61.3911	1473.386	268.8929
Ethylbenzene	9.3377	224.106	40.8993
Xylenes	118.6581	2847.795	519.7226
C8+ Heavies	127.6977	3064.744	559.3158
Total Emissions	401.8497	9644.392	1760.1016
Total Hydrocarbon Emissions	401.8497	9644.392	1760.1016
Total VOC Emissions	393.4298	9442.314	1723.2223
Total HAP Emissions	207.2080	4972.991	907.5709
Total BTEX Emissions	204.7128	4913.108	896.6422

FLASH GAS EMISSIONS

Note: Flash Gas Emissions are zero with the
Recycle/recompression control option.

FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Methane	31.4397	754.552	137.7058
Ethane	10.8024	259.258	47.3146
Propane	9.0677	217.625	39.7166
Isobutane	2.1668	52.002	9.4904
n-Butane	3.9938	95.850	17.4927
Isopentane	1.4362	34.468	6.2905
n-Pentane	1.1874	28.498	5.2008
Cyclopentane	0.1443	3.463	0.6320
n-Hexane	0.3380	8.112	1.4804
Cyclohexane	0.2434	5.841	1.0660
Other Hexanes	0.2330	5.592	1.0205
Heptanes	0.4958	11.899	2.1715
Methylcyclohexane	0.3909	9.382	1.7122
2,2,4-Trimethylpentane	0.0448	1.075	0.1961
Benzene	0.0736	1.768	0.3226
Toluene	0.1832	4.396	0.8023
Ethylbenzene	0.0155	0.371	0.0678
Xylenes	0.1275	3.060	0.5585
C8+ Heavies	0.9257	22.216	4.0544
Total Emissions	63.3095	1519.428	277.2956
Total Hydrocarbon Emissions	63.3095	1519.428	277.2956
Total VOC Emissions	21.0674	505.618	92.2753
Total HAP Emissions	0.7826	18.782	3.4277
Total BTEX Emissions	0.3998	9.595	1.7511

EQUIPMENT REPORTS:

CONDENSER AND COMBUSTION DEVICE

Condenser Outlet Temperature:	90.00	deg. F
Condenser Pressure:	12.00	psia
Condenser Duty:	1.32e-001	MM BTU/hr
Hydrocarbon Recovery:	30.27	bbls/day
Produced Water:	68.53	bbls/day
Ambient Temperature:	68.00	deg. F
Excess Oxygen:	25.00	%
Combustion Efficiency:	98.00	%
Supplemental Fuel Requirement:	1.32e-001	MM BTU/hr

Component	Emitted	Destroyed
Methane	1.97%	98.03%
Ethane	1.85%	98.15%
Propane	1.39%	98.61%
Isobutane	1.03%	98.97%
n-Butane	0.87%	99.13%
Isopentane	0.44%	99.56%
n-Pentane	0.41%	99.59%
Cyclopentane	0.26%	99.74%
n-Hexane	0.15%	99.85%
Cyclohexane	0.11%	99.89%
Other Hexanes	0.21%	99.79%
Heptanes	0.05%	99.95%
Methylcyclohexane	0.05%	99.95%
2,2,4-Trimethylpentane	0.06%	99.94%
Benzene	0.09%	99.91%
Toluene	0.03%	99.97%
Ethylbenzene	0.01%	99.99%
Xylenes	0.01%	99.99%
C8+ Heavies	0.00%	100.00%

ABSORBER

Calculated Absorber Stages:	2.50	
Specified Dry Gas Dew Point:	3.00	lbs. H2O/MMSCF
Temperature:	100.0	deg. F
Pressure:	715.0	psig
Dry Gas Flow Rate:	332.0000	MMSCF/day

Glycol Losses with Dry Gas: 3.4647 lb/hr
Wet Gas Water Content: Saturated
Calculated Wet Gas Water Content: 75.21 lbs. H2O/MMSCF
Calculated Lean Glycol Recirc. Ratio: 1.67 gal/lb H2O

Component	Remaining in Dry Gas	Absorbed in Glycol
Water	3.98%	96.02%
Carbon Dioxide	99.91%	0.09%
Nitrogen	99.99%	0.01%
Methane	99.99%	0.01%
Ethane	99.98%	0.02%
Propane	99.96%	0.04%
Isobutane	99.95%	0.05%
n-Butane	99.93%	0.07%
Isopentane	99.93%	0.07%
n-Pentane	99.91%	0.09%
Cyclopentane	99.64%	0.36%
n-Hexane	99.86%	0.14%
Cyclohexane	99.39%	0.61%
Other Hexanes	99.89%	0.11%
Heptanes	99.74%	0.26%
Methylcyclohexane	99.33%	0.67%
2,2,4-Trimethylpentane	99.89%	0.11%
Benzene	94.54%	5.46%
Toluene	92.07%	7.93%
Ethylbenzene	89.02%	10.98%
Xylenes	84.01%	15.99%
C8+ Heavies	98.95%	1.05%

FLASH TANK

Flash Control: Recycle/recompression
Flash Temperature: 103.0 deg. F
Flash Pressure: 75.0 psig

Component	Left in Glycol	Removed in Flash Gas
Water	99.99%	0.01%

Carbon Dioxide	63.15%	36.85%
Nitrogen	10.04%	89.96%
Methane	10.81%	89.19%
Ethane	29.91%	70.09%
Propane	52.52%	47.48%
Isobutane	63.16%	36.84%
n-Butane	69.82%	30.18%
Isopentane	73.57%	26.43%
n-Pentane	77.76%	22.24%
Cyclopentane	92.61%	7.39%
n-Hexane	86.74%	13.26%
Cyclohexane	96.04%	3.96%
Other Hexanes	83.05%	16.95%
Heptanes	93.12%	6.88%
Methylcyclohexane	97.00%	3.00%
2,2,4-Trimethylpentane	87.12%	12.88%
Benzene	99.55%	0.45%
Toluene	99.73%	0.27%
Ethylbenzene	99.85%	0.15%
Xylenes	99.91%	0.09%
C8+ Heavies	99.37%	0.63%

REGENERATOR

No Stripping Gas used in regenerator.

Component	Remaining in Glycol	Distilled Overhead
Water	19.01%	80.99%
Carbon Dioxide	0.00%	100.00%
Nitrogen	0.00%	100.00%
Methane	0.00%	100.00%
Ethane	0.00%	100.00%
Propane	0.00%	100.00%
Isobutane	0.00%	100.00%
n-Butane	0.00%	100.00%
Isopentane	0.68%	99.32%
n-Pentane	0.64%	99.36%

Cyclopentane	0.54%	99.46%
n-Hexane	0.58%	99.42%
Cyclohexane	3.33%	96.67%
Other Hexanes	1.20%	98.80%
Heptanes	0.54%	99.46%
Methylcyclohexane	4.12%	95.88%
2,2,4-Trimethylpentane	1.72%	98.28%
Benzene	5.02%	94.98%
Toluene	7.92%	92.08%
Ethylbenzene	10.43%	89.57%
Xylenes	12.95%	87.05%
C8+ Heavies	12.08%	87.92%

STREAM REPORTS:

WET GAS STREAM

Temperature: 100.00 deg. F
Pressure: 729.70 psia
Flow Rate: 1.39e+007 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	1.58e-001	1.04e+003
Carbon Dioxide	4.99e-003	8.02e+001
Nitrogen	1.12e+000	1.14e+004
Methane	8.65e+001	5.07e+005
Ethane	6.56e+000	7.20e+004
Propane	3.13e+000	5.05e+004
Isobutane	5.33e-001	1.13e+004
n-Butane	9.14e-001	1.94e+004
Isopentane	2.96e-001	7.79e+003
n-Pentane	2.29e-001	6.02e+003
Cyclopentane	2.10e-002	5.37e+002
n-Hexane	5.62e-002	1.77e+003
Cyclohexane	3.19e-002	9.82e+002
Other Hexanes	3.93e-002	1.24e+003

Heptanes	7.59e-002	2.78e+003
Methylcyclohexane	5.22e-002	1.87e+003
2,2,4-Trimethylpentane	7.19e-003	3.00e+002
Benzene	9.88e-003	2.82e+002
Toluene	2.31e-002	7.76e+002
Ethylbenzene	2.20e-003	8.52e+001
Xylenes	1.92e-002	7.43e+002
C8+ Heavies	1.97e-001	1.23e+004
Total Components	100.00	7.10e+005

DRY GAS STREAM

Temperature: 100.00 deg. F
Pressure: 729.70 psia
Flow Rate: 1.38e+007 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	6.32e-003	4.15e+001
Carbon Dioxide	5.00e-003	8.02e+001
Nitrogen	1.12e+000	1.14e+004
Methane	8.67e+001	5.07e+005
Ethane	6.57e+000	7.20e+004
Propane	3.14e+000	5.04e+004
Isobutane	5.34e-001	1.13e+004
n-Butane	9.14e-001	1.94e+004
Isopentane	2.96e-001	7.78e+003
n-Pentane	2.29e-001	6.02e+003
Cyclopentane	2.09e-002	5.35e+002
n-Hexane	5.62e-002	1.77e+003
Cyclohexane	3.18e-002	9.76e+002
Other Hexanes	3.94e-002	1.24e+003
Heptanes	7.58e-002	2.77e+003
Methylcyclohexane	5.20e-002	1.86e+003
2,2,4-Trimethylpentane	7.19e-003	3.00e+002
Benzene	9.36e-003	2.67e+002
Toluene	2.13e-002	7.15e+002
Ethylbenzene	1.96e-003	7.58e+001

Xylenes	1.61e-002	6.24e+002
C8+ Heavies	1.95e-001	1.21e+004
Total Components	100.00	7.09e+005

LEAN GLYCOL STREAM

Temperature: 100.00 deg. F
Flow Rate: 2.78e+001 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.82e+001	1.54e+004
Water	1.50e+000	2.35e+002
Carbon Dioxide	4.68e-014	7.33e-012
Nitrogen	5.44e-013	8.51e-011
Methane	7.56e-018	1.18e-015
Ethane	4.65e-008	7.27e-006
Propane	4.97e-009	7.77e-007
Isobutane	1.13e-009	1.76e-007
n-Butane	2.10e-009	3.28e-007
Isopentane	1.74e-004	2.72e-002
n-Pentane	1.71e-004	2.67e-002
Cyclopentane	6.24e-005	9.76e-003
n-Hexane	8.14e-005	1.27e-002
Cyclohexane	1.26e-003	1.97e-001
Other Hexanes	8.78e-005	1.37e-002
Heptanes	2.30e-004	3.60e-002
Methylcyclohexane	3.33e-003	5.21e-001
2,2,4-Trimethylpentane	3.33e-005	5.21e-003
Benzene	5.18e-003	8.11e-001
Toluene	3.38e-002	5.28e+000
Ethylbenzene	6.94e-003	1.09e+000
Xylenes	1.13e-001	1.77e+001
C8+ Heavies	1.12e-001	1.75e+001
Total Components	100.00	1.57e+004

RICH GLYCOL STREAM

```
-------------------------------------------------------------
    Temperature:    100.00 deg. F
    Pressure:       729.70 psia
    Flow Rate:   3.08e+001 gpm
    NOTE: Stream has more than one phase.

                  Component           Conc.    Loading
                                      (wt%)    (lb/hr)
    ------------------------------ --------- ---------
                                TEG 8.98e+001 1.54e+004
                              Water 7.22e+000 1.24e+003
                     Carbon Dioxide 4.29e-004 7.33e-002
                           Nitrogen 4.99e-003 8.53e-001
                            Methane 2.06e-001 3.52e+001

                             Ethane 9.01e-002 1.54e+001
                            Propane 1.12e-001 1.91e+001
                          Isobutane 3.44e-002 5.88e+000
                           n-Butane 7.74e-002 1.32e+001
                         Isopentane 3.18e-002 5.43e+000

                          n-Pentane 3.12e-002 5.34e+000
                       Cyclopentane 1.14e-002 1.95e+000
                           n-Hexane 1.49e-002 2.55e+000
                        Cyclohexane 3.60e-002 6.15e+000
                      Other Hexanes 8.04e-003 1.37e+000

                            Heptanes 4.21e-002 7.21e+000
                   Methylcyclohexane 7.62e-002 1.30e+001
              2,2,4-Trimethylpentane 2.03e-003 3.48e-001
                            Benzene 9.48e-002 1.62e+001
                            Toluene 3.91e-001 6.69e+001

                       Ethylbenzene 6.10e-002 1.04e+001
                            Xylenes 7.98e-001 1.36e+002
                        C8+ Heavies 8.55e-001 1.46e+002
    ------------------------------ --------- ---------
                   Total Components    100.00 1.71e+004


FLASH TANK OFF GAS STREAM
-------------------------------------------------------------
    Temperature:    103.00 deg. F
    Pressure:        89.70 psia
    Flow Rate:   1.04e+003 scfh

                  Component           Conc.    Loading
```

	(vol%)	(lb/hr)
Water	2.13e-001	1.05e-001
Carbon Dioxide	2.25e-002	2.70e-002
Nitrogen	1.00e+000	7.67e-001
Methane	7.18e+001	3.14e+001
Ethane	1.32e+001	1.08e+001
Propane	7.53e+000	9.07e+000
Isobutane	1.36e+000	2.17e+000
n-Butane	2.52e+000	3.99e+000
Isopentane	7.29e-001	1.44e+000
n-Pentane	6.02e-001	1.19e+000
Cyclopentane	7.53e-002	1.44e-001
n-Hexane	1.44e-001	3.38e-001
Cyclohexane	1.06e-001	2.43e-001
Other Hexanes	9.90e-002	2.33e-001
Heptanes	1.81e-001	4.96e-001
Methylcyclohexane	1.46e-001	3.91e-001
2,2,4-Trimethylpentane	1.44e-002	4.48e-002
Benzene	3.45e-002	7.36e-002
Toluene	7.28e-002	1.83e-001
Ethylbenzene	5.33e-003	1.55e-002
Xylenes	4.40e-002	1.28e-001
C8+ Heavies	1.99e-001	9.26e-001
Total Components	100.00	6.42e+001

FLASH TANK GLYCOL STREAM

Temperature: 103.00 deg. F
Flow Rate: 3.07e+001 gpm

Component	Conc. (wt%)	Loading (lb/hr)
TEG	9.01e+001	1.54e+004
Water	7.25e+000	1.24e+003
Carbon Dioxide	2.72e-004	4.63e-002
Nitrogen	5.03e-004	8.57e-002
Methane	2.24e-002	3.81e+000
Ethane	2.71e-002	4.61e+000

Propane	5.89e-002	1.00e+001
Isobutane	2.18e-002	3.71e+000
n-Butane	5.42e-002	9.24e+000
Isopentane	2.35e-002	4.00e+000
n-Pentane	2.44e-002	4.15e+000
Cyclopentane	1.06e-002	1.81e+000
n-Hexane	1.30e-002	2.21e+000
Cyclohexane	3.47e-002	5.91e+000
Other Hexanes	6.70e-003	1.14e+000
Heptanes	3.94e-002	6.71e+000
Methylcyclohexane	7.42e-002	1.26e+001
2,2,4-Trimethylpentane	1.78e-003	3.03e-001
Benzene	9.47e-002	1.61e+001
Toluene	3.91e-001	6.67e+001
Ethylbenzene	6.12e-002	1.04e+001
Xylenes	8.00e-001	1.36e+002
C8+ Heavies	8.52e-001	1.45e+002
Total Components	100.00	1.70e+004

FLASH GAS EMISSIONS

Control Method: Recycle/recompression
Control Efficiency: 100.00

Note: Flash Gas Emissions are zero with the Recycle/recompression control option.

REGENERATOR OVERHEADS STREAM

Temperature: 212.00 deg. F
Pressure: 14.70 psia
Flow Rate: 2.26e+004 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	9.31e+001	1.00e+003
Carbon Dioxide	1.76e-003	4.63e-002
Nitrogen	5.13e-003	8.57e-002
Methane	3.98e-001	3.81e+000

Ethane	2.57e-001	4.61e+000
Propane	3.81e-001	1.00e+001
Isobutane	1.07e-001	3.71e+000
n-Butane	2.66e-001	9.24e+000
Isopentane	9.23e-002	3.97e+000
n-Pentane	9.58e-002	4.13e+000
Cyclopentane	4.30e-002	1.80e+000
n-Hexane	4.27e-002	2.20e+000
Cyclohexane	1.14e-001	5.71e+000
Other Hexanes	2.19e-002	1.13e+000
Heptanes	1.12e-001	6.67e+000
Methylcyclohexane	2.07e-001	1.21e+001
2,2,4-Trimethylpentane	4.37e-003	2.98e-001
Benzene	3.29e-001	1.53e+001
Toluene	1.12e+000	6.14e+001
Ethylbenzene	1.47e-001	9.34e+000
Xylenes	1.87e+000	1.19e+002
C8+ Heavies	1.26e+000	1.28e+002
Total Components	100.00	1.40e+003

CONDENSER PRODUCED WATER STREAM

Temperature: 90.00 deg. F
Flow Rate: 2.00e+000 gpm

Component	Conc. (wt%)	Loading (lb/hr)	(ppm)
Water	1.00e+002	1.00e+003	999673.
Carbon Dioxide	1.34e-004	1.34e-003	1.
Nitrogen	5.52e-006	5.53e-005	0.
Methane	5.10e-004	5.10e-003	5.
Ethane	7.24e-004	7.24e-003	7.
Propane	9.27e-004	9.27e-003	9.
Isobutane	1.44e-004	1.44e-003	1.
n-Butane	4.14e-004	4.14e-003	4.
Isopentane	6.63e-005	6.63e-004	1.
n-Pentane	7.04e-005	7.04e-004	1.
Cyclopentane	1.52e-004	1.52e-003	2.

n-Hexane	1.25e-005	1.25e-004	0.
Cyclohexane	1.47e-004	1.47e-003	1.
Other Hexanes	6.89e-006	6.89e-005	0.
Heptanes	7.84e-006	7.84e-005	0.
Methylcyclohexane	7.34e-005	7.34e-004	1.
2,2,4-Trimethylpentane	2.38e-007	2.38e-006	0.
Benzene	1.05e-002	1.05e-001	105.
Toluene	1.12e-002	1.12e-001	112.
Ethylbenzene	4.62e-004	4.62e-003	5.
Xylenes	7.11e-003	7.11e-002	71.
C8+ Heavies	2.51e-007	2.51e-006	0.
Total Components	100.00	1.00e+003	1000000.

CONDENSER RECOVERED OIL STREAM

Temperature: 90.00 deg. F
Flow Rate: 8.83e-001 gpm

Component	Conc. (wt%)	Loading (lb/hr)
Water	2.94e-002	1.10e-001
Carbon Dioxide	4.39e-004	1.65e-003
Nitrogen	3.30e-004	1.24e-003
Methane	1.36e-002	5.12e-002
Ethane	8.80e-002	3.30e-001
Propane	8.13e-001	3.05e+000
Isobutane	4.77e-001	1.79e+000
n-Butane	1.39e+000	5.24e+000
Isopentane	8.26e-001	3.10e+000
n-Pentane	8.75e-001	3.29e+000
Cyclopentane	4.17e-001	1.57e+000
n-Hexane	5.40e-001	2.03e+000
Cyclohexane	1.44e+000	5.39e+000
Other Hexanes	2.69e-001	1.01e+000
Heptanes	1.73e+000	6.49e+000
Methylcyclohexane	3.14e+000	1.18e+001
2,2,4-Trimethylpentane	7.70e-002	2.89e-001
Benzene	3.87e+000	1.45e+001
Toluene	1.61e+001	6.04e+001

Ethylbenzene	2.47e+000	9.29e+000
Xylenes	3.14e+001	1.18e+002
C8+ Heavies	3.40e+001	1.28e+002
Total Components	100.00	3.76e+002

CONDENSER VENT STREAM

Temperature: 90.00 deg. F
Pressure: 12.00 psia
Flow Rate: 2.83e+002 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Water	5.89e+000	7.91e-001
Carbon Dioxide	1.32e-001	4.33e-002
Nitrogen	4.04e-001	8.44e-002
Methane	3.14e+001	3.75e+000
Ethane	1.91e+001	4.27e+000
Propane	2.12e+001	6.97e+000
Isobutane	4.43e+000	1.92e+000
n-Butane	9.23e+000	4.00e+000
Isopentane	1.61e+000	8.68e-001
n-Pentane	1.56e+000	8.38e-001
Cyclopentane	4.41e-001	2.30e-001
n-Hexane	2.62e-001	1.69e-001
Cyclohexane	5.04e-001	3.16e-001
Other Hexanes	1.84e-001	1.18e-001
Heptanes	2.45e-001	1.83e-001
Methylcyclohexane	4.40e-001	3.22e-001
2,2,4-Trimethylpentane	9.99e-003	8.51e-003
Benzene	1.17e+000	6.82e-001
Toluene	1.21e+000	8.34e-001
Ethylbenzene	5.50e-002	4.35e-002
Xylenes	5.87e-001	4.65e-001
C8+ Heavies	9.67e-003	1.23e-002
Total Components	100.00	2.69e+001

COMBUSTION DEVICE OFF GAS STREAM

Temperature: 1000.00 deg. F
Pressure: 14.70 psia
Flow Rate: 5.30e+000 scfh

Component	Conc. (vol%)	Loading (lb/hr)
Methane	3.35e+001	7.51e-002
Ethane	2.04e+001	8.55e-002
Propane	2.26e+001	1.39e-001
Isobutane	4.73e+000	3.84e-002
n-Butane	9.86e+000	8.00e-002
Isopentane	1.72e+000	1.74e-002
n-Pentane	1.67e+000	1.68e-002
Cyclopentane	4.71e-001	4.61e-003
n-Hexane	2.80e-001	3.37e-003
Cyclohexane	5.39e-001	6.33e-003
Other Hexanes	1.97e-001	2.37e-003
Heptanes	2.62e-001	3.66e-003
Methylcyclohexane	4.70e-001	6.44e-003
2,2,4-Trimethylpentane	1.07e-002	1.70e-004
Benzene	1.25e+000	1.36e-002
Toluene	1.30e+000	1.67e-002
Ethylbenzene	5.87e-002	8.70e-004
Xylenes	6.27e-001	9.30e-003
C8+ Heavies	1.03e-002	2.46e-004
Total Components	100.00	5.20e-001

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Gas Analysis Report No: 240187-1 -6

Reported Date: 9/26/2018

For: WILLIAMS ENERGY SERVICES
Attn: CARLTON JOHNSON
PO BOX 645 MD WRC 3-9
TULSA, OK 74101-0645

Sample Identification:
Company: WILLIAMS ENERGY SERVICES
Field: IGNACIO PLANT
Lease: WEST DEHY
STA # : NP

Sample Data: **Date Collected:** 8/30/2018
PSIG: NP

Date Received: 9/26/2018 **By:** VERONICA LANG
Temp: N/P **DEG. F.**

Remarks:

CYL # 50

Sample Type: SPOT

Analyst: GG

Hydrocarbon Analysis - GPA 2261-13

Component Name		Mol Percent	GPM @ 15.025 PSIA
Carbon Dioxide	(CO2)	0.005	
Nitrogen	(N2)	1.121	
Methane	(C1)	86.658	
Ethane	(C2)	6.568	1.797
Propane	(C3)	3.138	0.884
Iso-Butane	(IC4)	0.534	0.179
N-Butane	(NC4)	0.915	0.295
Iso-Pentane	(IC5)	0.296	0.111
N-Pentane	(NC5)	0.229	0.085
Hexanes Plus	(C6+)	0.536	0.242
Total		100.000	

Mol Weight: 19.33
BTU/LB: 22904.62

Ethane + GPM: 3.593
Propane + GPM: 1.796
Iso-Pentane + GPM: 0.438

Compressibility Factor: 0.9970
Specific Gravity @ 60 Deg. F. (Air = 1) : 0.668

BTU/Cuft. (Real) 60 Deg. F. - PSIA:	14.650	14.696	14.730	15.025
Dry:	1166.4	1170.0	1172.8	1196.3
Sat:	1146.5	1150.1	1152.8	1175.9

Reviewed By: (b) (6) [redacted]
Tina Venable, Customer Service Representative
Data Reviewer

Testing performed by Element Materials Technology Scott :: 2129 W. Willow St., Scott, LA 70583 :: 337-232-3568
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Gas Analysis Report No: 240187 240187-1 -20 **Date:** 9/26/2018

For: OPPL
Attn: CARLTON JOHNSON
PO BOX 645 MD WRC 3-9
TULSA, OK 74101-0645

Sample Identification:
Company: OPPL
Field: IGNACIO PLANT
Lease: WEST DEHY

STA # :

240187-1

CAPILLARY ANALYSIS - METHOD GPA 2286-95
COMPONENT AS % OF TOTAL SAMPLE

COMPONENT NAME	MOL %	WEIGHT %
METHANE	0.0000	0.0000
ETHANE	0.0000	0.0000
PROPANE	0.0000	0.0000
ISO-BUTANE	0.0000	0.0000
N-BUTANE	0.0000	0.0000
2,2-DIMETHYLPROPANE (NEOPENTANE)	0.0000	0.0000
ISOPENTANE	0.0000	0.0000
N-PENTANE	0.0000	0.0000
2,2-DIMETHYLBUTANE (NEOHEXANE)	0.0048	0.0207
2,3-DIMETHYLBUTANE CYCLOPENTANE	0.0210	0.0824
2-METHYLPENTANE	0.0487	0.2108
3-METHYLPENTANE	0.0278	0.1201
N-HEXANE	0.0563	0.2437
2,2-DIMETHYLPENTANE	0.0019	0.0094
METHYLCYCLOPENTANE	0.0332	0.1405
2,4-DIMETHYLPENTANE	0.0040	0.0201
2,2,3-TRIMETHYLBUTANE	0.0007	0.0035
BENZENE	0.0099	0.0387
3,3-DIMETHYLPENTANE	0.0009	0.0047
CYCLOHEXANE	0.0320	0.1354
2-METHYLHEXANE	0.0137	0.0690
2,3-DIMETHYLPENTANE	0.0040	0.0202
1,1-DIMETHYLCYCLOPENTANE 3-METHYLHEXANE	0.0164	0.0823

240187-1

CAPILLARY ANALYSIS - METHOD GPA 2286-95
COMPONENT AS % OF TOTAL SAMPLE

COMPONENT NAME	MOL %	WEIGHT %
1,t3-DIMETHYLCYCLOPENTANE	0.0048	0.0236
1,c3-DIMETHYLCYCLOPENTANE 3-ETHYLPENTANE	0.0054	0.0268
1,t2-DIMETHYLCYCLOPENTANE 2,2,4-TRIMETHYLPENTANE	0.0072	0.0362
N-HEPTANE	0.0244	0.1315
METHYLCYCLOHEXANE 1,1,3-TRIMETHYLCYCLOPENTANE 2,2-DIMETHYLHEXANE	0.0523	0.2616
1,C2-DIMETHYLCYCLOPENTANE	0.0022	0.0108
2,5-DIMETHYLHEXANE	0.0014	0.0080
2,4-DIMETHYLHEXANE 2,2,3-TRIMETHYLPENTANE ETHYLCYCLOPENTANE	0.0039	0.0201
1,t2,c4-TRIMETHYLCYCLOPENTANE 3,3-DIMETHYLHEXANE	0.0021	0.0119
1,t2,C3-TRIMETHYLCYCLOPENTANE	0.0013	0.0073
2,3,4-TRIMETHYLPENTANE	0.0001	0.0008
TOLUENE	0.0231	0.1067
2,3-DIMETHYLHEXANE	0.0014	0.0082
1,1,2-TRIMETHYLCYCLOPENTANE	0.0002	0.0008
2-METHYLHEPTANE	0.0105	0.0605
4-METHYLHEPTANE	0.0032	0.0182
3,4-DIMETHYLHEXANE	0.0004	0.0021
3-METHYLHEPTANE 3-ETHYLHEXANE	0.0097	0.0554
1,c3-DIMETHYLCYCLOHEXANE 1,c2,t3-TRIMETHYLCYCLOPENTANE 1,c2,t4-TRIMETHYLCYCLOPENTANE	0.0103	0.0581
1,t4-DIMETHYLCYCLOHEXANE	0.0057	0.0320
2,2,5-TRIMETHYLHEXANE	0.0003	0.0017
1,1-DIMETHYLCYCLOHEXANE 1,methyl-t3-ETHYLCYCLOPENTANE	0.0021	0.0119
1-methyl-C3-ETHYLCYCLOPENTANE	0.0004	0.0020
1-methyl-t2-ETHYLCYCLOPENTANE 2,2,4-TRIMETHYLHEXANE	0.0006	0.0039
1-methyl-1-ETHYLCYCLOPENTANE CYCLOHEPTANE N-OCTANE	0.0230	0.1319
1,T2-DIMETHYLCYCLOCHEXANE	0.0011	0.0064
UNKNOWN	0.0005	0.0030
1,t3-DIMETHYLCYCLOHEXANE 1,c4-DIMETHYLCYCLOHEXANE 1,c2,c3-TRIMETHYLCYCLOPENTANE	0.0031	0.0177
2,4,4-TRIMETHYLHEXANE	0.0002	0.0013
ISOPROPYLCYCLOPENTANE	0.0001	0.0007

240187-1

CAPILLARY ANALYSIS - METHOD GPA 2286-95
COMPONENT AS % OF TOTAL SAMPLE

COMPONENT NAME	MOL %	WEIGHT %
UNKNOWN	0.0000	0.0000
2,2-DIMETHYLHEPTANE	0.0005	0.0033
2,4-DIMETHYLHEPTANE 1-methyl-c2-ETHYLCYCLOPENTANE	0.0008	0.0048
2,2,3-TRIMETHYLHEXANE	0.0001	0.0007
1,c2-DIMETHYLCYCLOHEXANE 2,6-DIMETHYLHEPTANE	0.0015	0.0084
N-PROPYLCYCLOPENTANE 1,c3,c5-TRIMETHYLCYCLOHEXANE	0.0011	0.0065
2,5-DIMETHYLHEPTANE 3,5-DIMETHYLHEPTANE ETHYLCYCLOHEXANE	0.0072	0.0409
1,1,3-TRIMETHYLCYCLOHEXANE 2,3,3-TRIMETHYLHEXANE 3,3-DIMETHYLHEPTANE	0.0014	0.0091
1,1,4-TRIMETHYLCYCLOHEXANE	0.0006	0.0039
UNKNOWN	0.0000	0.0000
2,3,4-TRIMETHYLHEXANE	0.0000	0.0002
ETHYLBENZENE	0.0022	0.0117
1,t2,t4-TRIMETHYLCYCLOHEXANE 1,c3,t5-TRIMETHYLCYCLOHEXANE 2,3-DIMETHYLHEPTANE	0.0013	0.0083
M-XYLENE P-XYLENE 3,4-DIMETHYLHEPTANE	0.0165	0.0885
2-METHYLOCTANE 4-METHYLOCTANE	0.0024	0.0152
UNKNOWN	0.0000	0.0000
3-METHYLOCTANE	0.0015	0.0099
UNKNOWN	0.0000	0.0000
1,t2,c3-TRIMETHYLCYCLOHEXANE 1,t2,c4-TRIMETHYLCYCLOHEXANE	0.0004	0.0022
O-XYLENE	0.0027	0.0142
1,1,2-TRIMETHYLCYCLOHEXANE	0.0006	0.0037
UNKNOWN	0.0006	0.0043
ISOBUTYLCYCLOPENTANE	0.0004	0.0027
N-NONANE	0.0034	0.0217
UNKNOWN	0.0000	0.0000
1,c2,c3-TRIMETHYLCYCLOHEXANE 1,c2,t3-TRIMETHYLCYCLOHEXANE	0.0002	0.0011
UNKNOWN	0.0000	0.0000
ISOPROPYLBENZENE	0.0006	0.0036
2,2-DIMETHYLOCTANE	0.0004	0.0028
ISOPROPYLCYCLOHEXANE CYCLOOCTANE	0.0007	0.0040
UNKNOWN	0.0001	0.0004

240187-1

CAPILLARY ANALYSIS - METHOD GPA 2286-95
COMPONENT AS % OF TOTAL SAMPLE

COMPONENT NAME	MOL %	WEIGHT %
N-BUTYLCYCLOPENTANE N-PROPYLCYCLOHEXANE	0.0012	0.0076
3,3-DIMETHYLOCTANE	0.0003	0.0022
UNKNOWN	0.0000	0.0000
N-PROPYLBENZENE	0.0003	0.0017
UNKNOWN	0.0000	0.0000
M-ETHYLTOLUENE	0.0003	0.0021
P-ETHYLTOLUENE 2,3-DIMETHYLOCTANE	0.0013	0.0078
4-METHYLNONANE 5-METHYLNONANE 1,3,5-TRIMETHYLBENZENE	0.0010	0.0063
2-METHYLNONANE	0.0007	0.0051
3-ETHYLOCTANE	0.0003	0.0020
O-ETHYLTOLUENE 3-METHYLNONANE	0.0001	0.0005
UNKNOWN	0.0000	0.0000
1,2,4-TRIMETHYLBENZENE t-BUTYLBENZENE METHYLCYCLOOCTANE	0.0002	0.0013
tert-BUTYLCYCLOHEXANE	0.0010	0.0073
ISO-BUTYLCYCLOHEXANE	0.0002	0.0017
N-DECANE	0.0024	0.0172
ISOBUTYLBENZENE	0.0001	0.0009
sec-BUTYLBENZENE	0.0002	0.0015
UNKNOWN	0.0000	0.0000
1-METHYL-3-ISOPROPYLBENZENE	0.0003	0.0021
1,2,3-TRIMETHYLBENZENE 1-METHYL-4-ISOPROPYLBENZENE	0.0007	0.0047
UNKNOWN	0.0004	0.0030
1-METHYL-2-ISOPROPYLBENZENE	0.0002	0.0013
UNKNOWN	0.0002	0.0017
N-BUTYLCYCLOHEXANE	0.0004	0.0029
UNKNOWN	0.0001	0.0011
1,3-DIETHYLBENZENE 1-METHYL-3-PROPYLBENZENE	0.0002	0.0011
1,2-DIETHYLBENZENE N-BUTYLBENZENE 1-METHYL-4-PROPYLBENZENE	0.0001	0.0004
1,4-DIETHYLBENZENE	0.0001	0.0004
1-METHYL-2-PROPYLBENZENE	0.0000	0.0000
1,4-DIMETHYL-2-ETHYLBENZENE	0.0001	0.0008
UNKNOWN	0.0001	0.0004

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CAPILLARY ANALYSIS - METHOD GPA 2286-95
COMPONENT AS % OF TOTAL SAMPLE

COMPONENT NAME	MOL %	WEIGHT %
1,2-DIMETHYL-4-ETHYLBENZENE	0.0000	0.0000
1,3-DIMETHYL-2-ETHYLBENZENE	0.0000	0.0000
UNKNOWN	0.0000	0.0000
1,2-DIMETHYL-3-ETHYLBENZENE	0.0000	0.0000
UNKNOWN	0.0000	0.0000
N-UNDECANE	0.0001	0.0011
UNKNOWN	0.0000	0.0000
1,2,4,5-TETRAMETHYLBENZENE	0.0001	0.0005
1,2,3,5-TETRAMETHYLBENZENE	0.0000	0.0002
UNKNOWN	0.0000	0.0000
1,2,3,4-TETRAMETHYLBENZENE CYCLODECANE	0.0000	0.0000
UNKNOWN	0.0000	0.0000
NAPHTHALENE	0.0000	0.0000
N-DODECANE	0.0000	0.0000
ISOTRIDECANES PLUS	0.0000	0.0000
Total:	0.5360	2.6216

TOTAL HEXANES	0.1586	0.6777
TOTAL HEPTANES	0.1586	0.7419
TOTAL OCTANES	0.1551	0.8202
TOTAL NONANES	0.0490	0.2829
TOTAL DECANES PLUS	0.0147	0.0988
BTEX COMPONENTS		
N-HEXANE	0.0563	0.2437
BENZENE	0.0099	0.0387
TOLUENE	0.0231	0.1067
ETHYLBENZENE	0.0022	0.0117
XYLENE	0.0192	0.1027

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CAPILLARY ANALYSIS - METHOD GPA 2286-95
HEAVY END FRACTION

COMPONENT NAME	MOL %	WEIGHT %
METHANE	0.000	0.000
ETHANE	0.000	0.000
PROPANE	0.000	0.000
ISO-BUTANE	0.000	0.000
N-BUTANE	0.000	0.000
2,2-DIMETHYLPROPANE (NEOPENTANE)	0.000	0.000
ISOPENTANE	0.000	0.000
N-PENTANE	0.000	0.000
2,2-DIMETHYLBUTANE (NEOHEXANE)	0.891	0.788
2,3-DIMETHYLBUTANE CYCLOPENTANE	3.916	3.143
2-METHYLPENTANE	9.087	8.042
3-METHYLPENTANE	5.177	4.582
N-HEXANE	10.507	9.297
2,2-DIMETHYLPENTANE	0.348	0.358
METHYLCYCLOPENTANE	6.201	5.359
2,4-DIMETHYLPENTANE	0.747	0.768
2,2,3-TRIMETHYLBUTANE	0.131	0.135
BENZENE	1.839	1.475
3,3-DIMETHYLPENTANE	0.176	0.181
CYCLOHEXANE	5.975	5.164
2-METHYLHEXANE	2.557	2.631
2,3-DIMETHYLPENTANE	0.747	0.769
1,1-DIMETHYLCYCLOPENTANE 3-METHYLHEXANE	3.057	3.139
1,t3-DIMETHYLCYCLOPENTANE	0.892	0.899
1,c3-DIMETHYLCYCLOPENTANE 3-ETHYLPENTANE	1.013	1.024
1,t2-DIMETHYLCYCLOPENTANE 2,2,4-TRIMETHYLPENTANE	1.348	1.382
N-HEPTANE	4.557	5.017
METHYLCYCLOHEXANE 1,1,3-TRIMETHYLCYCLOPENTANE	9.752	9.979

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CAPILLARY ANALYSIS - METHOD GPA 2286-95
HEAVY END FRACTION

COMPONENT NAME	MOL %	WEIGHT %
2,2-DIMETHYLHEXANE 1,C2-DIMETHYLCYCLOPENTANE	0.410	0.414
2,5-DIMETHYLHEXANE	0.260	0.305
2,4-DIMETHYLHEXANE 2,2,3-TRIMETHYLPENTANE ETHYLCYCLOPENTANE	0.723	0.765
1,t2,c4-TRIMETHYLCYCLOPENTANE 3,3-DIMETHYLHEXANE	0.394	0.454
1,t2,C3-TRIMETHYLCYCLOPENTANE	0.240	0.277
2,3,4-TRIMETHYLPENTANE	0.028	0.032
TOLUENE	4.302	4.070
2,3-DIMETHYLHEXANE	0.265	0.311
1,1,2-TRIMETHYLCYCLOPENTANE	0.028	0.032
2-METHYLHEPTANE	1.966	2.306
4-METHYLHEPTANE	0.590	0.692
3,4-DIMETHYLHEXANE	0.069	0.081
3-METHYLHEPTANE 3-ETHYLHEXANE	1.803	2.115
1,c3-DIMETHYLCYCLOHEXANE 1,c2,t3-TRIMETHYLCYCLOPENTANE 1,c2,t4-TRIMETHYLCYCLOPENTANE	1.925	2.218
1,t4-DIMETHYLCYCLOHEXANE	1.058	1.219
2,2,5-TRIMETHYLHEXANE	0.048	0.064
1,1-DIMETHYLCYCLOHEXANE 1,methyl-t3-ETHYLCYCLOPENTANE	0.394	0.454
1-methyl-C3-ETHYLCYCLOPENTANE	0.066	0.076
1-methyl-t2-ETHYLCYCLOPENTANE 2,2,4-TRIMETHYLHEXANE	0.119	0.147
1-methyl-1-ETHYLCYCLOPENTANE CYCLOHEPTANE N-OCTANE	4.290	5.032
1,T2-DIMETHYLCYCLOCHEXANE	0.212	0.244
UNKNOWN	0.086	0.113
1,t3-DIMETHYLCYCLOHEXANE 1,c4-DIMETHYLCYCLOHEXANE 1,c2,c3-TRIMETHYLCYCLOPENTANE	0.586	0.675
2,4,4-TRIMETHYLHEXANE	0.037	0.048
ISOPROPYLCYCLOPENTANE	0.025	0.028
UNKNOWN	0.000	0.000
2,2-DIMETHYLHEPTANE	0.096	0.126
2,4-DIMETHYLHEPTANE 1-methyl-c2-ETHYLCYCLOPENTANE	0.148	0.183
2,2,3-TRIMETHYLHEXANE	0.019	0.025

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CAPILLARY ANALYSIS - METHOD GPA 2286-95
HEAVY END FRACTION

COMPONENT NAME	MOL %	WEIGHT %
1,c2-DIMETHYLCYCLOHEXANE 2,6-DIMETHYLHEPTANE	0.271	0.321
N-PROPYLCYCLOPENTANE 1,c3,c5-TRIMETHYLCYCLOHEXANE	0.202	0.247
2,5-DIMETHYLHEPTANE 3,5-DIMETHYLHEPTANE ETHYLCYCLOHEXANE	1.336	1.562
1,1,3-TRIMETHYLCYCLOHEXANE 2,3,3-TRIMETHYLHEXANE 3,3-DIMETHYLHEPTANE	0.265	0.346
1,1,4-TRIMETHYLCYCLOHEXANE	0.115	0.149
UNKNOWN	0.000	0.000
2,3,4-TRIMETHYLHEXANE	0.007	0.009
ETHYLBENZENE	0.410	0.447
1,t2,t4-TRIMETHYLCYCLOHEXANE 1,c3,t5-TRIMETHYLCYCLOHEXANE 2,3-DIMETHYLHEPTANE	0.244	0.316
M-XYLENE P-XYLENE 3,4-DIMETHYLHEPTANE	3.083	3.375
2-METHYLOCTANE 4-METHYLOCTANE	0.439	0.578
UNKNOWN	0.000	0.000
3-METHYLOCTANE	0.286	0.376
UNKNOWN	0.000	0.000
1,t2,c3-TRIMETHYLCYCLOHEXANE 1,t2,c4-TRIMETHYLCYCLOHEXANE	0.066	0.086
O-XYLENE	0.497	0.542
1,1,2-TRIMETHYLCYCLOHEXANE	0.109	0.141
UNKNOWN	0.111	0.163
ISOBUTYLCYCLOPENTANE	0.080	0.104
N-NONANE	0.628	0.828
UNKNOWN	0.000	0.000
1,c2,c3-TRIMETHYLCYCLOHEXANE 1,c2,t3-TRIMETHYLCYCLOHEXANE	0.033	0.043
UNKNOWN	0.000	0.000
ISOPROPYLBENZENE	0.112	0.138
2,2-DIMETHYLOCTANE	0.073	0.106
ISOPROPYLCYCLOHEXANE CYCLOOCTANE	0.125	0.153
UNKNOWN	0.012	0.017
N-BUTYLCYCLOPENTANE N-PROPYLCYCLOHEXANE	0.224	0.291
3,3-DIMETHYLOCTANE	0.058	0.085

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CAPILLARY ANALYSIS - METHOD GPA 2286-95
HEAVY END FRACTION

COMPONENT NAME	MOL %	WEIGHT %
UNKNOWN	0.000	0.000
N-PROPYLBENZENE	0.052	0.064
UNKNOWN	0.000	0.000
M-ETHYLTOLUENE	0.065	0.080
P-ETHYLTOLUENE 2,3-DIMETHYLOCTANE	0.242	0.299
4-METHYLNONANE 5-METHYLNONANE 1,3,5-TRIMETHYLBENZENE	0.181	0.239
2-METHYLNONANE	0.133	0.195
3-ETHYLOCTANE	0.053	0.078
O-ETHYLTOLUENE 3-METHYLNONANE	0.013	0.018
UNKNOWN	0.000	0.000
1,2,4-TRIMETHYLBENZENE t-BUTYLBENZENE METHYLCYCLOOCTANE	0.038	0.049
tert-BUTYLCYCLOHEXANE	0.193	0.279
ISO-BUTYLCYCLOHEXANE	0.044	0.064
N-DECANE	0.448	0.655
ISOBUTYLBENZENE	0.026	0.035
sec-BUTYLBENZENE	0.040	0.056
UNKNOWN	0.000	0.000
1-METHYL-3-ISOPROPYLBENZENE	0.059	0.082
1,2,3-TRIMETHYLBENZENE 1-METHYL-4-ISOPROPYLBENZENE	0.140	0.180
UNKNOWN	0.072	0.115
1-METHYL-2-ISOPROPYLBENZENE	0.036	0.049
UNKNOWN	0.040	0.065
N-BUTYLCYCLOHEXANE	0.076	0.110
UNKNOWN	0.026	0.041
1,3-DIETHYLBENZENE 1-METHYL-3-PROPYLBENZENE	0.030	0.041
1,2-DIETHYLBENZENE N-BUTYLBENZENE 1-METHYL-4-PROPYLBENZENE	0.010	0.014
1,4-DIETHYLBENZENE	0.012	0.016
1-METHYL-2-PROPYLBENZENE	0.000	0.000
1,4-DIMETHYL-2-ETHYLBENZENE	0.021	0.029
UNKNOWN	0.010	0.016
1,2-DIMETHYL-4-ETHYLBENZENE	0.000	0.000

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CAPILLARY ANALYSIS - METHOD GPA 2286-95
HEAVY END FRACTION

COMPONENT NAME	MOL %	WEIGHT %
1,3-DIMETHYL-2-ETHYLBENZENE	0.000	0.000
UNKNOWN	0.000	0.000
1,2-DIMETHYL-3-ETHYLBENZENE	0.000	0.000
UNKNOWN	0.000	0.000
N-UNDECANE	0.027	0.043
UNKNOWN	0.000	0.000
1,2,4,5-TETRAMETHYLBENZENE	0.013	0.018
1,2,3,5-TETRAMETHYLBENZENE	0.004	0.006
UNKNOWN	0.000	0.000
1,2,3,4-TETRAMETHYLBENZENE CYCLODECANE	0.000	0.000
UNKNOWN	0.000	0.000
NAPHTHALENE	0.000	0.000
N-DODECANE	0.000	0.000
ISOTRIDECANES PLUS	0.000	0.000
Total:	100.000	101.000

Specific Gravity @ 60 Deg. F. (Air = 1)	3.3378
Molecular Weight	97.46
Compressibility Factor	0.8458
Summation Factor	0.1024
Cu. Ft. Vapor/Gal @ 14.696 & 60 Deg. F.	24.363
Cu. Ft. Vapor/Gal @ 14.730 & 60 Deg. F.	24.306
Cu. Ft. Vapor/Gal @ 14.650 & 60 Deg. F.	24.439
Btu/cu. Ft. @ 14.696 PSIA, Dry	5205.97
Btu/cu. Ft. @ 14.730 PSIA, Dry	5218.01
BTU/LB	20374

Attachment I

Unit No: **Thermal Oxidizer**
EU No. **22**
Meter 12491-01
Condition III.4.5.2 Thermal Oxidizer supplemental fuel use
Condition III.4.5.5 Thermal Oxidizer annual test results

		NOx		CO		VOC		SO2		supplemental fuel use	
permit limit =>			38.52		23.45		5.10		7.80	55	
DATE (mm/yy)	Hours of Operation	FACTOR (lb/hr)	RATE (tpy)	FACTOR (lb/hr)	RATE (tpy)	FACTOR (lb/hr)	RATE (tpy)	FACTOR (lb/hr)	RATE (tpy)	Average Fuel Use (MMBtu/hr)	
		4.78		0.36				1.34			
May-18	744		20.74		1.56	0.09	0.82		5.81	25.20	TO tested for VOC
Jun-18	718.3		20.73		1.56		0.43		5.81	26.70	on 5/9/18 @ 0.09 pph
Jul-18	744		20.73		1.56		0.46		5.81	27.20	
Aug-18	744		20.75		1.56		0.49		5.82	29.20	
Sep-18	720		20.75		1.56		0.53		5.82	29.80	
Oct-18	736.6		20.73		1.56		0.56		5.81	30.50	
Nov-18	720		20.73		1.56		0.59		5.81	31.00	
Dec-18	744		20.73		1.56		0.62		5.81	31.70	