Michelle McCracken

Marathon Oil Company
990 Town and Country Blvd.
Houston, TX 77024
(713) 296-3272
mmccracken@marathonoil.com

April 26, 2023

Ms. Claudia Smith
Minor NSR Permitting Coordinator
U.S. EPA, Region 8
1595 Wynkoop Street, 8P-AR
Denver, Colorado 80202-1129

Dear Ms. Smith:

Marathon Oil Company (Marathon) recently submitted a letter requesting withdrawal of the Title V application for the Ward-Roehr USA CTB well pad (attached). This submittal provides proof that fees are fully paid, as well as a signed Certification of Truth, Accuracy, and Completeness (CTAC).

Please do not hesitate to contact me at the email address or telephone number shown above if you have any questions or require additional information.

Sincerely,

Michelle McCracken

Michelle McCracken

Enclosures

Attachment 1

Fees

United States Environmental Protection Agency

OMB No. 2060-0336, Expires 11/30/2022

Federal Operating Permit Program (40 CFR Part 71)
FEE FILING FORM (FF)

The purpose of this form is to ensure that fee payments made by check are credited to the proper facility and to the proper government account. Send this form, along with form FEE and the check, to the appropriate lockbox bank address listed on the following page. This form is required whenever you pay by check, including for initial fee payment and to pay annual fees. Part 71 fees may be paid by check or electronically, and further information on making payments by check or electronically is provided on the following page.

Source or Facility Name: Ward-Roehr CTB

Source Location:

EPA Region where Source Located: 8

Mailing Address:

Street/P.O. Box: 3172 Hwy 22 N

City: Dickinson

State: ND ZIP: 58601

Contact Person: Michelle McCracken

Title: HES Professional

Telephone: (713) 296-3772

Total Fee Payment Remitted: $3,549.91 2017-2018

United States Environmental Protection Agency

OMB No. 2060-0336, Expires 11/30/2022

Federal Operating Permit Program (40 CFR Part 71)
FEE CALCUALTION WORKSHEET (FEE)

Use this form initially, or thereafter on an annual basis, to calculate part 71 fees.

A. General Information

Type of fee (Check one): ____ Initial X Annual

Deadline for submitting fee calculation worksheet 1/11/2018

For initial fees, emissions are based on (Check one):

X Actual emissions for the preceding calendar year. (Required in most circumstances.)

____ Estimates of actual emissions for the current calendar year. (Required when operations commenced during the preceding calendar year.)

Date commenced operations 1/11/2017

____ Estimates of actual emissions for the preceding calendar year. (Optional after a part 71 permit was issued to replace a part 70 permit, but only if initial fee payment is due between January 1 and March 31; otherwise use actual emissions for the preceding calendar year.)

For annual fee payment, you are required to use actual emissions for the preceding calendar year.

B. Source Information: Complete this section only if you are paying fees but not applying for a permit.

Source or facility name Ward-Roehr CTB

Mailing address: Street or P.O. Box 3172 Hwy 22 N

City Dickinson State ND ZIP 58601

Contact person Michelle McCracken Title HES Professional

Telephone (713) 296-3772 Part 71 permit no. Not yet issued

C. Certification of Truth, Accuracy and Completeness: Only needed if not submitting a separate form CTAC.

I certify under penalty of law, based on information and belief formed after reasonable inquiry, the statements and information contained in this submittal (form and attachments) are true, accurate and complete.

Name (signed) _____

Name (typed) _____ Date / /

D. Annual Emissions Report for Fee Calculation Purposes -- Non-HAP

You may use this to report actual emissions (tons per year) of regulated pollutants (for fee calculation) on a calendar-year basis for both initial and annual fee calculation purposes. Section E is designed to report HAP emissions. Quantify all actual emissions, including fugitives, but do not include insignificant emissions and certain regulated air pollutants that are not counted for fee purposes, such as CO and GHGs (see instructions). Sum the emissions in each column to calculate subtotals. Subtotals should be reported to the nearest tenth (0.1) of a ton at the bottom of the page. If any subtotal exceeds 4,000 tons, enter 4,000 for that column.

This data is for 2021/2022 (year)

Emission Unit ID	NOx	VOC	SO2	PM10	Lead	Other
HT	0.64	0.04	0.00	0.05		
ENG	-	-	-	-		
FUG	--	3.03	--	--		
LOADING	--	0.00	--	--		
OT	Emissions represented at LP Flare					
WT	Emissions represented at LP Flare					
HP Flare	0.44	3.16	--	0		
LP Flare	4.78	37.79	--	0.00		
PNE	0.20	8.69	--	0.00		
Subtotals	5.87	52.70	0.00	0.05	0	0

E. Annual Emissions Report for Fee Calculation Purposes -- HAP

HAP Identification. Identify individual HAP emitted at the facility, identify the CAS number, and assign a unique identifier for use in the second table in this section. Whenever assigning identifier codes, use "HAP1" for the first, "HAP2" for the second, and so on.

Name of HAP	CAS No	Identifier
Benzene	71-43-2	HAP1
Toluene	108-88-3	HAP2
Ethylbenzene	100-41-4	HAP3
Xylene	1330-20-7	HAP4
n-Hexane	110-54-3	HAP5
2,2,4-Trimethylepentane	540-87-1	HAP6

HAP Emissions. Report the actual emissions of individual HAP identified above. Use the identifiers assigned in the table above. Include all emissions, including fugitives, and do not include insignificant emissions. Sum the emissions in each column to calculate subtotals. Report subtotals to the nearest tenth (0.1) of a ton at the bottom of the page. If any subtotal exceeds 4,000 tons, enter 4,000.

This data is for 2021/2022 (year)

Emission Unit ID	Actual Emissions (Tons/Year)						
	HAP1	HAP2	HAP3	HAP4	HAP5	HAP6	
HT	0.00	0.00	0.00	0.00	0.00	0.00	
ENG	0.00	0.00	0.00	0.00	0.00	0.00	
FUG	0.00	0.00	0.00	0.00	0.00	0.00	
LOADING	0.00	0.02	0.01	0.01	0.06	0.00	
OT	Emissions represented at LP Flare						

WT	Emissions represented at LP Flare						
HP Flare	0.00	0.01	0.00	0.00	0.05	0.00	
LP Flare	0.06	0.19	0.02	0.03	0.78	0.00	
PNE	0.00	0.01	0.00	0.00	0.20	0.00	
Subtotals	0.07	0.23	0.03	0.04	1.10	0.00	

F. Fee Calculation Worksheet

This worksheet is used to calculate the total fee owed (including the emissions-based fee and the GHG fee adjustment) for both initial and annual fee payment purposes. Reconciliation is only for cases where you are paying the annual fee and you used any type of estimate of actual emissions when you calculated the initial fee. If you do not need to reconcile fees, complete line 1-5 (emissions summary) and then skip down to line 21 (emission calculation). See instructions for more detailed explanation.

EMISSIONS SUMMARY

1. Sum the subtotals from section D of this form (non-HAP) and enter the total, rounded to the nearest tenth (0.1) of a ton.	58.62
2. Sum the subtotals from section E of this form (HAP) and enter the total, rounded to the nearest tenth (0.1) of a ton.	1.48
3. Sum lines 1 and 2.	60.10
4. Enter the emissions that were counted twice. If none, enter "0."	1.48
5. Subtract line 4 from line 3, round to the nearest ton, and enter the result here. This is the total emissions that count for fees purposes.	58.62

RECONCILIATION
(WHEN INITIAL FEES WERE BASED ON ESTIMATES FOR THE "CURRENT" CALENDAR YEAR)

Only complete lines 6-10 if you are paying the first annual fee and initial fees were based on estimated actual emissions for the calendar year in which you paid initial fees; otherwise skip to line 11 or to line 21.

6. Enter the total estimated actual emissions for the year the initial fee was paid (previously reported on line 5 of the initial fee form).	
7. If line 5 is greater than line 6, subtract line 6 from line 5, and enter the result. Otherwise enter "0."	
8. If line 6 is greater than line 5, subtract line 5 from line 6, and enter the result. Otherwise enter "0."	
9. If line 7 is greater than 0, multiply line 7 by last year's fee rate ($/ton) and enter the result here. This is the underpayment. Go to line 21.	
10. If line 8 is greater than 0, multiply line 8 by last year's fee rate ($/ton) and enter the result here. This is the overpayment. Go to line 21.	

RECONCILIATION
(WHEN INITIAL FEES WERE BASED ON ESTIMATES FOR THE "PRECEDING" CALENDAR YEAR)

Only complete lines 11-20 if you are paying the first annual fee and initial fees were based on estimated actual emissions for the calendar year preceding initial fee payment; otherwise skip to line 21. If completing this section, you will also need to complete sections D and E to report actual emissions for the calendar year preceding initial fee payment.

11. Sum the actual emissions from section D (non-HAP) for the calendar year preceding initial fee payment and enter the result here.	
12. Sum the actual emissions from section E (HAP) for the calendar year preceding initial fee payment and enter the result here.	
13. Add lines 11 and 12 and enter the total here. These are total actual emissions for the calendar year preceding initial fee payment.	
14. Enter double counted emission from line 13 here. If none, enter "0."	
15. Subtract line 14 from line 13, round to the nearest ton, and enter the result here.	
16. Enter the total estimated actual emissions previously reported on line 5 of the initial fee form. These are estimated actual emissions for the calendar	
17. If line 15 is greater than line 16, subtract line 16 from line 15, and enter the result here. Otherwise enter "0."	
18. If line 16 is greater than line 15, subtract line 15 from line 16, and enter the result here. Otherwise enter "0."	
19. If line 17 is greater than 0, multiply line 17 by last year's fee rate ($/ton) and enter the result here. This is the underpayment.	
20. If line 18 is greater than 0, multiply line 18 by last year's fee rate ($/ton) and enter the result on this line. This is the overpayment.	
EMISSION FEE CALCULATION	
21. Multiply line 5 (tons) by the current fee rate ($/ton) and enter the result here. This is the unadjusted emissions fee. Continue on to line 23.	3549.91

GHG FEE ADJUSTMENT	
22. If you are submitting an initial permit application and this is the first time you are paying fees, enter $2,236, otherwise enter "0". [Note that any updates to the initial application are covered under this one-time charge.]	
23. Enter the number of permit modifications (or related permit actions) you have submitted to the permitting authority since you last paid fees. If none, skip to line 25.	
24. Multiply the number in line 23 by $365 and enter the result.	
25. If you have submitted a permit renewal application since the last time you paid fees enter $520, otherwise enter "0"	
26. Sum line 22, 24, and 25 and enter the result. This is the GHG fee adjustment	0
OTHER ADJUSTMENTS	
26. Add the total on line 21 and the total on line 26 and enter the result.	3549.91
27. Enter any underpayment from line 9 or 19 here. Otherwise enter "0."	
28. Enter any overpayment from line 10 or 20 here. Otherwise enter "0."	
29. If line 28 is greater than "0," add it to line 27 and enter the result here. If line 29 is greater than "0," subtract this from line 27 and enter the result here. Otherwise enter the amount on line 27 here. This is the fee adjusted for	
30. Enter any credit for fee assessment error here. Otherwise, enter "0."	
31. Subtract line 31 from line 30 and enter the result here. Stop here. This is the **TOTAL FEE (AFTER ADJUSTMENTS)** that you must remit to EPA.	3549.91

United States Environmental Protection Agency

OMB No. 2060-0336, Expires 11/30/2022

Federal Operating Permit Program (40 CFR Part 71)
FEE FILING FORM (FF)

The purpose of this form is to ensure that fee payments made by check are credited to the proper facility and to the proper government account. Send this form, along with form FEE and the check, to the appropriate lockbox bank address listed on the following page. This form is required whenever you pay by check, including for initial fee payment and to pay annual fees. Part 71 fees may be paid by check or electronically, and further information on making payments by check or electronically is provided on the following page.

Source or Facility Name: Ward-Roehr CTB

Source Location:

EPA Region where Source Located: 8

Mailing Address:

Street/P.O. Box: 3172 Hwy 22 N

City: Dickinson

State: ND ZIP: 58601

Contact Person: Michelle McCracken

Title: HES Professional

Telephone: (713) 296-3772

Total Fee Payment Remitted: $3,354.03 2018-2019

United States Environmental Protection Agency

OMB No. 2060-0336, Expires 11/30/2022

Federal Operating Permit Program (40 CFR Part 71)
FEE CALCUALTION WORKSHEET (FEE)

Use this form initially, or thereafter on an annual basis, to calculate part 71 fees.

A. General Information

Type of fee (Check one): ____ Initial X Annual

Deadline for submitting fee calculation worksheet 1/11/2019

For initial fees, emissions are based on (Check one):

X Actual emissions for the preceding calendar year. (Required in most circumstances.)

____ Estimates of actual emissions for the current calendar year. (Required when operations commenced during the preceding calendar year.)

Date commenced operations 1/11/2018

____ Estimates of actual emissions for the preceding calendar year. (Optional after a part 71 permit was issued to replace a part 70 permit, but only if initial fee payment is due between January 1 and March 31; otherwise use actual emissions for the preceding calendar year.)

For annual fee payment, you are required to use actual emissions for the preceding calendar year.

B. Source Information: Complete this section only if you are paying fees but not applying for a permit.

Source or facility name

Mailing address: Street or P.O. Box

City State ZIP

Contact person Title

Telephone Part 71 permit no.

C. Certification of Truth, Accuracy and Completeness: Only needed if not submitting a separate form CTAC.

I certify under penalty of law, based on information and belief formed after reasonable inquiry, the statements and information contained in this submittal (form and attachments) are true, accurate and complete.

Name (signed)

Name (typed) Date / /

D. Annual Emissions Report for Fee Calculation Purposes -- Non-HAP

You may use this to report actual emissions (tons per year) of regulated pollutants (for fee calculation) on a calendar-year basis for both initial and annual fee calculation purposes. Section E is designed to report HAP emissions. Quantify all actual emissions, including fugitives, but do not include insignificant emissions and certain regulated air pollutants that are not counted for fee purposes, such as CO and GHGs (see instructions). Sum the emissions in each column to calculate subtotals. Subtotals should be reported to the nearest tenth (0.1) of a ton at the bottom of the page. If any subtotal exceeds 4,000 tons, enter 4,000 for that column.

This data is for 2018/2019 (year)

Emission Unit ID	NOx	VOC	SO2	PM10	Lead	Other
HT	0.64	0.04	0.00	0.05		
ENG	-	-	-	-		
FUG	--	3.03	--	--		
LOADING	--	0.39	--	--		
OT	Emissions represented at LP Flare					
WT	Emissions represented at LP Flare					
HP Flare	0.55	3.84	--	0		
LP Flare	4.41	33.74	--	0.00		
PNE	0.20	8.69	--	0.00		
Subtotals	5.60	49.73	0.00	0.05	0.00	0.00

E. Annual Emissions Report for Fee Calculation Purposes -- HAP

HAP Identification. Identify individual HAP emitted at the facility, identify the CAS number, and assign a unique identifier for use in the second table in this section. Whenever assigning identifier codes, use "HAP1" for the first, "HAP2" for the second, and so on.

Name of HAP	CAS No	Identifier
Benzene	71-43-2	HAP1
Toluene	108-88-3	HAP2
Ethylbenzene	100-41-4	HAP3
Xylene	1330-20-7	HAP4
n-Hexane	110-54-3	HAP5
2,2,4-Trimethylepentane	540-87-1	HAP6

HAP Emissions. Report the actual emissions of individual HAP identified above. Use the identifiers assigned in the table above. Include all emissions, including fugitives, and do not include insignificant emissions. Sum the emissions in each column to calculate subtotals. Report subtotals to the nearest tenth (0.1) of a ton at the bottom of the page. If any subtotal exceeds 4,000 tons, enter 4,000.

This data is for 2018/2019 (year)

Emission Unit ID	Actual Emissions (Tons/Year)						
	HAP1	HAP2	HAP3	HAP4	HAP5	HAP6	
HT	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ENG	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FUG	0.00	0.02	0.01	0.01	0.06	0.00	0.00
LOADING	0.00	0.00	0.00	0.00	0.01	0.00	0.00
OT	Emissions represented at LP Flare						

WT	Emissions represented at LP Flare						
HP Flare	0.01	0.02	0.00	0.00	0.07	0.00	0.00
LP Flare	0.06	0.16	0.02	0.02	0.68	0.00	0.00
PNE	0.00	0.01	0.00	0.00	0.20	0.00	0.00
Subtotals	0.07	0.21	0.03	0.04	1.02	0.00	

F. Fee Calculation Worksheet

This worksheet is used to calculate the total fee owed (including the emissions-based fee and the GHG fee adjustment) for both initial and annual fee payment purposes. Reconciliation is only for cases where you are paying the annual fee and you used any type of estimate of actual emissions when you calculated the initial fee. If you do not need to reconcile fees, complete line 1-5 (emissions summary) and then skip down to line 21 (emission calculation). See instructions for more detailed explanation.

EMISSIONS SUMMARY

1. Sum the subtotals from section D of this form (non-HAP) and enter the total, rounded to the nearest tenth (0.1) of a ton.	55.38
2. Sum the subtotals from section E of this form (HAP) and enter the total, rounded to the nearest tenth (0.1) of a ton.	1.37
3. Sum lines 1 and 2.	56.76
4. Enter the emissions that were counted twice. If none, enter "0."	1.37
5. Subtract line 4 from line 3, round to the nearest ton, and enter the result here. This is the total emissions that count for fees purposes.	55.38

RECONCILIATION
(WHEN INITIAL FEES WERE BASED ON ESTIMATES FOR THE "CURRENT" CALENDAR YEAR)

Only complete lines 6-10 if you are paying the first annual fee and initial fees were based on estimated actual emissions for the calendar year in which you paid initial fees; otherwise skip to line 11 or to line 21.

6. Enter the total estimated actual emissions for the year the initial fee was paid (previously reported on line 5 of the initial fee form).	
7. If line 5 is greater than line 6, subtract line 6 from line 5, and enter the result. Otherwise enter "0."	
8. If line 6 is greater than line 5, subtract line 5 from line 6, and enter the result. Otherwise enter "0."	
9. If line 7 is greater than 0, multiply line 7 by last year's fee rate ($/ton) and enter the result here. This is the underpayment. Go to line 21.	
10. If line 8 is greater than 0, multiply line 8 by last year's fee rate ($/ton) and enter the result here. This is the overpayment. Go to line 21.	

RECONCILIATION
(WHEN INITIAL FEES WERE BASED ON ESTIMATES FOR THE "PRECEDING" CALENDAR YEAR)

Only complete lines 11-20 if you are paying the first annual fee and initial fees were based on estimated actual emissions for the calendar year preceding initial fee payment; otherwise skip to line 21. If completing this section, you will also need to complete sections D and E to report actual emissions for the calendar year preceding initial fee payment.

11. Sum the actual emissions from section D (non-HAP) for the calendar year preceding initial fee payment and enter the result here.	
12. Sum the actual emissions from section E (HAP) for the calendar year preceding initial fee payment and enter the result here.	
13. Add lines 11 and 12 and enter the total here. These are total actual emissions for the calendar year preceding initial fee payment.	
14. Enter double counted emission from line 13 here. If none, enter "0."	
15. Subtract line 14 from line 13, round to the nearest ton, and enter the result here.	
16. Enter the total estimated actual emissions previously reported on line 5 of the initial fee form. These are estimated actual emissions for the	
17. If line 15 is greater than line 16, subtract line 16 from line 15, and enter the result here. Otherwise enter "0."	
18. If line 16 is greater than line 15, subtract line 15 from line 16, and enter the result here. Otherwise enter "0."	
19. If line 17 is greater than 0, multiply line 17 by last year's fee rate ($/ton) and enter the result here. This is the underpayment.	
20. If line 18 is greater than 0, multiply line 18 by last year's fee rate ($/ton) and enter the result on this line. This is the overpayment.	
EMISSION FEE CALCULATION	
21. Multiply line 5 (tons) by the current fee rate ($/ton) and enter the result here. This is the unadjusted emissions fee. Continue on to line 23.	3354.03

GHG FEE ADJUSTMENT	
22. If you are submitting an initial permit application and this is the first time you are paying fees, enter $2,236, otherwise enter "0". [Note that any updates to the initial application are covered under this one-time charge.]	
23. Enter the number of permit modifications (or related permit actions) you have submitted to the permitting authority since you last paid fees. If none, skip to line 25.	
24. Multiply the number in line 23 by $365 and enter the result.	
25. If you have submitted a permit renewal application since the last time you paid fees enter $520, otherwise enter "0"	
26. Sum line 22, 24, and 25 and enter the result. This is the GHG fee adjustment	0
OTHER ADJUSTMENTS	
26. Add the total on line 21 and the total on line 26 and enter the result.	3354.03
27. Enter any underpayment from line 9 or 19 here. Otherwise enter "0."	
28. Enter any overpayment from line 10 or 20 here. Otherwise enter "0."	
29. If line 28 is greater than "0," add it to line 27 and enter the result here. If line 29 is greater than "0," subtract this from line 27 and enter the result here. Otherwise enter the amount on line 27 here. This is the fee adjusted	
30. Enter any credit for fee assessment error here. Otherwise, enter "0."	
31. Subtract line 31 from line 30 and enter the result here. Stop here. This is the **TOTAL FEE (AFTER ADJUSTMENTS)** that you must remit to EPA.	3354.03

United States Environmental Protection Agency

OMB No. 2060-0336, Expires 11/30/2022

Federal Operating Permit Program (40 CFR Part 71)
FEE FILING FORM (FF)

The purpose of this form is to ensure that fee payments made by check are credited to the proper facility and to the proper government account. Send this form, along with form FEE and the check, to the appropriate lockbox bank address listed on the following page. This form is required whenever you pay by check, including for initial fee payment and to pay annual fees. Part 71 fees may be paid by check or electronically, and further information on making payments by check or electronically is provided on the following page.

Source or Facility Name: Ward-Roehr CTB

Source Location:

EPA Region where Source Located: 8

Mailing Address:

Street/P.O. Box: 3172 Hwy 22 N

City: Dickinson

State: ND ZIP: 58601

Contact Person: Michelle McCracken

Title: HES Professional

Telephone: (713) 296-3772

Total Fee Payment Remitted: $3,402.26 2019-2020

United States Environmental Protection Agency

OMB No. 2060-0336, Expires 11/30/2022

Federal Operating Permit Program (40 CFR Part 71)
FEE CALCUALTION WORKSHEET (FEE)

Use this form initially, or thereafter on an annual basis, to calculate part 71 fees.

A. General Information

Type of fee (Check one): ____ Initial X Annual

Deadline for submitting fee calculation worksheet 1/11/2020

For initial fees, emissions are based on (Check one):

X Actual emissions for the preceding calendar year. (Required in most circumstances.)

____ Estimates of actual emissions for the current calendar year. (Required when operations commenced during the preceding calendar year.)

Date commenced operations 1/11/2019

____ Estimates of actual emissions for the preceding calendar year. (Optional after a part 71 permit was issued to replace a part 70 permit, but only if initial fee payment is due between January 1 and March 31; otherwise use actual emissions for the preceding calendar year.)

For annual fee payment, you are required to use actual emissions for the preceding calendar year.

B. Source Information: Complete this section only if you are paying fees but not applying for a permit.

Source or facility name Ward-Roehr CTB

Mailing address: Street or P.O. Box 3172 Hwy 22 N

City Dickinson State ND ZIP 58601

Contact person Michelle McCracken Title HES Professional

Telephone (713) 296-3772 Part 71 permit no. Not yet issued

C. Certification of Truth, Accuracy and Completeness: Only needed if not submitting a separate form CTAC.

I certify under penalty of law, based on information and belief formed after reasonable inquiry, the statements and information contained in this submittal (form and attachments) are true, accurate and complete.

Name (signed) _____

Name (typed) _____ Date / /

D. Annual Emissions Report for Fee Calculation Purposes -- Non-HAP

You may use this to report actual emissions (tons per year) of regulated pollutants (for fee calculation) on a calendar-year basis for both initial and annual fee calculation purposes. Section E is designed to report HAP emissions. Quantify all actual emissions, including fugitives, but do not include insignificant emissions and certain regulated air pollutants that are not counted for fee purposes, such as CO and GHGs (see instructions). Sum the emissions in each column to calculate subtotals. Subtotals should be reported to the nearest tenth (0.1) of a ton at the bottom of the page. If any subtotal exceeds 4,000 tons, enter 4,000 for that column.

This data is for 2019/2020 (year)

Emission Unit ID	NOx	VOC	SO2	PM10	Lead	Other
HT	0.64	0.04	0.00	0.05		
ENG	-	-	-	-		
FUG	--	3.03	--	--		
LOADING	--	7.63	--	--		
OT	Emissions represented at LP Flare					
WT	Emissions represented at LP Flare					
HP Flare	0.47	3.31	--	0		
LP Flare	3.93	28.39	--	0.00		
PNE	0.00	8.69	0.00	0.00		
Subtotals	5.04	51.08	0.00	0.05	0	0

E. Annual Emissions Report for Fee Calculation Purposes -- HAP

HAP Identification. Identify individual HAP emitted at the facility, identify the CAS number, and assign a unique identifier for use in the second table in this section. Whenever assigning identifier codes, use "HAP1" for the first, "HAP2" for the second, and so on.

Name of HAP	CAS No	Identifier
Benzene	71-43-2	HAP1
Toluene	108-88-3	HAP2
Ethylbenzene	100-41-4	HAP3
Xylene	1330-20-7	HAP4
n-Hexane	110-54-3	HAP5
2,2,4-Trimethylepentane	540-87-1	HAP6

HAP Emissions. Report the actual emissions of individual HAP identified above. Use the identifiers assigned in the table above. Include all emissions, including fugitives, and do not include insignificant emissions. Sum the emissions in each column to calculate subtotals. Report subtotals to the nearest tenth (0.1) of a ton at the bottom of the page. If any subtotal exceeds 4,000 tons, enter 4,000.

This data is for 2019/2020 (year)

Emission Unit ID	Actual Emissions (Tons/Year)						
	HAP1	HAP2	HAP3	HAP4	HAP5	HAP6	
HT	0.00	0.00	0.00	0.00	0.00	0.00	
ENG	0.00	0.00	0.00	0.00	0.00	0.00	
FUG	0.00	0.02	0.01	0.01	0.06	0.00	
LOADING	0.01	0.04	0.00	0.01	0.17	0.00	

OT	Emissions represented at LP Flare						
WT	Emissions represented at LP Flare						
HP Flare	0.00	0.01	0.00	0.00	0.06	0.00	
LP Flare	0.04	0.13	0.02	0.02	0.55	0.00	
PNE	0.00	0.01	0.00	0.00	0.20	0.00	
Subtotals	0.07	0.22	0.03	0.04	1.04	0.00	

F. Fee Calculation Worksheet

This worksheet is used to calculate the total fee owed (including the emissions-based fee and the GHG fee adjustment) for both initial and annual fee payment purposes. Reconciliation is only for cases where you are paying the annual fee and you used any type of estimate of actual emissions when you calculated the initial fee. If you do not need to reconcile fees, complete line 1-5 (emissions summary) and then skip down to line 21 (emission calculation). See instructions for more detailed explanation.

EMISSIONS SUMMARY

1. Sum the subtotals from section D of this form (non-HAP) and enter the total, rounded to the nearest tenth (0.1) of a ton.	56.18
2. Sum the subtotals from section E of this form (HAP) and enter the total, rounded to the nearest tenth (0.1) of a ton.	1.41
3. Sum lines 1 and 2.	57.59
4. Enter the emissions that were counted twice. If none, enter "0."	1.41
5. Subtract line 4 from line 3, round to the nearest ton, and enter the result here. This is the total emissions that count for fees purposes.	56.18

RECONCILIATION
(WHEN INITIAL FEES WERE BASED ON ESTIMATES FOR THE "CURRENT" CALENDAR YEAR)

Only complete lines 6-10 if you are paying the first annual fee and initial fees were based on estimated actual emissions for the calendar year in which you paid initial fees; otherwise skip to line 11 or to line 21.

6. Enter the total estimated actual emissions for the year the initial fee was paid (previously reported on line 5 of the initial fee form).	
7. If line 5 is greater than line 6, subtract line 6 from line 5, and enter the result. Otherwise enter "0."	
8. If line 6 is greater than line 5, subtract line 5 from line 6, and enter the result. Otherwise enter "0."	
9. If line 7 is greater than 0, multiply line 7 by last year's fee rate ($/ton) and enter the result here. This is the underpayment. Go to line 21.	
10. If line 8 is greater than 0, multiply line 8 by last year's fee rate ($/ton) and enter the result here. This is the overpayment. Go to line 21.	

RECONCILIATION
(WHEN INITIAL FEES WERE BASED ON ESTIMATES FOR THE "PRECEDING" CALENDAR YEAR)

Only complete lines 11-20 if you are paying the first annual fee and initial fees were based on estimated actual emissions for the calendar year preceding initial fee payment; otherwise skip to line 21. If completing this section, you will also need to complete sections D and E to report actual emissions for the

calendar year preceding initial fee payment.	
11. Sum the actual emissions from section D (non-HAP) for the calendar year preceding initial fee payment and enter the result here.	
12. Sum the actual emissions from section E (HAP) for the calendar year preceding initial fee payment and enter the result here.	
13. Add lines 11 and 12 and enter the total here. These are total actual emissions for the calendar year preceding initial fee payment.	
14. Enter double counted emission from line 13 here. If none, enter "0."	
15. Subtract line 14 from line 13, round to the nearest ton, and enter the result here.	
16. Enter the total estimated actual emissions previously reported on line 5 of the initial fee form. These are estimated actual emissions for the calendar	
17. If line 15 is greater than line 16, subtract line 16 from line 15, and enter the result here. Otherwise enter "0."	
18. If line 16 is greater than line 15, subtract line 15 from line 16, and enter the result here. Otherwise enter "0."	
19. If line 17 is greater than 0, multiply line 17 by last year's fee rate ($/ton) and enter the result here. This is the underpayment.	
20. If line 18 is greater than 0, multiply line 18 by last year's fee rate ($/ton) and enter the result on this line. This is the overpayment.	
EMISSION FEE CALCULATION	
21. Multiply line 5 (tons) by the current fee rate ($/ton) and enter the result here. This is the unadjusted emissions fee. Continue on to line 23.	3402.26

GHG FEE ADJUSTMENT	
22. If you are submitting an initial permit application and this is the first time you are paying fees, enter $2,236, otherwise enter "0". [Note that any updates to the initial application are covered under this one-time charge.]	
23. Enter the number of permit modifications (or related permit actions) you have submitted to the permitting authority since you last paid fees. If none, skip to line 25.	
24. Multiply the number in line 23 by $365 and enter the result.	
25. If you have submitted a permit renewal application since the last time you paid fees enter $520, otherwise enter "0"	
26. Sum line 22, 24, and 25 and enter the result. This is the GHG fee adjustment	0
OTHER ADJUSTMENTS	
26. Add the total on line 21 and the total on line 26 and enter the result.	3402.26
27. Enter any underpayment from line 9 or 19 here. Otherwise enter "0."	
28. Enter any overpayment from line 10 or 20 here. Otherwise enter "0."	
29. If line 28 is greater than "0," add it to line 27 and enter the result here. If line 29 is greater than "0," subtract this from line 27 and enter the result here. Otherwise enter the amount on line 27 here. This is the fee adjusted	
30. Enter any credit for fee assessment error here. Otherwise, enter "0."	

31. Subtract line 31 from line 30 and enter the result here. Stop here. This is the **TOTAL FEE (AFTER ADJUSTMENTS)** that you must remit to EPA.	3402.26

United States Environmental Protection Agency

OMB No. 2060-0336, Expires 11/30/2022

Federal Operating Permit Program (40 CFR Part 71)
FEE FILING FORM (FF)

The purpose of this form is to ensure that fee payments made by check are credited to the proper facility and to the proper government account. Send this form, along with form FEE and the check, to the appropriate lockbox bank address listed on the following page. This form is required whenever you pay by check, including for initial fee payment and to pay annual fees. Part 71 fees may be paid by check or electronically, and further information on making payments by check or electronically is provided on the following page.

Source or Facility Name: Ward-Roehr CTB

Source Location:

EPA Region where Source Located: 8

Mailing Address:

Street/P.O. Box: 3172 Hwy 22 N

City: Dickinson

State: ND ZIP: 58601

Contact Person: Michelle McCracken

Title: HES Professional

Telephone: (713) 296-3772

Total Fee Payment Remitted: $3,563.36 2020-2021

United States Environmental Protection Agency

OMB No. 2060-0336, Expires 11/30/2022

Federal Operating Permit Program (40 CFR Part 71)
FEE CALCUALTION WORKSHEET (FEE)

Use this form initially, or thereafter on an annual basis, to calculate part 71 fees.

A. General Information

Type of fee (Check one): ____ Initial X Annual

Deadline for submitting fee calculation worksheet 1/10/2021

For initial fees, emissions are based on (Check one):

X Actual emissions for the preceding calendar year. (Required in most circumstances.)

____ Estimates of actual emissions for the current calendar year. (Required when operations commenced during the preceding calendar year.)

Date commenced operations 1/11/2020

____ Estimates of actual emissions for the preceding calendar year. (Optional after a part 71 permit was issued to replace a part 70 permit, but only if initial fee payment is due between January 1 and March 31; otherwise use actual emissions for the preceding calendar year.)

For annual fee payment, you are required to use actual emissions for the preceding calendar year.

B. Source Information: Complete this section only if you are paying fees but not applying for a permit.

Source or facility name

Mailing address: Street or P.O. Box

City State ZIP

Contact person Title

Telephone Part 71 permit no.

C. Certification of Truth, Accuracy and Completeness: Only needed if not submitting a separate form CTAC.

I certify under penalty of law, based on information and belief formed after reasonable inquiry, the statements and information contained in this submittal (form and attachments) are true, accurate and complete.

Name (signed)

Name (typed) Date / /

D. Annual Emissions Report for Fee Calculation Purposes -- Non-HAP

You may use this to report actual emissions (tons per year) of regulated pollutants (for fee calculation) on a calendar-year basis for both initial and annual fee calculation purposes. Section E is designed to report HAP emissions. Quantify all actual emissions, including fugitives, but do not include insignificant emissions and certain regulated air pollutants that are not counted for fee purposes, such as CO and GHGs (see instructions). Sum the emissions in each column to calculate subtotals. Subtotals should be reported to the nearest tenth (0.1) of a ton at the bottom of the page. If any subtotal exceeds 4,000 tons, enter 4,000 for that column.

This data is for 2020/2021 (year)

Emission Unit ID	NOx	VOC	SO2	PM10	Lead	Other
HT	0.65	0.04	0.00	0.05		
ENG	-	-	-	-		
FUG	--	3.03	--	--		
LOADING	--	8.70	--	--		
OT	Emissions represented at LP Flare					
WT	Emissions represented at LP Flare					
HP Flare	0.41	2.98	--	0.00		
LP Flare	4.07	30.20	--	0.00		
PNE	4.07	8.72	30.20	0.79		
Subtotals	5.13	53.66	0.00	0.05	0.00	0.00

E. Annual Emissions Report for Fee Calculation Purposes -- HAP

HAP Identification. Identify individual HAP emitted at the facility, identify the CAS number, and assign a unique identifier for use in the second table in this section. Whenever assigning identifier codes, use "HAP1" for the first, "HAP2" for the second, and so on.

Name of HAP	CAS No	Identifier
Benzene	71-43-2	HAP1
Toluene	108-88-3	HAP2
Ethylbenzene	100-41-4	HAP3
Xylene	1330-20-7	HAP4
n-Hexane	110-54-3	HAP5
2,2,4-Trimethylepentane	540-87-1	HAP6

HAP Emissions. Report the actual emissions of individual HAP identified above. Use the identifiers assigned in the table above. Include all emissions, including fugitives, and do not include insignificant emissions. Sum the emissions in each column to calculate subtotals. Report subtotals to the nearest tenth (0.1) of a ton at the bottom of the page. If any subtotal exceeds 4,000 tons, enter 4,000.

This data is for 2020/2021 (year)

Emission Unit ID	Actual Emissions (Tons/Year)						
	HAP1	HAP2	HAP3	HAP4	HAP5	HAP6	
HT	0.00	0.00	0.00	0.00	0.00	0.00	
ENG	0.00	0.00	0.00	0.00	0.00	0.00	
FUG	0.00	0.02	0.01	0.01	0.06	0.00	
LOADING	0.02	0.05	0.01	0.01	0.19	0.00	
OT	Emissions represented at LP Flare						

WT	Emissions represented at LP Flare						
HP Flare	0.00	0.01	0.00	0.00	0.05	0.00	
LP Flare	0.05	0.14	0.02	0.02	0.57	0.00	
PNE	0.00	0.01	0.00	0.00	0.21	0.00	
Subtotals	0.07	0.23	0.03	0.04	1.08	0.00	

F. Fee Calculation Worksheet

This worksheet is used to calculate the total fee owed (including the emissions-based fee and the GHG fee adjustment) for both initial and annual fee payment purposes. Reconciliation is only for cases where you are paying the annual fee and you used any type of estimate of actual emissions when you calculated the initial fee. If you do not need to reconcile fees, complete line 1-5 (emissions summary) and then skip down to line 21 (emission calculation). See instructions for more detailed explanation.

EMISSIONS SUMMARY

1. Sum the subtotals from section D of this form (non-HAP) and enter the total, rounded to the nearest tenth (0.1) of a ton.	58.84
2. Sum the subtotals from section E of this form (HAP) and enter the total, rounded to the nearest tenth (0.1) of a ton.	1.46
3. Sum lines 1 and 2.	60.30
4. Enter the emissions that were counted twice. If none, enter "0."	1.46
5. Subtract line 4 from line 3, round to the nearest ton, and enter the result here. This is the total emissions that count for fees purposes.	58.84

RECONCILIATION
(WHEN INITIAL FEES WERE BASED ON ESTIMATES FOR THE "CURRENT" CALENDAR YEAR)

Only complete lines 6-10 if you are paying the first annual fee and initial fees were based on estimated actual emissions for the calendar year in which you paid initial fees; otherwise skip to line 11 or to line 21.

6. Enter the total estimated actual emissions for the year the initial fee was paid (previously reported on line 5 of the initial fee form).	
7. If line 5 is greater than line 6, subtract line 6 from line 5, and enter the result. Otherwise enter "0."	
8. If line 6 is greater than line 5, subtract line 5 from line 6, and enter the result. Otherwise enter "0."	
9. If line 7 is greater than 0, multiply line 7 by last year's fee rate ($/ton) and enter the result here. This is the underpayment. Go to line 21.	
10. If line 8 is greater than 0, multiply line 8 by last year's fee rate ($/ton) and enter the result here. This is the overpayment. Go to line 21.	

RECONCILIATION
(WHEN INITIAL FEES WERE BASED ON ESTIMATES FOR THE "PRECEDING" CALENDAR YEAR)

Only complete lines 11-20 if you are paying the first annual fee and initial fees were based on estimated actual emissions for the calendar year preceding initial fee payment; otherwise skip to line 21. If completing this section, you will also need to complete sections D and E to report actual emissions for the calendar year preceding initial fee payment.

11. Sum the actual emissions from section D (non-HAP) for the calendar year preceding initial fee payment and enter the result here.	
12. Sum the actual emissions from section E (HAP) for the calendar year preceding initial fee payment and enter the result here.	
13. Add lines 11 and 12 and enter the total here. These are total actual emissions for the calendar year preceding initial fee payment.	
14. Enter double counted emission from line 13 here. If none, enter "0."	
15. Subtract line 14 from line 13, round to the nearest ton, and enter the result here.	
16. Enter the total estimated actual emissions previously reported on line 5 of the initial fee form. These are estimated actual emissions for the	
17. If line 15 is greater than line 16, subtract line 16 from line 15, and enter the result here. Otherwise enter "0."	
18. If line 16 is greater than line 15, subtract line 15 from line 16, and enter the result here. Otherwise enter "0."	
19. If line 17 is greater than 0, multiply line 17 by last year's fee rate ($/ton) and enter the result here. This is the underpayment.	
20. If line 18 is greater than 0, multiply line 18 by last year's fee rate ($/ton) and enter the result on this line. This is the overpayment.	
EMISSION FEE CALCULATION	
21. Multiply line 5 (tons) by the current fee rate ($/ton) and enter the result here. This is the unadjusted emissions fee. Continue on to line 23.	3563.36

GHG FEE ADJUSTMENT	
22. If you are submitting an initial permit application and this is the first time you are paying fees, enter $2,236, otherwise enter "0". [Note that any updates to the initial application are covered under this one-time charge.]	
23. Enter the number of permit modifications (or related permit actions) you have submitted to the permitting authority since you last paid fees. If none, skip to line 25.	
24. Multiply the number in line 23 by $365 and enter the result.	
25. If you have submitted a permit renewal application since the last time you paid fees enter $520, otherwise enter "0"	
26. Sum line 22, 24, and 25 and enter the result. This is the GHG fee adjustment	0
OTHER ADJUSTMENTS	
26. Add the total on line 21 and the total on line 26 and enter the result.	3563.36
27. Enter any underpayment from line 9 or 19 here. Otherwise enter "0."	
28. Enter any overpayment from line 10 or 20 here. Otherwise enter "0."	
29. If line 28 is greater than "0," add it to line 27 and enter the result here. If line 29 is greater than "0," subtract this from line 27 and enter the result here. Otherwise enter the amount on line 27 here. This is the fee adjusted	
30. Enter any credit for fee assessment error here. Otherwise, enter "0."	
31. Subtract line 31 from line 30 and enter the result here. Stop here. This is the **TOTAL FEE (AFTER ADJUSTMENTS)** that you must remit to EPA.	3563.36

United States Environmental Protection Agency

OMB No. 2060-0336, Expires 11/30/2022

Federal Operating Permit Program (40 CFR Part 71)
FEE FILING FORM (FF)

The purpose of this form is to ensure that fee payments made by check are credited to the proper facility and to the proper government account. Send this form, along with form FEE and the check, to the appropriate lockbox bank address listed on the following page. This form is required whenever you pay by check, including for initial fee payment and to pay annual fees. Part 71 fees may be paid by check or electronically, and further information on making payments by check or electronically is provided on the following page.

Source or Facility Name: Ward-Roehr CTB

Source Location:

EPA Region where Source Located: 8

Mailing Address:

Street/P.O. Box: 3172 Hwy 22 N

City: Dickinson

State: ND ZIP: 58601

Contact Person: Michelle McCracken

Title: HES Professional

Telephone: (713) 296-3772

Total Fee Payment Remitted: $3,445.00 2021-2022

United States Environmental Protection Agency

OMB No. 2060-0336, Expires 11/30/2022

Federal Operating Permit Program (40 CFR Part 71)
FEE CALCUALTION WORKSHEET (FEE)

Use this form initially, or thereafter on an annual basis, to calculate part 71 fees.

A. General Information

Type of fee (Check one): _____ Initial X Annual

Deadline for submitting fee calculation worksheet 1/11/2022

For initial fees, emissions are based on (Check one):

X Actual emissions for the preceding calendar year. (Required in most circumstances.)

_____ Estimates of actual emissions for the current calendar year. (Required when operations commenced during the preceding calendar year.)

Date commenced operations 1/11/2021

_____ Estimates of actual emissions for the preceding calendar year. (Optional after a part 71 permit was issued to replace a part 70 permit, but only if initial fee payment is due between January 1 and March 31; otherwise use actual emissions for the preceding calendar year.)

For annual fee payment, you are required to use actual emissions for the preceding calendar year.

B. Source Information: Complete this section only if you are paying fees but not applying for a permit.

Source or facility name _____

Mailing address: Street or P.O. Box _____

City _____ State _____ ZIP _____

Contact person _____ Title _____

Telephone _____ Part 71 permit no. _____

C. Certification of Truth, Accuracy and Completeness: Only needed if not submitting a separate form CTAC.

I certify under penalty of law, based on information and belief formed after reasonable inquiry, the statements and information contained in this submittal (form and attachments) are true, accurate and complete.

Name (signed) _____

Name (typed) _____ Date / /

D. Annual Emissions Report for Fee Calculation Purposes -- Non-HAP

You may use this to report actual emissions (tons per year) of regulated pollutants (for fee calculation) on a calendar-year basis for both initial and annual fee calculation purposes. Section E is designed to report HAP emissions. Quantify all actual emissions, including fugitives, but do not include insignificant emissions and certain regulated air pollutants that are not counted for fee purposes, such as CO and GHGs (see instructions). Sum the emissions in each column to calculate subtotals. Subtotals should be reported to the nearest tenth (0.1) of a ton at the bottom of the page. If any subtotal exceeds 4,000 tons, enter 4,000 for that column.

This data is for 2021/2022 (year)

Emission Unit ID	NOx	VOC	SO2	PM10	Lead	Other
HT	0.64	0.04	0.00	0.05		
ENG	-	-	-	-		
FUG	--	3.03	--	--		
LOADING	--	2.57	--	--		
OT	Emissions represented at LP Flare					
WT	Emissions represented at LP Flare					
HP Flare	0.25	1.86	--	0.00		
LP Flare	4.52	35.24	--	0.00		
PNE	--	8.69	8.69	0.22		
Subtotals	5.41	51.42	0.00	0.05	0.00	0.00

E. Annual Emissions Report for Fee Calculation Purposes -- HAP

HAP Identification. Identify individual HAP emitted at the facility, identify the CAS number, and assign a unique identifier for use in the second table in this section. Whenever assigning identifier codes, use "HAP1" for the first, "HAP2" for the second, and so on.

Name of HAP	CAS No	Identifier
Benzene	71-43-2	HAP1
Toluene	108-88-3	HAP2
Ethylbenzene	100-41-4	HAP3
Xylene	1330-20-7	HAP4
n-Hexane	110-54-3	HAP5
2,2,4-Trimethylepentane	540-87-1	HAP6

HAP Emissions. Report the actual emissions of individual HAP identified above. Use the identifiers assigned in the table above. Include all emissions, including fugitives, and do not include insignificant emissions. Sum the emissions in each column to calculate subtotals. Report subtotals to the nearest tenth (0.1) of a ton at the bottom of the page. If any subtotal exceeds 4,000 tons, enter 4,000.

This data is for 2021/2022 (year)

Emission Unit ID	Actual Emissions (Tons/Year)						
	HAP1	HAP2	HAP3	HAP4	HAP5	HAP6	
HT	0.00	0.00	0.00	0.00	0.00	0.00	
ENG	0.00	0.00	0.00	0.00	0.00	0.00	
FUG	0.00	0.02	0.01	0.01	0.06	0.00	
LOADING	0.00	0.01	0.00	0.00	0.06	0.00	
OT	Emissions represented at LP Flare						
WT	Emissions represented at LP Flare						
HP Flare	0.00	0.01	0.00	0.00	0.03	0.00	
LP Flare	0.06	0.17	0.02	0.02	0.69	0.00	
PNE	0.00	0.01	0.00	0.00	0.20	0.00	
Subtotals	0.07	0.22	0.03	0.04	1.04	0.00	

F. Fee Calculation Worksheet

This worksheet is used to calculate the total fee owed (including the emissions-based fee and the GHG fee adjustment) for both initial and annual fee payment purposes. Reconciliation is only for cases where you are paying the annual fee and you used any type of estimate of actual emissions when you calculated the initial fee. If you do not need to reconcile fees, complete line 1-5 (emissions summary) and then skip down to line 21 (emission calculation). See instructions for more detailed explanation.

EMISSIONS SUMMARY

1. Sum the subtotals from section D of this form (non-HAP) and enter the total, rounded to the nearest tenth (0.1) of a ton.	56.89
2. Sum the subtotals from section E of this form (HAP) and enter the total, rounded to the nearest tenth (0.1) of a ton.	1.41
3. Sum lines 1 and 2.	58.29
4. Enter the emissions that were counted twice. If none, enter "0."	1.41
5. Subtract line 4 from line 3, round to the nearest ton, and enter the result here. This is the total emissions that count for fees purposes.	56.89

RECONCILIATION
(WHEN INITIAL FEES WERE BASED ON ESTIMATES FOR THE "CURRENT" CALENDAR YEAR)

Only complete lines 6-10 if you are paying the first annual fee and initial fees were based on estimated actual emissions for the calendar year in which you paid initial fees; otherwise skip to line 11 or to line 21.

6. Enter the total estimated actual emissions for the year the initial fee was paid (previously reported on line 5 of the initial fee form).	
7. If line 5 is greater than line 6, subtract line 6 from line 5, and enter the result. Otherwise enter "0."	
8. If line 6 is greater than line 5, subtract line 5 from line 6, and enter the result. Otherwise enter "0."	
9. If line 7 is greater than 0, multiply line 7 by last year's fee rate ($/ton) and enter the result here. This is the underpayment. Go to line 21.	
10. If line 8 is greater than 0, multiply line 8 by last year's fee rate ($/ton) and enter the result here. This is the overpayment. Go to line 21.	

RECONCILIATION (WHEN INITIAL FEES WERE BASED ON ESTIMATES FOR THE "PRECEDING" CALENDAR YEAR) Only complete lines 11-20 if you are paying the first annual fee and initial fees were based on estimated actual emissions for the calendar year preceding initial fee payment; otherwise skip to line 21. If completing this section, you will also need to complete sections D and E to report actual emissions for the calendar year preceding initial fee payment.	
11. Sum the actual emissions from section D (non-HAP) for the calendar year preceding initial fee payment and enter the result here.	
12. Sum the actual emissions from section E (HAP) for the calendar year preceding initial fee payment and enter the result here.	
13. Add lines 11 and 12 and enter the total here. These are total actual emissions for the calendar year preceding initial fee payment.	
14. Enter double counted emission from line 13 here. If none, enter "0."	
15. Subtract line 14 from line 13, round to the nearest ton, and enter the result here.	
16. Enter the total estimated actual emissions previously reported on line 5 of the initial fee form. These are estimated actual emissions for the	
17. If line 15 is greater than line 16, subtract line 16 from line 15, and enter the result here. Otherwise enter "0."	
18. If line 16 is greater than line 15, subtract line 15 from line 16, and enter the result here. Otherwise enter "0."	
19. If line 17 is greater than 0, multiply line 17 by last year's fee rate ($/ton) and enter the result here. This is the underpayment.	
20. If line 18 is greater than 0, multiply line 18 by last year's fee rate ($/ton) and enter the result on this line. This is the overpayment.	
EMISSION FEE CALCULATION	
21. Multiply line 5 (tons) by the current fee rate ($/ton) and enter the result here. This is the unadjusted emissions fee. Continue on to line 23.	3445.00

GHG FEE ADJUSTMENT	
22. If you are submitting an initial permit application and this is the first time you are paying fees, enter $2,236, otherwise enter "0". [Note that any updates to the initial application are covered under this one-time charge.]	
23. Enter the number of permit modifications (or related permit actions) you have submitted to the permitting authority since you last paid fees. If none, skip to line 25.	
24. Multiply the number in line 23 by $365 and enter the result.	
25. If you have submitted a permit renewal application since the last time you paid fees enter $520, otherwise enter "0"	
26. Sum line 22, 24, and 25 and enter the result. This is the GHG fee adjustment	0
OTHER ADJUSTMENTS	
26. Add the total on line 21 and the total on line 26 and enter the result.	3445.00
27. Enter any underpayment from line 9 or 19 here. Otherwise enter "0."	

28. Enter any overpayment from line 10 or 20 here. Otherwise enter "0."	
29. If line 28 is greater than "0," add it to line 27 and enter the result here. If line 29 is greater than "0," subtract this from line 27 and enter the result here. Otherwise enter the amount on line 27 here. This is the fee adjusted	
30. Enter any credit for fee assessment error here. Otherwise, enter "0."	
31. Subtract line 31 from line 30 and enter the result here. Stop here. This is the **TOTAL FEE (AFTER ADJUSTMENTS)** that you must remit to EPA.	3445.00

United States Environmental Protection Agency

OMB No. 2060-0336, Expires 11/30/2022

Federal Operating Permit Program (40 CFR Part 71)
FEE FILING FORM (FF)

The purpose of this form is to ensure that fee payments made by check are credited to the proper facility and to the proper government account. Send this form, along with form FEE and the check, to the appropriate lockbox bank address listed on the following page. This form is required whenever you pay by check, including for initial fee payment and to pay annual fees. Part 71 fees may be paid by check or electronically, and further information on making payments by check or electronically is provided on the following page.

Source or Facility Name: Ward-Roehr CTB

Source Location:

EPA Region where Source Located: 8

Mailing Address:

Street/P.O. Box: 3172 Hwy 22 N

City: Dickinson

State: ND ZIP: 58601

Contact Person: Michelle McCracken

Title: HES Professional

Telephone: (713) 296-3772

Total Fee Payment Remitted: $3,288.92 2022-2023

United States Environmental Protection Agency

OMB No. 2060-0336, Expires 11/30/2022

Federal Operating Permit Program (40 CFR Part 71)
FEE CALCUALTION WORKSHEET (FEE)

Use this form initially, or thereafter on an annual basis, to calculate part 71 fees.

A. General Information

Type of fee (Check one): ____ Initial ____X____ Annual

Deadline for submitting fee calculation worksheet 1/11/2023

For initial fees, emissions are based on (Check one):

____X____ Actual emissions for the preceding calendar year. (Required in most circumstances.)

_____ Estimates of actual emissions for the current calendar year. (Required when operations commenced during the preceding calendar year.)

Date commenced operations 1/11/2022

_____ Estimates of actual emissions for the preceding calendar year. (Optional after a part 71 permit was issued to replace a part 70 permit, but only if initial fee payment is due between January 1 and March 31; otherwise use actual emissions for the preceding calendar year.)

For annual fee payment, you are required to use actual emissions for the preceding calendar year.

B. Source Information: Complete this section only if you are paying fees but not applying for a permit.

Source or facility name _____

Mailing address: Street or P.O. Box _____

City _____ State _____ ZIP _____

Contact person _____ Title _____

Telephone _____ Part 71 permit no. _____

C. Certification of Truth, Accuracy and Completeness: Only needed if not submitting a separate form CTAC.

I certify under penalty of law, based on information and belief formed after reasonable inquiry, the statements and information contained in this submittal (form and attachments) are true, accurate and complete.

Name (signed) _____

Name (typed) _____ Date ____/____/____

D. Annual Emissions Report for Fee Calculation Purposes -- Non-HAP

You may use this to report actual emissions (tons per year) of regulated pollutants (for fee calculation) on a calendar-year basis for both initial and annual fee calculation purposes. Section E is designed to report HAP emissions. Quantify all actual emissions, including fugitives, but do not include insignificant emissions and certain regulated air pollutants that are not counted for fee purposes, such as CO and GHGs (see instructions). Sum the emissions in each column to calculate subtotals. Subtotals should be reported to the nearest tenth (0.1) of a ton at the bottom of the page. If any subtotal exceeds 4,000 tons, enter 4,000 for that column.

This data is for 2022/2023 (year)

Emission Unit ID	NOx	VOC	SO2	PM10	Lead	Other
HT	0.64	0.04	0.00	0.05		
ENG	-	-	-	-		
FUG	--	3.03	--	--		
LOADING	--	0.00	--	--		
OT	Emissions represented at LP Flare					
WT	Emissions represented at LP Flare					
HP Flare	0.37	2.64	--	0		
LP Flare	4.47	34.39	--	0.00		
PNE	--	8.69				
Subtotals	5.48	48.78	0.00	0.05	0	0

E. Annual Emissions Report for Fee Calculation Purposes -- HAP

HAP Identification. Identify individual HAP emitted at the facility, identify the CAS number, and assign a unique identifier for use in the second table in this section. Whenever assigning identifier codes, use "HAP1" for the first, "HAP2" for the second, and so on.

Name of HAP	CAS No	Identifier
Benzene	71-43-2	HAP1
Toluene	108-88-3	HAP2
Ethylbenzene	100-41-4	HAP3
Xylene	1330-20-7	HAP4
n-Hexane	110-54-3	HAP5
2,2,4-Trimethylepentane	540-87-1	HAP6

HAP Emissions. Report the actual emissions of individual HAP identified above. Use the identifiers assigned in the table above. Include all emissions, including fugitives, and do not include insignificant emissions. Sum the emissions in each column to calculate subtotals. Report subtotals to the nearest tenth (0.1) of a ton at the bottom of the page. If any subtotal exceeds 4,000 tons, enter 4,000.

This data is for 2022/2023 (year)

Emission Unit ID	Actual Emissions (Tons/Year)						
	HAP1	HAP2	HAP3	HAP4	HAP5	HAP6	
HT	0.00	0.00	0.00	0.00	0.00	0.00	
ENG	0.00	0.00	0.00	0.00	0.00	0.00	
FUG	0.00	0.02	0.01	0.01	0.06	0.00	
LOADING	0.00	0.00	0.00	0.00	0.00	0.00	
OT	Emissions represented at LP Flare						

WT	Emissions represented at LP Flare						
HP Flare	0.00	0.01	0.00	0.00	0.04	0.00	
LP Flare	0.06	0.17	0.02	0.02	0.69	0.00	
PNE	0.00	0.01	0.00	0.00	0.20	0.00	
Subtotals	0.07	0.21	0.03	0.04	1.00	0.00	

F. Fee Calculation Worksheet

This worksheet is used to calculate the total fee owed (including the emissions-based fee and the GHG fee adjustment) for both initial and annual fee payment purposes. Reconciliation is only for cases where you are paying the annual fee and you used any type of estimate of actual emissions when you calculated the initial fee. If you do not need to reconcile fees, complete line 1-5 (emissions summary) and then skip down to line 21 (emission calculation). See instructions for more detailed explanation.

EMISSIONS SUMMARY

1. Sum the subtotals from section D of this form (non-HAP) and enter the total, rounded to the nearest tenth (0.1) of a ton.	54.31
2. Sum the subtotals from section E of this form (HAP) and enter the total, rounded to the nearest tenth (0.1) of a ton.	1.35
3. Sum lines 1 and 2.	55.65
4. Enter the emissions that were counted twice. If none, enter "0."	1.35
5. Subtract line 4 from line 3, round to the nearest ton, and enter the result here. This is the total emissions that count for fees purposes.	54.31

RECONCILIATION
(WHEN INITIAL FEES WERE BASED ON ESTIMATES FOR THE "CURRENT" CALENDAR YEAR)

Only complete lines 6-10 if you are paying the first annual fee and initial fees were based on estimated actual emissions for the calendar year in which you paid initial fees; otherwise skip to line 11 or to line 21.

6. Enter the total estimated actual emissions for the year the initial fee was paid (previously reported on line 5 of the initial fee form).	
7. If line 5 is greater than line 6, subtract line 6 from line 5, and enter the result. Otherwise enter "0."	
8. If line 6 is greater than line 5, subtract line 5 from line 6, and enter the result. Otherwise enter "0."	
9. If line 7 is greater than 0, multiply line 7 by last year's fee rate ($/ton) and enter the result here. This is the underpayment. Go to line 21.	
10. If line 8 is greater than 0, multiply line 8 by last year's fee rate ($/ton) and enter the result here. This is the overpayment. Go to line 21.	

RECONCILIATION
(WHEN INITIAL FEES WERE BASED ON ESTIMATES FOR THE "PRECEDING" CALENDAR YEAR)

Only complete lines 11-20 if you are paying the first annual fee and initial fees were based on estimated actual emissions for the calendar year preceding initial fee payment; otherwise skip to line 21. If completing this section, you will also need to complete sections D and E to report actual emissions for the calendar year preceding initial fee payment.

11. Sum the actual emissions from section D (non-HAP) for the calendar year preceding initial fee payment and enter the result here.	
12. Sum the actual emissions from section E (HAP) for the calendar year preceding initial fee payment and enter the result here.	
13. Add lines 11 and 12 and enter the total here. These are total actual emissions for the calendar year preceding initial fee payment.	
14. Enter double counted emission from line 13 here. If none, enter "0."	
15. Subtract line 14 from line 13, round to the nearest ton, and enter the result here.	
16. Enter the total estimated actual emissions previously reported on line 5 of the initial fee form. These are estimated actual emissions for the	
17. If line 15 is greater than line 16, subtract line 16 from line 15, and enter the result here. Otherwise enter "0."	
18. If line 16 is greater than line 15, subtract line 15 from line 16, and enter the result here. Otherwise enter "0."	
19. If line 17 is greater than 0, multiply line 17 by last year's fee rate ($/ton) and enter the result here. This is the underpayment.	
20. If line 18 is greater than 0, multiply line 18 by last year's fee rate ($/ton) and enter the result on this line. This is the overpayment.	
EMISSION FEE CALCULATION	
21. Multiply line 5 (tons) by the current fee rate ($/ton) and enter the result here. This is the unadjusted emissions fee. Continue on to line 23.	3288.92

GHG FEE ADJUSTMENT	
22. If you are submitting an initial permit application and this is the first time you are paying fees, enter $2,236, otherwise enter "0". [Note that any updates to the initial application are covered under this one-time charge.]	
23. Enter the number of permit modifications (or related permit actions) you have submitted to the permitting authority since you last paid fees. If none, skip to line 25.	
24. Multiply the number in line 23 by $365 and enter the result.	
25. If you have submitted a permit renewal application since the last time you paid fees enter $520, otherwise enter "0"	
26. Sum line 22, 24, and 25 and enter the result. This is the GHG fee adjustment	0
OTHER ADJUSTMENTS	
26. Add the total on line 21 and the total on line 26 and enter the result.	3288.92
27. Enter any underpayment from line 9 or 19 here. Otherwise enter "0."	
28. Enter any overpayment from line 10 or 20 here. Otherwise enter "0."	
29. If line 28 is greater than "0," add it to line 27 and enter the result here. If line 29 is greater than "0," subtract this from line 27 and enter the result here. Otherwise enter the amount on line 27 here. This is the fee adjusted	
30. Enter any credit for fee assessment error here. Otherwise, enter "0."	
31. Subtract line 31 from line 30 and enter the result here. Stop here. This is the **TOTAL FEE (AFTER ADJUSTMENTS)** that you must remit to EPA.	3288.92

Marathon Oil Company
990 Town & Country Boulevard
Houston, TX 77001-669

Remittance Advice

To	Remittance Address
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION II 290 BROADWAY 17TH FLOOR NEW YORK NY 10007-1866 Attn: Accounts Receivable	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION II 290 BROADWAY 17TH FLOOR NEW YORK NY 10007-1866

Vendor No.: 5005415
Deposit Date: 04/28/2023
Remittance Advice The Payment for the following invoices will be deposited on the above **deposit date** to your bank account **XXXXXX9008, US ENVIRONMENTAL PROTECTION AGENCY,** through the Automated Clearing House (ACH). If you have questions, please contact the AP Supplier Hotline 866-323-1836 or for Joint Venture contact 866-925-6093. You can also email OpenInvoiceSupport@marathonoil.com.

Invoice Number	Inv Date	Document Number/Text	Gross Amount	Disc/WHTax	Net Amount
0423 UN2060348	04/24/2023	1900002177 *Ward Title V*	20,603.48	0.00	20,603.48
		Total		**USD**	**20,603.48**

Attachment 2

Certification of Truth, Accuracy, and Completeness

EPA United States Environmental Protection Agency

OMB No. 2060-0336, Expires 11/30/2022

Federal Operating Permit Program (40 CFR Part 71)
CERTIFICATION OF TRUTH, ACCURACY, AND COMPLETENESS (CTAC)

This form must be completed, signed by the "Responsible Official" designated for the facility or emission unit, and sent with each submission of documents (i.e., application forms, updates to applications, reports, or any information required by a part 71 permit).

A. Responsible Official

Name: (Last) Parker (First) Jeff

Title Production Manager

Street or P.O. Box 3172 Highway 22 N

City Dickinson State ND ZIP 58601

Telephone (701) 456-7502 Facsimile (701) 456-7545

B. Certification of Truth, Accuracy and Completeness (to be signed by the responsible official)

I 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.

Name (signed) Jeff Parker

Name (typed) Jeff Parker Date 03/16/2023

Attachment 3

Request to Withdraw Title V

Michelle McCracken
HES Professional

Marathon Oil Company
990 Town and Country Blvd.
Houston, TX 77024
(713) 296-3272
mmccracken@marathonoil.com

January 11, 2023

Ms. Claudia Smith
Minor NSR Permitting Coordinator
U.S. EPA, Region 8
1595 Wynkoop Street, 8P-AR
Denver, Colorado 80202-1129

Dear Ms. Smith:

Marathon Oil Company (Marathon) requests rescindment of the Title V application for the Ward-Roehr USA CTB well pad.

- A Title V permit application was submitted on August 15, 2022, covering the period from January 11, 2015 to January 10, 2016.
- Beginning January 11, 2016, facility-wide actual annual emissions of each criteria pollutant were less than 100 tons per year (tpy).
- Applicable emissions fees were paid for the periods of January 11, 2015 to January 10, 2016 and January 11, 2016 to January 10, 2017.
- A Part 2 registration was submitted January 11, 2023 indicating facility-wide potential annual emissions below 100 tpy for each criteria pollutant.

Wells producing into the facility are listed below.

Well Name	**API Number**
Angela Ward USA 24-7H	33-025-02629
Dellana Ward USA 14-7TFH	33-025-02630
Ward USA 24-7TFH	33-025-02074
Roehr USA 34-7H	33-025-02043

Please do not hesitate to contact me at the email address or telephone number shown above if you have any questions or require additional information.

Sincerely,

Michelle McCracken

Enclosures

Attachment 1

Actual Annual Emissions and Fees

Michelle McCracken
HES Professional

Marathon Oil Company
990 Town and Country Blvd
Houston, TX 77024
(713) 296-3272
mmccracken@marathonoil.com

August 16, 2022

U.S. EPA
OCFO/OC/ACAD/FCB
Attn: Collections Team
1300 Pennsylvania Ave NW
Mail Code 2733R
Washington, DC 20004

Marathon Oil Company's (Marathon) Ward-Roehr CTB well pad has become subject to permitting requirements under 40 CFR Part 71 Federal Operating Permit Program. Attached is the Part 71 permit application fee payment.

If you have any questions or require additional information concerning this submittal, please contact me at the telephone number or email address indicated above.

Sincerely,

Michelle McCracken

Michelle McCracken

United States Environmental Protection Agency

OMB No. 2060-0336, Expires 11/30/2022

Federal Operating Permit Program (40 CFR Part 71)
FEE FILING FORM (FF)

The purpose of this form is to ensure that fee payments made by check are credited to the proper facility and to the proper government account. Send this form, along with form FEE and the check, to the appropriate lockbox bank address listed on the following page. This form is required whenever you pay by check, including for initial fee payment and to pay annual fees. Part 71 fees may be paid by check or electronically, and further information on making payments by check or electronically is provided on the following page.

Source or Facility Name	Ward-Roehr CTB well pad
Source Location	47.281392 N, -102.272122 W
EPA Region where Source Located	8
Mailing Address:	
Street/P.O. Box	3172 Highway 22 N
City	Dickinson
State	ND
ZIP	58601
Contact Person:	Michelle McCracken
Title	HSE Professional
Telephone	(713) 296-3772
Total Fee Payment Remitted:	$11,680.44

United States Environmental Protection Agency

OMB No. 2060-0336, Expires 11/30/2022

Federal Operating Permit Program (40 CFR Part 71)
FEE CALCUALTION WORKSHEET (FEE)

Use this form initially, or thereafter on an annual basis, to calculate part 71 fees.

A. General Information

Type of fee (Check one): X Initial _____ Annual

Deadline for submitting fee calculation worksheet 1/15/2016

For initial fees, emissions are based on (Check one):

X Actual emissions for the preceding calendar year. (Required in most circumstances.)

_____ Estimates of actual emissions for the current calendar year. (Required when operations commenced during the preceding calendar year.)

Date commenced operations 1/15/2015

_____ Estimates of actual emissions for the preceding calendar year. (Optional after a part 71 permit was issued to replace a part 70 permit, but only if initial fee payment is due between January 1 and March 31; otherwise use actual emissions for the preceding calendar year.)

For annual fee payment, you are required to use actual emissions for the preceding calendar year.

B. Source Information: Complete this section only if you are paying fees but not applying for a permit.

Source or facility name _____

Mailing address: Street or P.O. Box _____

City _____ State _____ ZIP _____

Contact person _____ Title _____

Telephone / / _____ Part 71 permit no. _____

C. Certification of Truth, Accuracy and Completeness: Only needed if not submitting a separate form CTAC.

I certify under penalty of law, based on information and belief formed after reasonable inquiry, the statements and information contained in this submittal (form and attachments) are true, accurate and complete.

Name (signed) _____

Name (typed) _____ Date / /

D. Annual Emissions Report for Fee Calculation Purposes -- Non-HAP

You may use this to report actual emissions (tons per year) of regulated pollutants (for fee calculation) on a calendar-year basis for both initial and annual fee calculation purposes. Section E is designed to report HAP emissions. Quantify all actual emissions, including fugitives, but do not include insignificant emissions and certain regulated air pollutants that are not counted for fee purposes, such as CO and GHGs (see instructions). Sum the emissions in each column to calculate subtotals. Subtotals should be reported to the nearest tenth (0.1) of a ton at the bottom of the page. If any subtotal exceeds 4,000 tons, enter 4,000 for that column.

This data is for 2015/2016 (year)

Emission Unit ID	NOx	VOC	SO2	PM10	Lead	Other
HT	0.6	0.0	0.0	0.0	0.0	0.0
Engines	0.0	0.0	0.0	0.0	0.0	0.0
FUG	0.0	3.3	0.0	0.0	0.0	0.0
LOAD	0.0	51.3	0.0	0.0	0.0	0.0
OT	All OT now represented at LP Flare					
WT	All WT now represented at LP Flare					
HP Flare	0.0	0.2	0.0	0.0	0.0	0.0
MP Flare	0.0	0.0	0.0	0.0	0.0	0.0
LP Flare	4.5	51.7	0.0	0.0	0.0	0.0
Pneumatics	0.0	2.9	0.0	0.0	0.0	0.0
Subtotals	5.2	109.4	0.0	0.0	0.0	0.0

E. Annual Emissions Report for Fee Calculation Purposes -- HAP

HAP Identification. Identify individual HAP emitted at the facility, identify the CAS number, and assign a unique identifier for use in the second table in this section. Whenever assigning identifier codes, use "HAP1" for the first, "HAP2" for the second, and so on.

Name of HAP	CAS No	Identifier
Benzene	71-43-2	HAP1
Toluene	108-88-3	HAP2
Ethylbenzene	100-41-4	HAP3
Xylene	1330-20-7	HAP4
n-Hexane	110-54-3	HAP5
2,2,4-Trimethylepentane	540-87-1	HAP6
Formaldehyde	50-00-0	HAP7

HAP Emissions. Report the actual emissions of individual HAP identified above. Use the identifiers assigned in the table above. Include all emissions, including fugitives, and do not include insignificant emissions. Sum the emissions in each column to calculate subtotals. Report subtotals to the nearest tenth (0.1) of a ton at the bottom of the page. If any subtotal exceeds 4,000 tons, enter 4,000.

This data is for 2015/2016 (year)

Emission Unit ID	Actual Emissions (Tons/Year)						
	HAP1	HAP2	HAP3	HAP4	HAP5	HAP6	HAP7
HT	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Engines	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FUG	0.0	0.0	0.0	0.0	0.1	0.0	0.0
LOAD	0.0	0.1	0.0	0.0	0.6	0.0	0.0
OT	All OT now represented at LP Flare						
WT	All WT now represented at LP Flare						
HP Flare	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MP Flare	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LP Flare	0.1	0.3	0.0	0.0	1.3	0.0	0.0
Pneumatics	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Subtotals	0.1	0.4	0.1	0.1	2.0	0.0	0.0

F. Fee Calculation Worksheet

This worksheet is used to calculate the total fee owed (including the emissions-based fee and the GHG fee adjustment) for both initial and annual fee payment purposes. Reconciliation is only for cases where you are paying the annual fee and you used any type of estimate of actual emissions when you calculated the initial fee. If you do not need to reconcile fees, complete line 1-5 (emissions summary) and then skip down to line 21 (emission calculation). See instructions for more detailed explanation.

EMISSIONS SUMMARY

1. Sum the subtotals from section D of this form (non-HAP) and enter the total, rounded to the nearest tenth (0.1) of a ton.	114.6
2. Sum the subtotals from section E of this form (HAP) and enter the total, rounded to the nearest tenth (0.1) of a ton.	2.6
3. Sum lines 1 and 2.	117.3
4. Enter the emissions that were counted twice. If none, enter "0."	2.6
5. Subtract line 4 from line 3, round to the nearest ton, and enter the result here. This is the total emissions that count for fees purposes.	114.6
RECONCILIATION (WHEN INITIAL FEES WERE BASED ON ESTIMATES FOR THE "CURRENT" CALENDAR YEAR) Only complete lines 6-10 if you are paying the first annual fee and initial fees were based on estimated actual emissions for the calendar year in which you paid initial fees; otherwise skip to line 11 or to line 21.	
6. Enter the total estimated actual emissions for the year the initial fee was paid (previously reported on line 5 of the initial fee form).	
7. If line 5 is greater than line 6, subtract line 6 from line 5, and enter the result. Otherwise enter "0."	
8. If line 6 is greater than line 5, subtract line 5 from line 6, and enter the result. Otherwise enter "0."	
9. If line 7 is greater than 0, multiply line 7 by last year's fee rate ($/ton) and enter the result here. This is the underpayment. Go to line 21.	
10. If line 8 is greater than 0, multiply line 8 by last year's fee rate ($/ton) and enter the result here. This is the overpayment. Go to line 21.	

RECONCILIATION (WHEN INITIAL FEES WERE BASED ON ESTIMATES FOR THE "PRECEDING" CALENDAR YEAR) Only complete lines 11-20 if you are paying the first annual fee and initial fees were based on estimated actual emissions for the calendar year preceding initial fee payment; otherwise skip to line 21. If completing this section, you will also need to complete sections D and E to report actual emissions for the calendar year preceding initial fee payment.	
11. Sum the actual emissions from section D (non-HAP) for the calendar year preceding initial fee payment and enter the result here.	
12. Sum the actual emissions from section E (HAP) for the calendar year preceding initial fee payment and enter the result here.	
13. Add lines 11 and 12 and enter the total here. These are total actual emissions for the calendar year preceding initial fee payment.	
14. Enter double counted emission from line 13 here. If none, enter "0."	
15. Subtract line 14 from line 13, round to the nearest ton, and enter the result here.	
16. Enter the total estimated actual emissions previously reported on line 5 of the initial fee form. These are estimated actual emissions for	
17. If line 15 is greater than line 16, subtract line 16 from line 15, and enter the result here. Otherwise enter "0."	
18. If line 16 is greater than line 15, subtract line 15 from line 16, and enter the result here. Otherwise enter "0."	
19. If line 17 is greater than 0, multiply line 17 by last year's fee rate ($/ton) and enter the result here. This is the underpayment.	
20. If line 18 is greater than 0, multiply line 18 by last year's fee rate ($/ton) and enter the result on this line. This is the overpayment.	
EMISSION FEE CALCULATION	
21. Multiply line 5 (tons) by the current fee rate ($/ton) and enter the result here. This is the unadjusted emissions fee. Continue on to line 23.	6446.72

GHG FEE ADJUSTMENT	
22. If you are submitting an initial permit application and this is the first time you are paying fees, enter $2,236, otherwise enter “0”. [Note that any updates to the initial application are covered under this one-time charge.]	2236
23. Enter the number of permit modifications (or related permit actions) you have submitted to the permitting authority since you last paid fees. If none, skip to line 25.	
24. Multiply the number in line 23 by $365 and enter the result.	
25. If you have submitted a permit renewal application since the last time you paid fees enter $520, otherwise enter “0”	
26. Sum line 22, 24, and 25 and enter the result. This is the GHG fee adjustment	2236
OTHER ADJUSTMENTS	
26. Add the total on line 21 and the total on line 26 and enter the result.	8682.72
27. Enter any underpayment from line 9 or 19 here. Otherwise enter "0."	
28. Enter any overpayment from line 10 or 20 here. Otherwise enter "0."	
here. If line 29 is greater than "0," subtract this from line 27 and enter the result here. Otherwise enter the amount on line 27 here. This is the fee adjusted for over/underpayment.	
30. Enter any credit for fee assessment error here. Otherwise, enter "0."	
31. Subtract line 31 from line 30 and enter the result here. Stop here. This is the **TOTAL FEE (AFTER ADJUSTMENTS)** that you must remit to EPA.	8682.72

United States Environmental Protection Agency

OMB No. 2060-0336, Expires 11/30/2022

Federal Operating Permit Program (40 CFR Part 71)
FEE CALCUALTION WORKSHEET (FEE)

Use this form initially, or thereafter on an annual basis, to calculate part 71 fees.

A. General Information

Type of fee (Check one): _____ Initial X Annual

Deadline for submitting fee calculation worksheet 1/14/2017

For initial fees, emissions are based on (Check one):

X Actual emissions for the preceding calendar year. (Required in most circumstances.)

_____ Estimates of actual emissions for the current calendar year. (Required when operations commenced during the preceding calendar year.)

Date commenced operations 1/15/2015

_____ Estimates of actual emissions for the preceding calendar year. (Optional after a part 71 permit was issued to replace a part 70 permit, but only if initial fee payment is due between January 1 and March 31; otherwise use actual emissions for the preceding calendar year.)

For annual fee payment, you are required to use actual emissions for the preceding calendar year.

B. Source Information: Complete this section only if you are paying fees but not applying for a permit.

Source or facility name _____

Mailing address: Street or P.O. Box _____

City _____ State _____ ZIP _____

Contact person _____ Title _____

Telephone / / Part 71 permit no. _____

C. Certification of Truth, Accuracy and Completeness: Only needed if not submitting a separate form CTAC.

I certify under penalty of law, based on information and belief formed after reasonable inquiry, the statements and information contained in this submittal (form and attachments) are true, accurate and complete.

Name (signed) _____

Name (typed) _____ Date / /

D. Annual Emissions Report for Fee Calculation Purposes -- Non-HAP

You may use this to report actual emissions (tons per year) of regulated pollutants (for fee calculation) on a calendar-year basis for both initial and annual fee calculation purposes. Section E is designed to report HAP emissions. Quantify all actual emissions, including fugitives, but do not include insignificant emissions and certain regulated air pollutants that are not counted for fee purposes, such as CO and GHGs (see instructions). Sum the emissions in each column to calculate subtotals. Subtotals should be reported to the nearest tenth (0.1) of a ton at the bottom of the page. If any subtotal exceeds 4,000 tons, enter 4,000 for that column.

This data is for 2016/2017 (year)

Emission Unit ID	NOx	VOC	SO2	PM10	Lead	Other
HT	0.6	0.0	0.0	0.0	0.0	0.0
Engines	0.0	0.0	0.0	0.0	0.0	0.0
FUG	0.0	3.3	0.0	0.0	0.0	0.0
LOAD	0.0	28.1	0.0	0.0	0.0	0.0
OT	All OT now represented at LP Flare					
WT	All WT now represented at LP Flare					
HP Flare	0.0	0.2	0.0	0.0	0.0	0.0
MP Flare	0.0	0.0	0.0	0.0	0.0	0.0
LP Flare	1.5	16.5	0.0	0.0	0.0	0.0
Pneumatics	0.0	2.9	0.0	0.0	0.0	0.0
Subtotals	2.1	51.1	0.0	0.0	0.0	0.0

E. Annual Emissions Report for Fee Calculation Purposes -- HAP

HAP Identification. Identify individual HAP emitted at the facility, identify the CAS number, and assign a unique identifier for use in the second table in this section. Whenever assigning identifier codes, use "HAP1" for the first, "HAP2" for the second, and so on.

Name of HAP	CAS No	Identifier
Benzene	71-43-2	HAP1
Toluene	108-88-3	HAP2
Ethylbenzene	100-41-4	HAP3
Xylene	1330-20-7	HAP4
n-Hexane	110-54-3	HAP5
2,2,4-Trimethylepentane	540-87-1	HAP6
Formaldehyde	50-00-0	HAP7

HAP Emissions. Report the actual emissions of individual HAP identified above. Use the identifiers assigned in the table above. Include all emissions, including fugitives, and do not include insignificant emissions. Sum the emissions in each column to calculate subtotals. Report subtotals to the nearest tenth (0.1) of a ton at the bottom of the page. If any subtotal exceeds 4,000 tons, enter 4,000.

This data is for 2016/2017 (year)

Emission Unit ID	Actual Emissions (Tons/Year)						
	HAP1	HAP2	HAP3	HAP4	HAP5	HAP6	HAP7
HT							
Engines	0.0	0.0	0.0	0.0	0.0		0.0
FUG	0.0	0.0	0.0	0.0	0.1	0.0	0.0
LOAD	0.0	0.1	0.0	0.0	0.4	0.0	
OT	All OT now represented at LP Flare						
WT	All WT now represented at LP Flare						
HP Flare	0.0	0.0	0.0	0.0	0.0	0.0	
MP Flare	0.0	0.0	0.0	0.0		0.0	0.0
LP Flare	0.0	0.1	0.0	0.0	0.4		
Pneumatics	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Subtotals	0.1	0.2	0.0	0.0	0.9	0.0	0.0

F. Fee Calculation Worksheet

This worksheet is used to calculate the total fee owed (including the emissions-based fee and the GHG fee adjustment) for both initial and annual fee payment purposes. Reconciliation is only for cases where you are paying the annual fee and you used any type of estimate of actual emissions when you calculated the initial fee. If you do not need to reconcile fees, complete line 1-5 (emissions summary) and then skip down to line 21 (emission calculation). See instructions for more detailed explanation.

EMISSIONS SUMMARY

1. Sum the subtotals from section D of this form (non-HAP) and enter the total, rounded to the nearest tenth (0.1) of a ton.	53.3
2. Sum the subtotals from section E of this form (HAP) and enter the total, rounded to the nearest tenth (0.1) of a ton.	1.2
3. Sum lines 1 and 2.	54.5
4. Enter the emissions that were counted twice. If none, enter "0."	1.2
5. Subtract line 4 from line 3, round to the nearest ton, and enter the result here. This is the total emissions that count for fees purposes.	53.3
RECONCILIATION (WHEN INITIAL FEES WERE BASED ON ESTIMATES FOR THE "CURRENT" CALENDAR YEAR) Only complete lines 6-10 if you are paying the first annual fee and initial fees were based on estimated actual emissions for the calendar year in which you paid initial fees; otherwise skip to line 11 or to line 21.	
6. Enter the total estimated actual emissions for the year the initial fee was paid (previously reported on line 5 of the initial fee form).	
7. If line 5 is greater than line 6, subtract line 6 from line 5, and enter the result. Otherwise enter "0."	
8. If line 6 is greater than line 5, subtract line 5 from line 6, and enter the result. Otherwise enter "0."	
9. If line 7 is greater than 0, multiply line 7 by last year's fee rate ($/ton) and enter the result here. This is the underpayment. Go to line 21.	
10. If line 8 is greater than 0, multiply line 8 by last year's fee rate ($/ton) and enter the result here. This is the overpayment. Go to line 21.	

RECONCILIATION (WHEN INITIAL FEES WERE BASED ON ESTIMATES FOR THE "PRECEDING" CALENDAR YEAR) Only complete lines 11-20 if you are paying the first annual fee and initial fees were based on estimated actual emissions for the calendar year preceding initial fee payment; otherwise skip to line 21. If completing this section, you will also need to complete sections D and E to report actual emissions for the calendar year preceding initial fee payment.	
11. Sum the actual emissions from section D (non-HAP) for the calendar year preceding initial fee payment and enter the result here.	
12. Sum the actual emissions from section E (HAP) for the calendar year preceding initial fee payment and enter the result here.	
13. Add lines 11 and 12 and enter the total here. These are total actual emissions for the calendar year preceding initial fee payment.	
14. Enter double counted emission from line 13 here. If none, enter "0."	
15. Subtract line 14 from line 13, round to the nearest ton, and enter the result here.	
16. Enter the total estimated actual emissions previously reported on line 5 of the initial fee form. These are estimated actual emissions for	
17. If line 15 is greater than line 16, subtract line 16 from line 15, and enter the result here. Otherwise enter "0."	
18. If line 16 is greater than line 15, subtract line 15 from line 16, and enter the result here. Otherwise enter "0."	
19. If line 17 is greater than 0, multiply line 17 by last year's fee rate ($/ton) and enter the result here. This is the underpayment.	
20. If line 18 is greater than 0, multiply line 18 by last year's fee rate ($/ton) and enter the result on this line. This is the overpayment.	
EMISSION FEE CALCULATION	
21. Multiply line 5 (tons) by the current fee rate ($/ton) and enter the result here. This is the unadjusted emissions fee. Continue on to line 23.	2997.72

GHG FEE ADJUSTMENT	
22. If you are submitting an initial permit application and this is the first time you are paying fees, enter $2,236, otherwise enter “0”. [Note that any updates to the initial application are covered under this one-time charge.]	0
23. Enter the number of permit modifications (or related permit actions) you have submitted to the permitting authority since you last paid fees. If none, skip to line 25.	
24. Multiply the number in line 23 by $365 and enter the result.	
25. If you have submitted a permit renewal application since the last time you paid fees enter $520, otherwise enter “0”	
26. Sum line 22, 24, and 25 and enter the result. This is the GHG fee adjustment	0
OTHER ADJUSTMENTS	
26. Add the total on line 21 and the total on line 26 and enter the result.	2997.72
27. Enter any underpayment from line 9 or 19 here. Otherwise enter "0."	
28. Enter any overpayment from line 10 or 20 here. Otherwise enter "0."	
here. If line 29 is greater than "0," subtract this from line 27 and enter the result here. Otherwise enter the amount on line 27 here. This is the fee adjusted for over/underpayment.	
30. Enter any credit for fee assessment error here. Otherwise, enter "0."	
31. Subtract line 31 from line 30 and enter the result here. Stop here. This is the **TOTAL FEE (AFTER ADJUSTMENTS)** that you must remit to EPA.	2997.72

Check No	Check Date	Bank	Bank No	Vendor No	Marathon Oil Company 990 Town and Country Blvd. Houston, TX 77024	Direct Inquiries to: ACCOUNTS PAYABLE DEPARTMENT Accounts Payable Phone: 866-323-1836	Hndlg
1497531	08/16/2022	NCBA	7780	0005004375			ND

Invoice Number	Invoice Date	Document No	Remit Comment	Gross Amount	Discount	Invoice/Pay Amount
0822 EP1168044		1900004334		11,680.44		11,680.44
			TOTAL:	11,680.44		11,680.44

(FOLD ON PERFORATION BELOW AND DETACH CHECK STUB BEFORE DEPOSITING)

DO NOT CASH UNLESS WARNING BAND AND THE CHECK BACKGROUND ARE IN VIOLET. THE LINE BELOW CONTAINS MICROPRINTING.

FORM 2501 REV. 5/00

ACCOUNTS PAYABLE CHECK

Marathon Oil Company
990 Town and Country Blvd.
Houston, TX 77024

56-389 / 412

CHECK DATE 8/16/2022

CHECK NUMBER 1497531

Eleven thousand six hundred eighty and 44/100 Dollars

$11,680.44

PAY TO THE ORDER OF:

EPA US ENVIRONMENTAL PROTECTION
AGENCY
CINCINNATI FINACNCE CENTER
ST LOUIS, MO 63197-9000

U.S. Funds

MATCH AMOUNT IN WORDS WITH NUMBERS

By: _____
Authorized Representative

PNC Bank, N.A. 070
Ashland, OH

VOID AFTER 180 DAYS

DO NOT CASH UNLESS THIS CHECK IS ON WATERMARKED PAPER. HOLD TO LIGHT TO VIEW. THE LINE ABOVE CONTAINS MICROPRINTING.

⑈0001497531⑈ ⑆041203895⑆ 4239711179⑈

Attachment 2

Potential Annual Emissions

Michelle McCracken
HES Professional

Marathon Oil Company
990 Town and Country Blvd.
Houston, TX 77024
(713) 296-3272
mmccracken@marathonoil.com

January 13, 2023

Ms. Claudia Smith
Minor NSR Permitting Coordinator
U.S. EPA, Region 8
1595 Wynkoop Street, 8P-AR
Denver, Colorado 80202-1129

Dear Ms. Smith:
Enclosed please find an updated Part 2 registration form for the Ward-Roehr USA CTB pad. This submittal adjusts production volumes. Wells producing into the facility are listed below.

Well Name	API Number
Angela Ward USA 24-7H	33-025-02629
Dellana Ward USA 14-7TFH	33-025-02630
Ward USA 24-7TFH	33-025-02074
Roehr USA 34-7H	33-025-02043

Please do not hesitate to contact me if you have any questions regarding this registration.

Sincerely,

Michelle McCracken

Michelle McCracken
Enclosures

EPA Form No. 5900-391
EPA ICR No. 1230.27
OMB Control No. 2060-0003
Approval expires 10/31/2020

United States Environmental Protection Agency
https://www.epa.gov/tribal-air/tribal-minor-new-source-review
April 29, 2019

Part 2: Submit Within 60 Days After Startup of Production -- Emission and Production Information

FEDERAL IMPLEMENTATION PLAN FOR TRUE MINOR SOURCES IN INDIAN COUNTRY IN THE OIL AND NATURAL GAS PRODUCTION AND NATURAL GAS PROCESSING SEGMENTS OF THE OIL AND NATURAL GAS SECTOR

Registration for New True Minor Oil and Natural Gas Sources and Minor Modifications at Existing True Minor Oil and Natural Gas Sources

Please submit information to:

[Reviewing Authority Address Phone]	Claudia Smith Minor NSR Permitting Coordinator U.S. EPA, Region 8 1595 Wynkoop Street, 8P-AR Denver, CO 80202-1129

A. GENERAL SOURCE INFORMATION (See Instructions Below)

1. Company Name	**2. Source Name**
Marathon Oil Company	Ward-Roehr USA CTB pad
3. Type of Oil and Natural Gas Operation oil and gas well-site	**4. New Minor Source?** ☐ Yes ■ No **5. True Source Modification?** ■ Yes ☐ No
6. NAICS Code 211111	**7. SIC Code** 1311
8. U.S. Well ID(s) or API Number(s) [if applicable] 33-025-02629, 33-025-02630, 33-025-02074, 33-025-02043	

9. Area of Indian Country	**10. County**	**11a. Latitude**	**11b. Longitude**
Fort Berthold	Dunn	47.281392	-102.272122

B. CONTACT INFORMATION (See Instructions Below)

1. Owner Name Jeff Parker	Title Operations Manager
Mailing Address 3172 Hwy 22 N, Dickinson, ND 58601	
Email Address jrparker@marathonoil.com	
Telephone Number (701) 456-7500	Facsimile Number (701) 456-7525
2. Operator Name (if different from owner)	Title
Mailing Address	
Email Address	
Telephone Number	Facsimile Number
3. Source Contact Michelle McCracken	Title HES Professional
Mailing Address 990 Town and Country Blvd, Houston, TX 77024	
Email Address mmccracken@marathonoil.com	
Telephone Number (713) 296-3272	Facsimile Number (701) 456-7525

4. Compliance Contact	Title
Jeff Parker	Operations Manager
Mailing Address	
3172 Hwy 22 N, Dickinson, ND 58601	
Email Address	
jrparker@marathonoil.com	
Telephone Number	Facsimile Number
(701) 456-7500	(701) 456-7525

C. EMISSIONS AND OTHER SOURCE INFORMATION

Include all of the following information in the table below and as attachments to this form:

Note: The emission estimates can be based upon actual test data or, in the absence of such data, upon procedures acceptable to the Reviewing Authority. The following procedures are generally acceptable for estimating emissions from air pollution sources: (1) unit-specific emission tests; (2) mass balance calculations; (3) published, verifiable emission factors that are applicable to the unit (i.e., manufacturer specifications); (4) other engineering calculations; or (5) other procedures to estimate emissions specifically approved by the Reviewing Authority. Guidance for estimating emissions can be found at https://www.epa.gov/chief.

- ■ Narrative description of the operations.
- ■ Identification and description of any air pollution control equipment and compliance monitoring devices or activities.
- ■ Type and actual amount (annually) of each fuel that will be used.
- ■ Type of raw materials used (e.g., water for hydraulic fracturing).
- ■ Actual, annual production rates.
- ■ Actual operating schedules.
- ■ Any existing limitations on source operations affecting emissions or any work practice standards, where applicable, for all regulated New Source Review (NSR) pollutants at your source. Indicate all requirements referenced in the Federal Implementation Plan (FIP) for True Minor Sources in Indian Country in the Oil and Natural Gas Production and Natural Gas Processing Segments of the Oil and Natural Gas Sector that apply to emissions units and air pollution generating activities at the source or proposed. Include statements indicating each emissions unit that is an emissions unit potentially subject to the requirements referenced in the FIP, but does not meet the definition of an affected facility under the referenced requirement, and therefore, is not subject to those requirements.
- ■ For each emissions unit comprising the new source or modification, estimates of the total allowable (potential to emit) annual emissions at startup of production from the air pollution source for the following air pollutants: particulate matter, PM_{10}, $PM_{2.5}$, sulfur oxides ( ), nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compound (VOC), lead (Pb) and lead compounds, fluorides (gaseous and particulate), sulfuric acid mist (H_2SO_4), hydrogen sulfide (H_2S), total reduced sulfur (TRS) and reduced sulfur compounds, including all calculations for the estimates. Allowable annual emissions are defined as: emissions rate of an emissions unit calculated using the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical

or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation, or the effect it would have on emissions, is legally and practically enforceable. You must determine the potential for emissions within 30 days from the startup of production.

☒ For each emissions unit comprising the new source or modification, estimates of the total actual annual emissions during the upcoming, consecutive 12 months from the air pollution source for the following air pollutants: particulate matter (PM, PM_{10}, $PM_{2.5}$), sulfur oxides (SO_x), nitrogen oxides (NOx), carbon monoxide (CO), volatile organic compound (VOC), lead (Pb) and lead compounds, ammonia (NH_3), fluorides (gaseous and particulate), sulfuric acid mist (H_2SO_4), hydrogen sulfide (H_2S), total reduced sulfur (TRS) and reduced sulfur compounds, including all calculations for the estimates. Estimates of actual emissions must take into account equipment, operating conditions, and air pollution control measures. You should calculate an estimate of the actual annual emissions using estimated operating hours, production rates, in-place control equipment, and types of materials processed, stored, or combusted.

D. TABLE OF ESTIMATED EMISSIONS

Provide in the table below estimates of the total allowable annual emissions in tons per year (tpy) and total actual annual emissions (tpy) for the following pollutants for all emissions units comprising the new source or modification.

POLLUTANT	TOTAL ALLOWABLE ANNUAL EMISSIONS (TPY)	TOTAL ACTUAL ANNUAL EMISSIONS (TPY)
PM	0.05	0.05
PM_{10}	0.05	0.05
$PM_{2.5}$	0.05	0.05
SO_x	0.00	0.00
NO_x	1.71	1.71
CO	5.01	5.01
VOC	23.10	23.10
Pb	0.00	0.00

POLLUTANT	TOTAL ALLOWABLE ANNUAL EMISSIONS (TPY)	TOTAL ACTUAL ANNUAL EMISSIONS (TPY)
NH3	0.00	0.00
Fluorides	0.00	0.00
H_2SO_4	0.00	0.00
H_2S	0.00	0.00
TRS	0.00	0.00

Attachment 1

Narrative and Process Flow Diagram

Narrative description of the operations:

The Ward-Roehr USA CTB pad includes the following wells: Angela Ward USA 24-7H, Dellana Ward USA 14-7TFH, Ward USA 24-7TFH, and Roehr USA 34-7H. The Ward-Roehr USA CTB well pad is owned and operated by Marathon Oil Company (Marathon) and located on the Ft. Berthold Indian Reservation in Dunn County, North Dakota. This oil and gas production facility consists of multiple wells and associated onsite equipment (discussed in detail below).

Produced fluid from the formation, initially an emulsion comprised of produced oil, natural gas, and produced water flows or is pumped from the wells to heater treaters. The oil is separated from the produced water and a small amount of gas is also separated. Oil and produced water transfer to above-ground storage tanks while the gas goes to sales or is combusted by a control device with a 98% minimum destruction efficiency. This site may have compressors in order to supply high-pressure gas for artificial lift as well as to compress unsold gas and sell it to a secondary pipeline. This site may contain natural gas liquid (NGL) recovery equipment to remove NGLs from gas prior to sales or combustion.

Produced water may be loaded into tanker trucks for off-site disposal or sent to disposal via pipeline. The oil is loaded into tanker trucks or passes through a Lease Automated Custody Transfer (LACT) unit prior to shipment via pipeline. Finally, storage tanks utilize a control device with a 98% minimum destruction efficiency to reduce emissions from these tanks.

Identification and description of all emission units and air pollution generating activities; include portable equipment:

The following is a narrative of potential emission equipment that may be used at this facility. Site-specific equipment may vary depending on gas sales and equipment placement. Please refer to Table 1 (see below) and Attachment 2 for equipment specific to the location.

1. Electrically-operated pumping units extract produced fluid from the formation. The fluid leaves the production well casing head via underground flowlines and enters heater treaters for separation. The heater treaters are equipped with 500,000 to 2,000,000 Btu/hr burners fueled by natural gas from the well or liquefied petroleum gas (LPG) from a pressurize storage tank. Production from locations where wells share common ownership may be commingled. Under this scenario, multiple heater treaters may be used to determine production rates of individual wells for accounting purposes.
2. Natural gas produced from the heater treaters is routed to the heater treater burner to provide its fuel or to control devices with a 98% destruction efficiency equipped with a continuous automatic igniter and pilot flame with a thermocouple. This device is monitored visually (when personnel are on site) or via the Supervisory Control and Data Acquisition (SCADA) network. Once gas sales line installation is complete, the treater gas is sometimes routed to it. If the temperature of the sales gas is too high, the site may require the use of one or more natural gas-driven coolers to meet sales temperature specification.

3. Produced oil from the heater treaters is routed to multiple vertical above ground fixed-roof storage tanks, where it is stored prior to tanker truck loading via submerged fill lines or custody transfer via a LACT unit. Emissions of regulated air pollutants (i.e., Volatile Organic Compounds (VOCs) and Hazardous Air Pollutants (HAPs)) from working/breathing/flash losses are routed to a control device with a 98% minimum destruction efficiency equipped with a continuous automatic igniter and pilot flame with a thermocouple. This device is monitored visually (when personnel are on site) or via SCADA. Individual produced oil storage tanks may be subject to 40 CFR 60, subpart OOOOa (NSPS OOOOa) because VOC emissions from these tanks exceed the six tons per year (TPY) per tank threshold.
4. Produced water is routed from the heater treaters to vertical above ground fixed-roof storage tanks, where it is stored prior to tanker truck loading or transfer to pipeline. Emissions from produced water tanks are routed to the same control device with a 98% minimum destruction efficiency equipped with a continuous automatic igniter and pilot flame with a thermocouple. This device is monitored visually (when personnel are on site) or via SCADA. Produced water storage tanks are not subject to NSPS OOOOa because emissions from these tanks do not exceed the six TPY of VOC per tank threshold; however, water tanks share the same vent collection system as the oil tanks and therefore may be subject to the rule.
5. Emissions from oil tanker truck loading are evaluated in the attached calculation spreadsheet. Produced water loading emissions are assumed to be negligible.
6. If additional separation is necessary to meet buyer specifications, a recirculation pump is used to recirculate produced oil from storage tanks to the heater treater. This pump is powered by on-site electrical power or a gasoline-powered spark ignition (SI) reciprocating internal combustion engines (RICE) producing eight horsepower (hp). Each SI RICE used is manufactured after July 1, 2008 and certified in accordance with the requirements for new non-road SI engines (40 CFR Part 90) and is operated in accordance with the manufacturer's instructions (40 CFR 60.4243(a)(1)). Additionally, each SI RICE is subject to the maintenance and recordkeeping requirements for SI RICE in 40 CFR 63, subpart ZZZZ effective October 19, 2013.
7. This facility design may include multiple pneumatic controllers on-site. Marathon uses intermittent bleed pneumatic devices powered by pressurized natural gas for flow control devices and for maintaining process conditions such as liquid level, pressure, delta-pressure, and temperature. These devices are snap-acting that discharge the full volume of the actuator intermittently when control action is necessary but do not bleed continuously. If throttling devices are used, they vent less than six scf/h and are not subject to NSPS OOOOa.
8. The well pad may have one or more generators onsite to provide power to facility equipment. For the purpose of this application, calculations were prepared assuming generators operate for 8,760 hours per year. Once the site is connected to electrical power, generators are removed from the site. Generator engines may be fueled by natural gas or propane and are SI RICE, manufactured after July 1, 2008, certified in accordance with the requirements for new non-road SI engines (40 CFR Part 90), operated in accordance with the manufacturer's instructions (40 CFR 60.4243(a) (1)), and subject to the maintenance and recordkeeping requirements for SI RICE in 40 CFR 63, subpart ZZZZ effective October 19, 2013.

Identification and description of any existing air pollution control equipment and compliance monitoring devices or activities:

Emission Source	Emission Controls	Control Efficiency	Monitoring Type
Produced Oil/Produced Water Storage Tanks	Destruction efficiency control device(s) See Footnote 1 below.	98%	Visually by operator (when on site) or via SCADA
Heater Treater Produced Natural Gas	Destruction efficiency control device	98%	Visually by operator (when on site) or via SCADA
Heater Treater Fuel Gas	See Footnote 2 below	0% (uncontrolled)	See Footnote 3
RICE Engine	See Footnote 3 below	0% (uncontrolled)	See Footnote 3
Truck Loadout (Produced oil and produced water)	Submerged Fill	40%	Viewpoint Program oil production rates See attached calculations (Attachment 1)
Well Pad Site Generator	See Footnote 3 below	See Footnote 3	See Footnote 3
Pneumatic Controllers	None (uncontrolled)	N/A	---

Footnote 1: The 98% control device usage is noted here, so that use of either a combustor or utility flare to control tank emissions is acceptable on any location.
Footnote 2: The heater treater burner is controlled by a Burner Management System which regulates the flow of fuel gas to the burner to achieve a temperature in the vessel within the desired operational parameters.
Footnote 3: EPA certified engines, Catalytic Converter or Oxidizers if required by NSPS JJJJ.

Type and amount of fuels used:

Field gas (produced natural gas) is used at this location to fuel the heater treater burners. The contents of the field gas are included in the calculation spreadsheets provided in Part 2. The volume of gas utilized in the burner varies depending on well flow rate, wellhead temperature, and the desired operating temperature range.

Type of raw materials used:

The produced fluid is initially an emulsion comprised of produced oil, natural gas, and produced water. Please see the narrative above for a further description of the process.

Production Rates:

Production rates vary depending on the facility. The initial production rates are normally higher and decline over time. Production from the first thirty days is generally utilized with a decline factor consistent with the Bakken Pool Air Pollution Control Permitting and Guidance as published by the North Dakota Department of Health.

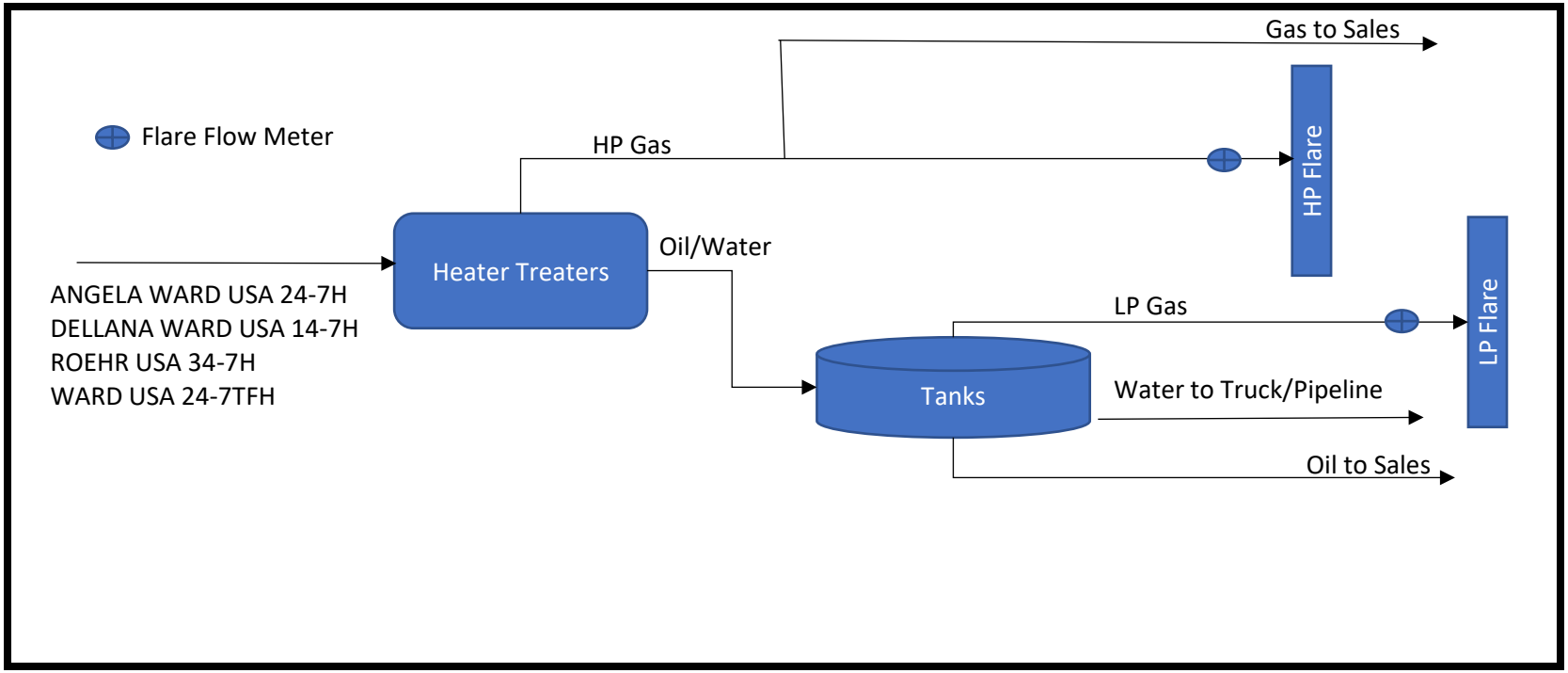
Operating Schedules:

The well pad is anticipated to operate 24-hours per day, 7-days per week, and 52-weeks per year for a total of 8,760 hours per year. Exceptions to this operating schedule may include but are not limited to, shutdowns associated with extreme weather conditions, scheduled maintenance, operation updates, and temporary shut-in (if required).

Any existing limitations on source operation affecting emissions or any work practice standards, where applicable, for all regulated NSR pollutants at your source:

Some emissions for this facility may be regulated under 40 CFR part 60, subpart OOOOa. Marathon will comply with the applicable requirements. In accordance with this rule, controls to reduce VOC emissions by 95% for storage tanks emitting six tons or more per year of VOC may be required. This reduction requirement applies to tanks used in oil and gas production, natural gas processing, and transmission and storage. The calculations for this facility indicate that with controls, the emissions from tanks may exceed the six-ton per year per tank threshold. Additionally, the New Source Performance Standards may require a Leak Detection and Repair Program to reduce emissions from fugitive emission sources.

MARATHON OIL COMPANY
WARD-ROEHR USA CTB WELL PAD FLOW DIAGRAM



Attachment 2:

Emissions Calculations

Calculation Basis

Background

The Ward-Roehr USA CTB well pad has four existing wells. This submittal adjusts production rates.

General Emission Calculations

Throughput

Throughput is based on 30 days of actual production data with no decline. Any days of no production are replaced with an average production from the day prior to and the day after the day or days with no production or with forecasted production.

Equipment

This site has the following separation equipment in order of highest operating pressure to lowest operating pressure:

- Heater treater(s)

The site also has:

- Oil tanks
- Water tanks
- High pressure flare(s) to control gas from the from the heater treater(s)
- Low pressure flare(s) to control flash and working & breathing emissions from the oil and water tanks
- Truck loading point(s) as a backup to the pipeline LACT(s) for both oil and water
- Pneumatic device(s) (only at some locations)

Model

Pressurized oil sample(s) and a gas sample(s) are collected from the highest pressure separation equipment for analysis to model the emissions from the facility. The analyses are used in a process simulation, Promax, along with normal operating temperatures and pressures through the separation equipment to model emissions. If the analyses do not meet QA/QC criteria, another set of samples are collected, or representative analyses or sales gas analysis are used. Samples are good if:

- Pressure on the sample vessel is within 15% of the pressure on the vessel sampled (from SCADA,account for pressure loss across sample valve),
- Passes lab QA/QC, and
- Methane is within 3 mole % of gas sales analysis.

Because the gas sample is collected off the highest pressure vessel and it may contain liquids, a flare scrubber (which is actually present in the field) is included in the model. If the sales gas analysis is used, the scrubber will be removed from the model.

User defined inputs into modelling software:

- Oil sample composition
- Gas sample composition
- Separation equipment operating temperatures and pressures
- Site ambient conditions (for tank emissions)
- Production throughputs for crude oil, produced water, and volume of gas flared from the highest-pressure separation equipment.

The oil and gas sample compositions are used to estimate fugitive emissions using a count of major equipment at the site and default component counts are used based on the approach provided in EPA's Mandatory Reporting Rule for Greenhouse Gases (GHG MRR), 40 CFR Part 98, Subpart W, Table W-1B.

The gas sample composition is used to estimate emissions from the highest-pressure separation equipment that is not sold. The majority of the gas is sold but a small amount of flared gas is included for times when some or all gas cannot be sold. Only the gas from the highest-pressure separation equipment can be sold unless there is a VRU.

The heater treater temperature and pressure used in the model are the expected average over the course of the year. The heater treater was modelled as adiabatic.

Flash from the oil and water tanks is also modelled and working and breathing losses are estimated using the most current method from EPA AP-42. The total oil production is divided among the number of tanks in service to estimate the emissions from a single tank. Those emissions are then multiplied by the number of tanks in service. Tanks are modelled as adiabatic with no quench. Water tank emissions are assumed to contain 1% VOC for the purposes of estimating emissions. All emissions from storage tanks are controlled by the low-pressure flare with a 98% destruction efficiency.

This site has snap acting controllers. This site sells the majority of the oil through a pipeline so there are minimal truck loading emissions. Water loading emissions are deminimis.

AIR PERMITTING ANALYSIS

Company Name: Marathon Oil Company

Facility Name: Ward-Roehr CTB

Field: Fort Berthold Reservation

Date Prepared: 1/12/2023

Prepared By: Marathon Oil Company

	Annual Averaged		Annual Total	
Produced Gas	170	mscfd	62,047	mscf/yr
Well Gas Flared			5,100	mscf/yr
Oil Production	274	bbls/day	100,011	bbls/yr
Produced Water Production	329	bbls/day	120,085	bbls/yr
Heater Treater Temp. / Pressure	110	deg F	56	psig
HP Flare Control Efficiency	98%			
LP Flare Control Efficiency	98%			
Operating Period	365	days	8760	hours

Emission Sources	NOx	CO	VOC	HAPs	n-Hexane	PM_{10}	SO_2
Boilers and/or Heaters	0.64	0.54	0.04	--	--	0.05	3.86E-03
Engines and/or Turbines	-	-	-	0.00	0.00E+00	-	-
Equipment Fugitives	--	--	3.03	0.11	0.06	--	--
Oil Truck Loading	--	--	0.71	0.02	0.02	--	--
Oil Tanks	Emissions represented at LP Flare						
Water Tank	Emissions represented at LP Flare						
High Pressure Flare	0.33	1.37	2.40	0.05	0.04	0.00	--
VRT Flare	--	--	--	--	--	--	--
Low Pressure Flare	0.74	3.10	8.23	0.25	0.19	0.00	--
Pneumatics	--	--	8.69	0.22	--	--	--
Total (TPY)	**1.71**	**5.01**	**23.10**	**0.66**	**0.31**	**0.05**	**0.00**

6. 2022-11-16 Ward PTE Heater Burners

Heater ID:	Treater 1	Treater 2	Treater 3	Treater 4
Heater Rating (MMBtu/hr)	0.50	1.00		
Heater Fuel Source	High Pressure Gas	High Pressure Gas		
Fuel Heat Value (Btu/scf)	1,020	1,020		
Operating Hours	8,760	8,760		
Fuel Usage (Mscf/year)[1]	4,294	8,588		

(1) Fuel Usage = (Heater Treater Rating, MMBtu/hr) x (8760 hours/year) / (Fuel Heat Value, Btu/scf) x (1,000 Mscf/MMscf)

Emissions Factors (lb/MMscf) - From AP42, Ch.1.4, Tables 1.4-1 & 1.4-2 dated July 1998				
NOx	**CO**	**VOC**	**PM**	**SO_2**
100	84	5.5	7.6	0.6

Note: If the actual maximum fuel usage is provided, the above emission factors are adjusted by the ratio of the actual fuel heat value to 1020 Btu/scf.

Heater/Boiler Emissions (Tons/year)[2]						
Heater ID:	**Fuel Usage (Mscf/yr)**	**NOx**	**CO**	**VOC**	**PM**	**SO_2**
Treater 1	4,294	0.21	0.18	0.01	0.02	1.29E-03
Treater 2	8,588	0.43	0.36	0.02	0.03	2.58E-03
Total		**0.64**	**0.54**	**0.04**	**0.05**	**0.00**

(2) Emissions in TPY = (Fuel Usage Mscf/year) x (Emission Factor lb/MMscf) / (2000 lb/ton) x (1000 Mscf/MMscf)

(3) All PM emissions were assumed to be PM10 based on footnote (c) to Table 1.4-2 of AP-42 (dated 7/98).

Calculation Basis:
Natural gas-fired single-burner heater treaters will be used to heat the oil/water/gas mixture to help promote three phase separation.
External combustion emissions were calculated in accordance with AP-42 Section 1.4 (July 1998), Natural Gas Combustion, Tables 1.4-1, 1.4-2, and 1.4-3., using emission factors for Small Boilers (less than 100 MMBtu/hr rating).
All heaters are assumed to run 8760 hours per year.
Emissions of HAPs are assumed to be deminimis.

6. 2022-11-16 Ward PTE Fugitives

Default Component Counts - Light Oil Service (per major piece of equipment)[1]				
Equipment	Valves	Flanges	Connectors	Other Components
Wellhead	5	10	4	1
Separators	6	12	10	0
Heater Treater	8	12	20	0
Header	5	10	4	0

(1) From MRR Subpart W Table W-1C.

Default Component Counts - Gas Service (per major piece of equipment)[1]				
Equipment	Valves	Connectors	Open-Ended Lines	Pressure Relief Valves
Wellhead	11	36	1	0
Separators	34	106	6	2
Meters/Piping	14	51	1	1
Compressors	73	179	3	4
In-Line heaters	14	65	2	1

(1) From MRR Subpart W Table W-1C.

Total Fugitive Emissions (Tons/year)		
VOC	HAPs	n-Hexane
3.03	0.11	0.06
Operating Period	8,760	hours

Major Equipment Counts[2]	
Wellhead	4
Header	1
Separator	0
Heater Treater	2
Meters	1
Compressors	0
In-Line Heaters	0
Pumps	3

(2) Actual count of major equipment at facility

Component Type	Number of Components in Gas Service[3]	Gas Emission Factor (lb/hr per Component)[4]	VOC Emissions (TPY) from Gas Components[5]	HAP Emissions (TPY) from Gas Components[5]	n-Hexane Emissions (TPY) from Gas Components[5]	Number of Components in Oil Service[3]	Oil Emission Factor (lb/hr per Component)[4]	VOC Emissions (TPY) from Oil Components[5]	HAP Emissions (TPY) from Oil Components[5]	n-Hexane Emissions (TPY) from Oil Components[5]
Valves	58	0.010	0.98	0.02	0.02	41	0.006	0.98	0.04	0.02
Pumps	0	0.01	0.00E+00	0.00E+00	0.00E+00	3	0.029	3.73E-01	1.62E-02	7.31E-03
Flanges	0	8.60E-04	0.00E+00	0.00E+00	0.00E+00	74	2.43E-04	0.08	3.38E-03	1.53E-03
Compressors	0	0.019	0.00E+00	0.00E+00	0.00E+00	0	0.017	0.00E+00	0.00E+00	0.00E+00
Relief Valves	1	0.019	0.03	8.36E-04	7.74E-04	0	0.017	0.00E+00	0.00E+00	0.00E+00
Open-ended Lines	5	4.41E-03	0.04	9.51E-04	8.80E-04	0	0.003	0.00E+00	0.00E+00	0.00E+00
Connectors	195	4.40E-04	0.15	3.70E-03	3.42E-03	60	4.63E-04	0.12	0.01	2.36E-03
Other	0	0.019	0.00E+00	0.00E+00	0.00E+00	4	0.017	0.29	0.01	0.01

(3) The number of components for a particular type of equipment were calculated as follows: (Number of Components) = (Equipment Count) x (Components per Equipment for service)

(4) Factors taken from EPA document EPA-453/R-95-017; November, 1995; pp. 2-15.

(5) Per Service Type and Per Component Type: (VOC or HAP Emissions, TPY) = (Component Count) x (Emission Factor, lb/hr/component) x (8760 hours per year) x (wts%VOC or HAP) x (1 ton per 2000 lb)

Calculation Basis:

Site specific component counts are not available so default component counts are used based on the approach provided in EPA's Mandatory Reporting Rule for Greenhouse Gases (GHG MMR), 40 CFR Part 98, Subpart W, Table W-1B. Actual counts were compiled for major equipment (i.e. wellheads, separators, in-line heaters, etc.), and default component counts were applied to each equipment type.

Oil produced at the site will have an API gravity of greater than 20° API; therefore, all hydrocarbon liquids are considered "light oil". There are no "heavy oil" components at this site.

6. 2022-11-16 Ward PTE Pneumatics

Pneumatic Devices					
Type	Count	Bleed Rate (scf/hr/component)	VOC (TPY)	HAP (TPY)	n-Hexane
Valves	12	6	8.69	0.22	0.20
Pumps	0	0	0.00E+00	0.00E+00	0.00E+00

No venting pneumatic valves

Total Fugitive Emissions (Tons/year)		
VOC	HAPs	n-Hexane
8.69	**0.22**	**0.20**

Calculation Basis: Emissions are estimated using the estimated controller count (for those that vent to atmosphere), an emission factor for pneumatics that is the same as what would be considered a covered continuous venting pneumatic device, and a gas composition. Note: devices used are snap acting versus throttling. The gas composition used is that of the high pressure separator gas composition.
Where pneumatic pumps are used, the manufacturer specified bleed rate will be used.

Emissions (TPY) = Count of devices * Bleed Rate (scf/hr/controller) * Gas Molecular Weight (lb/lbmole) * Weight Percent VOC or HAP * 1/molar volume conversion (379.3 scf/lbmole) * 8760 hr/yr * 1 ton/2000 lb

Gas Composition (High Pressure Separator Gas)	
Date of Analysis:	9/30/2020
Component	**wt%**
Water	0.00E+00
H2S	0.00E+00
Nitrogen	5.52%
Carbon Dioxide	1.13%
Methane	30.48%
Ethane	24.17%
Propane	24.21%
Isobutane	2.70%
n-Butane	7.12%
Isopentane	1.25%
n-Pentane	1.46%
2-Methylpentane	0.00E+00
3-Methylpentane	0.00E+00
n-Hexane	0.91%
Cyclohexane	0.11%
Heptane	0.63%
Methylcyclohexane	0.06%
Benzene	0.02%
Toluene	0.04%
Ethylbenzene	4.72E-05
o-Xylene	0.01%
2,2,4-Trimethylpentane	0.00E+00
Octane	0.08%
Nonane	0.03%
Decane	0.00E+00
Decanes+	8.52E-04
Gas wt %VOC	**38.71%**
Gas wt %HAPs	**0.98%**
Molecular Weight	**27.01**

Flowsheet Information				
Tank Losses Stencil Name		Oil Tank Losses		
Tank Losses Stencil Reference Stream		Oil Tank Feed		
Separator Name		Oil Tank		
Separator Inlet Stream		Oil Tank Feed		
Separator Pressure [psia]	Inlet | Outlet	69.7	13.7	
Separator Temperature [°F]	Inlet | Outlet	110.0	90.2	

Tank Characteristics				
Tank Type		Vertical Cylinder		
Time Frame		Year		
Material Category		Light Organics		
Number of Tanks		10.0		
Shell Height	[ft]	20.000		
Diameter [ft]	[ft]	12.000		
Maximum Liquid Height	[%] | [ft]	90.000	18.000	
Average Liquid Height	[%] | [ft]	50.000	10.000	
Minimum Liquid Height	[%] | [ft]	10.000	2.000	
Sum of Increases in Liquid Level	[ft/yr]	-		
Tank Volume	[gal] | [bbl]	16920.536	402.870	
Insulation		Uninsulated		
Bolted or Riveted Construction		FALSE		
Vapor Balance Tank		FALSE		

Paint Characteristics	
Shell Color	Tan
Shell Paint Condition	Average
Roof Color	Tan
Roof Paint Condition	Average

Roof Characteristics		
Type		Cone
Diameter	[ft]	-
Slope	[ft/ft]	0.063

Breather Vent Settings		
Breather Vacuum Pressure	[psig]	-0.030
Breather Vent Pressure	[psig]	0.030

Loading Loss Parameters		
Cargo Carrier		
Land Based Mode of Operation		
Marine Based Mode of Operation		
Overall Reduction Efficiency	[%]	
Maximum Hourly Loading Rate	[bbl/h]	

Meteorological Data				
Location		Williston, ND		
Average Atmospheric Pressure	[psia]	13.720		
Maximum Average Temperature	[°F]	53.200		
Minimum Average Temperature	[°F]	29.900		
Solar Insulation	[BTU/ft^2*day]	1193.000		
Average Wind Speed	[mph]	8.900		
Tank Conditions				
Flashing Temperature	[°F]	90.162		
Maximum Liquid Surface Temperature	[°F]	90.162		
Average Liquid Surface Temperature	[°F]	82.934		
Set Bulk Temperature to Stream Temperature?		TRUE		
Bulk Liquid Temperature	[°F]	110.000		
Net Throughput	[bbl/day] | [bbl/yr]	276.993	101102.527	
Net Throughput Per Tank	[bbl/day] | [bbl/yr]	27.699	10110.253	
Turnovers Per Tank	[per day]	31.366		
Residual Liquid	[bbl/day]	272.337		
Residual Liquid Per Tank	[bbl/day]	27.234		
Raoult's Law Used for Vapor Pressure Calc?		FALSE		
VP @ Minimum Liquid Surface Temperature	[psia]	11.514		
VP @ Maximum Liquid Surface Temperature	[psia]	13.720		
True Vapor Pressure	[psia]	12.579		

6. 2022-11-16 Ward PTE Water Tanks

Produced Water Production	329	BWPD
Oil Production	274	BOPD
Percent Oil in Produced Water	1%	Percent
Number of Water Tanks	4	
Number of Oil Tanks	10	

	Uncontrolled Water Flash			Uncontrolled Water W&S		
Component	**Oil Flash Mass Flow (lb/hr)**	**Ratioed Water Flash Mass Flow (lb/hr)**	**Water Flash Mass Flow 99% Reduction (lb/hr)**	**Oil W&B Mass Flow (lb/hr)**	**Ratioed Water W&S Mass Flow (lb/hr)**	**Water W&B Mass Flow 99% Reduction (lb/hr)**
Water	0.44	0.53	0.01	0.05	0.02	2.07E-04
H2S	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nitrogen	0.26	0.31	3.12E-03	0.00	0.00	1.40E-05
Carbon Dioxide	0.30	0.35	3.54E-03	0.03	0.01	1.16E-04
Methane	3.79	4.55	0.05	0.15	0.06	0.00
Ethane	13.28	15.94	0.16	1.88	0.75	0.01
Propane	32.44	38.95	0.39	4.47	1.79	0.02
Isobutane	5.72	6.87	0.07	0.77	0.31	0.00
n-Butane	18.73	22.49	0.22	2.52	1.01	0.01
Isopentane	4.60	5.52	0.06	0.61	0.24	2.42E-03
n-Pentane	4.62	5.54	0.06	0.60	0.24	0.00
2-Methylpentane	1.19	1.43	0.01	0.15	0.06	6.11E-04
3-Methylpentane	0.98	1.17	1.17E-02	0.13	0.05	5.02E-04
n-Hexane	1.88	2.25	0.02	0.24	0.10	9.56E-04
Cyclohexane	0.54	0.65	6.53E-03	0.07	0.03	2.78E-04
Heptane	4.74	5.69	0.06	0.59	0.24	2.36E-03
Methylcyclohexane	0.00	3.75E-03	3.75E-05	3.91E-04	1.56E-04	1.56E-06
Benzene	0.12	0.15	1.47E-03	0.02	0.01	6.30E-05
Toluene	0.38	0.46	4.56E-03	0.05	0.02	1.89E-04
Ethylbenzene	0.05	0.06	5.79E-04	5.87E-03	2.35E-03	2.35E-05
o-Xylene	0.05	0.06	6.25E-04	0.01	2.53E-03	2.53E-05
2,2,4-Trimethylpentane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Octane	1.13	1.35	1.35E-02	0.14	0.05	5.46E-04
Nonane	0.05	0.06	6.17E-04	0.01	0.00	2.42E-05
Decane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Oil 10+	2.88E-04	3.46E-04	3.46E-06	2.77E-05	1.11E-05	1.11E-07
Total	95.28	114.41	1.14	12.48	4.99	0.05
Total VOC	77.21	92.71	0.93	10.37	4.15	0.04
Total HAPs	2.48	2.98	0.03	0.31	0.13	1.26E-03

Maximum Annual Emission Rates and Composition to LP Flare										
ProMax Stream:	Pilot Gas	Propane Pilot	Oil Flash	Oil W&B	Water Flash	Water Tank W&B	Sweep Blanket Gas	Total to Flare	Destruction Efficiency	Flare Exhaust (controlled)
Component	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(%)	(tpy)
Water	0.14	0.00E+00	1.93	0.23	0.02	9.05E-04	0.00	**2.32**	0%	**2.32**
H2S	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**	98%	**0.00E+00**
Nitrogen	0.53	0.00E+00	1.14	1.54E-02	1.37E-02	6.14E-05	0.00	**1.70**	0%	**1.70**
Carbon Dioxide	0.10	0.00E+00	1.29	0.13	0.02	5.10E-04	0.00	**1.54**	0%	**1.54**
Methane	2.96	0.00E+00	16.61	0.64	0.20	2.55E-03	0.00	**20.41**	98%	**0.41**
Ethane	2.52	0.00E+00	58.16	8.25	0.70	0.03	0.00	**69.66**	98%	**1.39**
Propane	2.94	17.93	142.07	19.58	1.71	0.08	0.00	**184.30**	98%	**3.69**
Isobutane	0.40	0.00E+00	25.05	3.39	0.30	1.36E-02	0.00	**29.16**	98%	**0.58**
n-Butane	1.22	0.00E+00	82.06	11.03	0.99	0.04	0.00	**95.33**	98%	**1.91**
Isopentane	0.27	0.00E+00	20.14	2.65	0.24	1.06E-02	0.00	**23.32**	98%	**0.47**
n-Pentane	0.27	0.00E+00	20.22	2.64	0.24	1.06E-02	0.00	**23.39**	98%	**0.47**
2-Methylpentane	0.07	0.00E+00	5.20	0.67	0.06	2.68E-03	0.00	**6.00**	98%	**0.12**
3-Methylpentane	0.06	0.00E+00	4.28	0.55	0.05	2.20E-03	0.00	**4.94**	98%	**0.10**
n-Hexane	0.11	0.00E+00	8.22	1.05	0.10	0.00	0.00	**9.49**	98%	**0.19**
Cyclohexane	0.03	0.00E+00	2.38	0.30	0.03	1.22E-03	0.00	**2.75**	98%	**0.06**
Heptane	0.31	0.00E+00	20.76	2.58	0.25	1.03E-02	0.00	**23.91**	98%	**0.48**
Methylcyclohexane	1.96E-04	0.00E+00	0.01	1.71E-03	1.64E-04	6.85E-06	0.00	**0.02**	98%	**3.15E-04**
Benzene	0.01	0.00E+00	0.54	0.07	0.01	2.76E-04	0.00	**0.62**	98%	**0.01**
Toluene	0.02	0.00E+00	1.66	0.21	2.00E-02	8.30E-04	0.00	**1.91**	98%	**0.04**
Ethylbenzene	3.29E-03	0.00E+00	0.21	0.03	2.53E-03	1.03E-04	0.00	**0.24**	98%	**0.00**
o-Xylene	0.00	0.00E+00	0.23	0.03	2.74E-03	1.11E-04	0.00	**0.26**	98%	**0.01**
2,2,4-Trimethylpentane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**	98%	**0.00E+00**
Octane	0.08	0.00E+00	4.94	0.60	0.06	2.39E-03	0.00	**5.68**	98%	**0.11**
Nonane	3.89E-03	0.00E+00	0.23	2.65E-02	2.70E-03	1.06E-04	0.00	**0.26**	98%	**0.01**
Oil 10+	4.39E-05	0.00E+00	1.26E-03	1.21E-04	1.51E-05	4.85E-07	0.00	**1.44E-03**	98%	**2.88E-05**
Total	**12.05**	**17.93**	**417.34**	**54.65**	**5.01**	**0.22**	**0.00**	**507.20**	--	**15.59**
Total VOC	**5.81**	**17.93**	**338.20**	**45.40**	**4.06**	**0.18**	**0.00**	**411.58**	--	**8.23**
Total HAP	**0.15**	**0.00E+00**	**10.86**	**1.38**	**0.13**	**0.01**	**0.00**	**12.53**	--	**0.25**
Annual Hours (Hrs)	**8,760**	**8,760**	**8,760**	**8,760**	**8,760**	**8,760**	**8,760**	--		
Heating Value HHV (Btu/scf)	1,629	2,557	2,529	2,654	2,529	2,654	1,629	**2,510**		
Heating Value LHV (Btu/scf)	1,489	2,557	2,327	2,444	2,327	2,444	1,489	**2,317**		
Molecular Weight	29.67	44.10	44.94	47.11	44.94	47.11	29.67	--		
Volumetric Flow (scf/hr)	35.20	35.20	805	100.53	9.66	0.40	0.00	**986**		
Volumetric Flow (MMscf/yr)	0.31	0.31	7.05	0.88	0.08	3.52E-03	0.00	**8.02**		
H2S PPM	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**		

Oil Tank Flash GOR (scf/bbl)	**70.47**
Tank Total GOR (scf/bbl)	80.16

Combustion Emissions from Flare								Totals
	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)
Total NOx	0.02	0.03	0.61	0.08	7.27E-03	3.18E-04	0.00	**0.74**
Total CO	0.07	0.12	2.54	0.33	0.03	1.33E-03	0.00	**3.10**
Total SO2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
Total PM_{10}	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
Total $PM_{2.5}$	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**

Criteria Pollutant Emissions from Flare [a]		
Component	Emission Factor	Emission Factor Units
NO_X	0.068	lb/MMBtu
CO	0.31	lb/MMBtu
SO_2	--	--
PM_{10}	--	lb/MMscf
$PM_{2.5}$	--	lb/MMscf
H_2S	--	--

Constants	
H_2S Molecular Weight	34.08
SO_2 Molecular Weight	64.06
Gas Constant (scf/lb-mol)	379.30

Variables	
Flare Destruction Efficiency	98%
Number of Pilots	2
Volume of Gas/Tip (scf/hr)	35.20
Operating Hours	8,760

Footnotes:

[a] Flare CO and NOx emission factors from AP-42, Table 13.5-1 & 13.5-2, February 2018. PM_{10} and $PM_{2.5}$ emission factors from AP-42, Table 1.4-1 and 1.4-2, July 1998. SO_2 emissions assume 100% conversion of H_2S to SO_2.

HP Flare Annual Emissions

Maximum Annual Emission Rates and Composition to HP Flare							
ProMax Stream:	Pilot Gas	Propane Pilot	HP Flared Gas	Heater Treater Gas	Total to Flare	Destruction Efficiency	Flare Exhaust (controlled)
Component	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(%)	(tpy)
Water	0.14	0.00E+00	0.00E+00	2.24	2.38	0%	**2.38**
H2S	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	98%	**0.00E+00**
Nitrogen	0.53	0.00E+00	0.00E+00	8.75	9.28	0%	**9.28**
Carbon Dioxide	0.10	0.00E+00	0.00E+00	1.71	1.81	0%	**1.81**
Methane	2.96	0.00E+00	0.00E+00	48.89	51.84	98%	**1.04**
Ethane	2.52	0.00E+00	0.00E+00	41.61	44.13	98%	**0.88**
Propane	2.94	17.93	0.00E+00	48.67	69.54	98%	**1.39**
Isobutane	0.40	0.00E+00	0.00E+00	6.61	7.01	98%	**0.14**
n-Butane	1.22	0.00E+00	0.00E+00	20.18	21.40	98%	**0.43**
Isopentane	0.27	0.00E+00	0.00E+00	4.54	4.81	98%	**0.10**
n-Pentane	0.27	0.00E+00	0.00E+00	4.53	4.80	98%	**0.10**
2-Methylpentane	0.07	0.00E+00	0.00E+00	1.16	1.23	98%	**0.02**
3-Methylpentane	0.06	0.00E+00	0.00E+00	0.96	1.02	98%	**0.02**
n-Hexane	0.11	0.00E+00	0.00E+00	1.88	1.99	98%	**0.04**
Cyclohexane	0.03	0.00E+00	0.00E+00	0.54	0.57	98%	**0.01**
Heptane	0.31	0.00E+00	0.00E+00	5.06	5.37	98%	**0.11**
Methylcyclohexane	1.96E-04	0.00E+00	0.00E+00	3.23E-03	3.43E-03	98%	**6.86E-05**
Benzene	0.01	0.00E+00	0.00E+00	0.12	0.13	98%	**2.55E-03**
Toluene	0.02	0.00E+00	0.00E+00	0.40	0.42	98%	**0.01**
Ethylbenzene	3.29E-03	0.00E+00	0.00E+00	0.05	0.06	98%	**1.15E-03**
o-Xylene	3.59E-03	0.00E+00	0.00E+00	0.06	0.06	98%	**1.26E-03**
2,2,4-Trimethylpentane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	98%	**0.00E+00**
Octane	0.08	0.00E+00	0.00E+00	1.30	1.38	98%	**0.03**
Nonane	3.89E-03	0.00E+00	0.00E+00	0.06	0.07	98%	**1.37E-03**
Decane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	98%	**0.00E+00**
Oil 10+	4.39E-05	0.00E+00	0.00E+00	7.26E-04	7.70E-04	98%	**1.54E-05**
Total	**12.05**	**17.93**	**0.00E+00**	**199.33**	**229.31**	--	**17.78**
Total VOC	**5.81**	**17.93**	**0.00E+00**	**96.13**	**119.87**	--	**2.40**
Total HAP	**0.15**	**0.00E+00**	**0.00E+00**	**2.51**	**2.66**	--	**0.05**
Annual Hours (Hrs)	**8,760**	**8,760**	**0.00E+00**	**720**	--		
Heating Value HHV (Btu/scf)	1,629	2,557	0.00E+00	1,629	**1,634**		
Heating Value LHV (Btu/scf)	1,489	2,557	0.00E+00	1,489	**1,494**		
Molecular Weight	29.67	44.10	0.00E+00	29.67	--		
Volumetric Flow (scf/hr)	35.20	35.20	0.00E+00	7,083	**7,153**		
Volumetric Flow (MMscf/yr)	0.31	0.31	0.00E+00	5.10	**5.72**		
H2S PPM	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**		

Criteria Pollutant Emissions from Flare[a]		
Component	Emission Factor	Emission Factor Units
NO_X	0.068	lb/MMBtu
CO	0.31	lb/MMBtu
SO_2	--	--
PM_{10}	0.00	lb/MMscf
$PM_{2.5}$	0.00	lb/MMscf
H_2S	--	--

Constants	
H_2S Molecular Weight	34.08
SO_2 Molecular Weight	64.06
Gas Constant (scf/lb-mol)	379.30

Variables	
Flare Destruction Efficiency	98%
Number of Pilots	2
Volume of Gas/Tip (scf/hr)	35.20
Flare Operating Hours	8,760
HT Flared Gas Op Hours	720

Combustion Emissions from Flare					Totals
	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)
Total NOx	0.02	0.03	0.00E+00	0.28	**0.33**
Total CO	0.07	0.12	0.00E+00	1.18	**1.37**
Total SO2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
Total PM_{10}	0.00E+00	0.00E+00	0.00E+00	0.00	**0.00**
Total $PM_{2.5}$	0.00E+00	0.00E+00	0.00E+00	0.00	**0.00**

Footnotes:

[a] Flare CO and NOx emission factors from AP-42, Table 13.5-1 & 13.5-2, February 2018. PM_{10} and $PM_{2.5}$ emission factors from AP-42, Table 1.4-1 and 1.4-2, July 1998. SO_2 emissions assume 100% conversion of H_2S to SO_2.

Truck Loading Losses Calculations

Promax Stream Speciation	32 - Oil Tool W&B	
Controlled/Uncontrolled	UNCONTROLLED	
Oil Loaded	**5,001**	**bbls / yr**

Promax Report Results		
LL= 12.46 * SPM/T * (1-EFF/100)		
Saturation Factor (S) =	0.6	
Average True Vapor Pressure of Liquid Loaded (P)=	12.58	psi
Average Surface Temperature of Liquid Loaded (T)[a]=	542.60	Rankin
Molecular Weight (M)[a]=	47.11	lb/lb-mole
Control Efficiency * Collection Efficiency (EFF)[e]=	0	%
Hydrocarbon Content[a]=	100.00	Weight %
VOC Content[a]=	83.07	Weight %
HAP Conent[a]=	2.52	Weight %
Average Uncontrolled LL[b] =	8.1639	lb/1000 gallons
Average Uncontrolled LL[b] =	0.3429	lb/bbl
Average Uncontrolled LL[b] =	0.2848	lb VOC/bbl
Estimated Throughput=	5,001	bbl/Year

Total Emissions	TPY
	0.86
Total VOC Emissions	TPY
	0.71
Total HAP Emissions	TPY
	0.02

Component	Total Speciated Vapors Emitted During Loading (Fugitives)	
	Mass Fraction	ton / yr[d]
Water	0.41	3.55E-03
H2S	0.00E+00	0.00E+00
Nitrogen	0.03	2.41E-04
Carbon Dioxide	0.23	2.00E-03
Methane	1.17	0.01
Ethane	15.09	0.13
Propane	35.82	0.31
Isobutane	6.20	0.05
n-Butane	20.18	0.17
Isopentane	4.86	0.04
n-Pentane	4.84	0.04
2-Methylpentane	1.22	1.05E-02
3-Methylpentane	1.01	8.62E-03
n-Hexane	1.92	1.64E-02
Cyclohexane	0.56	4.78E-03
Heptane	4.72	4.05E-02
Methylcyclohexane	3.13E-03	2.68E-05
Benzene	0.13	1.08E-03
Toluene	0.38	3.25E-03
Ethylbenzene	0.05	4.03E-04
o-Xylene	0.05	4.34E-04
2,2,4-Trimethylpentane	0.00E+00	0.00E+00
Octane	1.09	9.38E-03
Nonane	0.05	4.16E-04
Decane	0.00E+00	0.00E+00
Oil 10+	2.22E-04	1.90E-06
Total	100.00	0.86
Total VOC	83.07	0.71
Total HAP	2.52	0.02

Footnotes:

[a]Values were obtained from Promax.

[b]Loading emissions include total hydrocarbons as calculated using AP-42, Section 5.2.

[c]Oil tanks are only trucked out when transfer to pipeline is unavailable.

[d]The component speciation was obtained from Promax Stream 'Oil Tool Loading' and multiplied by the total hydrocarbon emissions.

[e]Loading emissions are uncontrolled.

Process Streams	Heater Treater Gas	HP Flared Gas	HT Flared Gas	Inlet Gas	Inlet Oil	Inlet Separator Gas	Inlet Water	Oil Flash	Oil Loadout	Oil Tank Feed
Composition Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total From Block:	Heater Treater	SPLT-104	SPLT-105	--	--	HP Separator	--	Oil Tank	Oil Tank	MIX-102
To Block:	SPLT-105	--	MIX-101	Inlet Mixer	Inlet Mixer	SPLT-104	Inlet Mixer	--	--	Oil Tank
Std Vapor Volumetric Flow	MMSCFD	MMSCFD	MMSCFD	MMSCFD	MMSCFD	MMSCFD	MMSCFD	MMSCFD	MMSCFD	MMSCFD
Water	0.00314702	0	0.00312864	0*	0*	0	2.42979*	0.000223078	3.36190E-05	0.000256697
H2S	0	0	0	0*	0*	0	0*	0	0	0
N2	0.00790035	0	0.00785420	0.00794527*	4.64033E-05*	0	0*	8.45405E-05	1.46708E-06	8.60076E-05
CO2	0.000983501	0	0.000977756	0.00103741*	3.75646E-05*	0	0*	6.10507E-05	7.74845E-06	6.87992E-05
C1	0.0770967	0	0.0766464	0.0766496*	0.00281071*	0	0*	0.00215306	0.000106437	0.00225950
C2	0.0350089	0	0.0348044	0.0324247*	0.00778471*	0	0*	0.00402219	0.00111878	0.00514097
C3	0.0279257	0	0.0277626	0.0221501*	0.0191955*	0	0*	0.00669952	0.00668821	0.0133877
iC4	0.00287724	0	0.00286044	0.00187436*	0.00388020*	0	0*	0.000896343	0.00197909	0.00287543
nC4	0.00878284	0	0.00873154	0.00494238*	0.0158169*	0	0*	0.00293563	0.00903163	0.0119673
iC5	0.00159026	0	0.00158097	0.000696387*	0.00586891*	0	0*	0.000580364	0.00439367	0.00497403
nC5	0.00158738	0	0.00157811	0.000817530*	0.00714169*	0	0*	0.000582715	0.00578859	0.00637131
2-Methylpentane	0.000341870	0	0.000339873	0*	0.00327696*	0	0*	0.000125428	0.00280953	0.00293495
3-Methylpentane	0.000282256	0	0.000280607	0*	0.00294330*	0	0*	0.000103296	0.00255750	0.00266080
nC6	0.000551891	0	0.000548667	0.000426616*	0.00643680*	0	0*	0.000198436	0.00611298	0.00631141
Cyclohexane	0.000161339	0	0.000160397	5.10863E-05*	0.00222957*	0	0*	5.88904E-05	0.00205993	0.00211882
C7	0.00127866	0	0.00127119	0.000252892*	0.0416856*	0	0*	0.000430799	0.0402289	0.0406597
Methylcyclohexane	8.33126E-07	0	8.28260E-07	2.41988E-05*	0*	0	0*	2.89326E-07	2.30753E-05	2.33646E-05
Benzene	3.90062E-05	0	3.87783E-05	9.41064E-06*	0.000464033*	0	0*	1.43167E-05	0.000416052	0.000430369
Toluene	0.000108750	0	0.000108115	1.61325E-05*	0.00374762*	0	0*	3.75018E-05	0.00360897	0.00364648
Ethylbenzene	1.29512E-05	0	1.28755E-05	1.79250E-06*	0.00117555*	0	0*	4.13495E-06	0.00115947	0.00116360
o-Xylene	1.41379E-05	0	1.40553E-05	5.07876E-06*	0.00157108*	0	0*	4.46762E-06	0.00155625	0.00156072
2,2,4-Trimethylpentane	0	0	0	0*	0*	0	0*	0	0	0
C8	0.000288577	0	0.000286892	2.65888E-05*	0.0261339*	0	0*	8.98697E-05	0.0257820	0.0258719
C9	1.27035E-05	0	1.26293E-05	9.41064E-06*	0.00322613*	0	0*	3.64976E-06	0.00321919	0.00322284
C10	0	0	0	0*	0*	0	0*	0	0	0
C10+	7.59084E-08	0	7.54650E-08	1.41906E-05*	0.0654905*	0	0*	1.08276E-08	0.0655046	0.0655046
Mole Fraction										
Water	0.0185127		0.0185127	0*	0*		1*	0.0115527	0.000182526	0.00126143
H2S	0		0	0*	0*		0*	0	0	0
N2	0.0464746		0.0464746	0.05319*	0.000210004*		0*	0.00437816	7.96511E-06	0.000422647
CO2	0.00578554		0.00578554	0.006945*	0.000170003*		0*	0.00316168	4.20682E-05	0.000338084
C1	0.453529		0.453529	0.513135*	0.0127203*		0*	0.111502	0.000577874	0.0111033
C2	0.205943		0.205943	0.217069*	0.0352307*		0*	0.208300	0.00607412	0.0252631
C3	0.164276		0.164276	0.148285*	0.0868717*		0*	0.346953	0.0363119	0.0657882
iC4	0.0169257		0.0169257	0.012548*	0.0175604*		0*	0.0464196	0.0107450	0.0141301
nC4	0.0516659		0.0516659	0.033087*	0.0715814*		0*	0.152030	0.0490349	0.0588079
iC5	0.00935485		0.00935485	0.004662*	0.0265605*		0*	0.0300557	0.0238543	0.0244428
nC5	0.00933793		0.00933793	0.005473*	0.0323206*		0*	0.0301775	0.0314277	0.0313090
2-Methylpentane	0.00201108		0.00201108	0*	0.0148303*		0*	0.00649562	0.0152536	0.0144226
3-Methylpentane	0.00166040		0.00166040	0*	0.0133203*		0*	0.00534948	0.0138853	0.0130753
nC6	0.00324655		0.00324655	0.002856*	0.0291306*		0*	0.0102766	0.0331888	0.0310147
Cyclohexane	0.000949094		0.000949094	0.000342*	0.0100902*		0*	0.00304980	0.0111839	0.0104120
C7	0.00752186		0.00752186	0.001693*	0.188654*		0*	0.0223101	0.218412	0.199805
Methylcyclohexane	4.90095E-06		4.90095E-06	0.000162*	0*		0*	1.49836E-05	0.000125281	0.000114815
Benzene	0.000229458		0.000229458	6.30000E-05*	0.00210004*		0*	0.000741431	0.00225885	0.00211486
Toluene	0.000639734		0.000639734	0.000108*	0.0169603*		0*	0.00194214	0.0195940	0.0179190
Ethylbenzene	7.61866E-05		7.61866E-05	1.20000E-05*	0.00532011*		0*	0.000214140	0.00629504	0.00571803
o-Xylene	8.31675E-05		8.31675E-05	3.40000E-05*	0.00711014*		0*	0.000231368	0.00844928	0.00766949
2,2,4-Trimethylpentane	0		0	0*	0*		0*	0	0	0
C8	0.00169758		0.00169758	0.000178*	0.118272*		0*	0.00465415	0.139977	0.127136
C9	7.47295E-05		7.47295E-05	6.30000E-05*	0.0146003*		0*	0.000189013	0.0174778	0.0158373
C10	0		0	0*	0*		0*	0	0	0
C10+	4.46538E-07		4.46538E-07	9.50000E-05*	0.296386*		0*	5.60737E-07	0.355641	0.321894
Mass Fraction										
Water	0.0112425		0.0112425	0*	0*		1*	0.00463104	2.26229E-05	0.000167314
H2S	0		0	0*	0*		0*	0	0	0
N2	0.0438870		0.0438870	0.0551687*	4.54597E-05*		0*	0.00272905	1.53512E-06	8.71710E-05
CO2	0.00858311		0.00858311	0.0113166*	5.78146E-05*		0*	0.00309612	1.27375E-05	0.000109547
C1	0.245262		0.245262	0.304789*	0.00157688*		0*	0.0398022	6.37806E-05	0.00131145
C2	0.208747		0.208747	0.241665*	0.00818604*		0*	0.139368	0.00125657	0.00559286
C3	0.244187		0.244187	0.242097*	0.0296010*		0*	0.340423	0.0110161	0.0213585
iC4	0.0331621		0.0331621	0.0270031*	0.00788694*		0*	0.0600339	0.00429666	0.00604664
nC4	0.101228		0.101228	0.0712027*	0.0321496*		0*	0.196618	0.0196079	0.0251655
iC5	0.0227520		0.0227520	0.0124537*	0.0148081*		0*	0.0482514	0.0118408	0.0129840
nC5	0.0227109		0.0227109	0.0146201*	0.0180195*		0*	0.0484468	0.0156000	0.0166313
2-Methylpentane	0.00584209		0.00584209	0*	0.00987566*		0*	0.0124554	0.00904357	0.00915069
3-Methylpentane	0.00482336		0.00482336	0*	0.00887011*		0*	0.0102576	0.00823232	0.00829591
nC6	0.00943105		0.00943105	0.00911252*	0.0193984*		0*	0.0197054	0.0196770	0.0196779
Cyclohexane	0.00269257		0.00269257	0.00106568*	0.00656200*		0*	0.00571121	0.00647559	0.00645159
C7	0.0254072		0.0254072	0.00628102*	0.146075*		0*	0.0497429	0.150570	0.147404
Methylcyclohexane	1.62213E-05		1.62213E-05	0.000588928*	0*		0*	3.27355E-05	8.46291E-05	8.29998E-05
Benzene	0.000604190		0.000604190	0.000182203*	0.00126759*		0*	0.00128867	0.00121392	0.00121626
Toluene	0.00198698		0.00198698	0.000368436*	0.0120756*		0*	0.00398175	0.0124208	0.0121558
Ethylbenzene	0.000272656		0.000272656	4.71693E-05*	0.00436450*		0*	0.000505861	0.00459795	0.00446947
o-Xylene	0.000297639		0.000297639	0.000133646*	0.00583301*		0*	0.000546560	0.00617142	0.00599482
2,2,4-Trimethylpentane	0		0	0*	0*		0*	0	0	0
C8	0.00653673		0.00653673	0.000752821*	0.104398*		0*	0.0118296	0.110006	0.106923
C9	0.000323088		0.000323088	0.000299166*	0.0144700*		0*	0.000539411	0.0154222	0.0149549
C10	0		0	0*	0*		0*	0	0	0
C10+	3.64425E-06		3.64425E-06	0.000851560*	0.554479*		0*	3.02069E-06	0.592366	0.573768
Mass Flow	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
Water	6.22495	0	6.18859	0*	0*	0	4806.23*	0.441258	0.0664999	0.507758
H2S	0	0	0	0*	0*	0	0*	0	0	0
N2	24.3001	0	24.1581	24.4382*	0.142728*	0	0*	0.260031	0.00451246	0.264544
CO2	4.75244	0	4.72468	5.01294*	0.181518*	0	0*	0.295007	0.0374418	0.332449
C1	135.801	0	135.008	135.013*	4.95089*	0	0*	3.79247	0.187482	3.97995
C2	115.583	0	114.908	107.051*	25.7014*	0	0*	13.2794	3.69368	16.9730
C3	135.206	0	134.416	107.242*	92.9373*	0	0*	32.4365	32.3817	64.8183
iC4	18.3617	0	18.2545	11.9616*	24.7623*	0	0*	5.72021	12.6300	18.3502
nC4	56.0496	0	55.7222	31.5408*	100.939*	0	0*	18.7344	57.6372	76.3716
iC5	12.5977	0	12.5241	5.51664*	46.4924*	0	0*	4.59753	34.8058	39.4033
nC5	12.5749	0	12.5015	6.47632*	56.5751*	0	0*	4.61615	45.8561	50.4723
2-Methylpentane	3.23474	0	3.21585	0*	31.0062*	0	0*	1.18678	26.5835	27.7702
3-Methylpentane	2.67068	0	2.65508	0*	27.8492*	0	0*	0.977378	24.1988	25.1762
nC6	5.22193	0	5.19143	4.03659*	60.9044*	0	0*	1.87758	57.8404	59.7179
Cyclohexane	1.49086	0	1.48216	0.472066*	20.6025*	0	0*	0.544181	19.0349	19.5791
C7	14.0678	0	13.9857	2.78232*	458.625*	0	0*	4.73965	442.598	447.338
Methylcyclohexane	0.00898165	0	0.00892919	0.260879*	0*	0	0*	0.00311913	0.248766	0.251885
Benzene	0.334538	0	0.332584	0.0807107*	3.97980*	0	0*	0.122788	3.56829	3.69108
Toluene	1.10019	0	1.09376	0.163207*	37.9133*	0	0*	0.379392	36.5107	36.8901
Ethylbenzene	0.150968	0	0.150087	0.0208947*	13.7031*	0	0*	0.0481999	13.5156	13.5638
o-Xylene	0.164801	0	0.163839	0.0592017*	18.3137*	0	0*	0.0520778	18.1408	18.1929
2,2,4-Trimethylpentane	0	0	0	0*	0*	0	0*	0	0	0
C8	3.61936	0	3.59822	0.333479*	327.774*	0	0*	1.12715	323.360	324.487
C9	0.178893	0	0.177848	0.132522*	45.4310*	0	0*	0.0513966	45.3332	45.3846
C10	0	0	0	0*	0*	0	0*	0	0	0
C10+	0.00201781	0	0.00200602	0.377218*	1740.88*	0	0*	0.000287820	1741.25	1741.25

Process Streams	Pilot Gas	Sales	Sales Gas	Sat. Gas	Sweep Blanket Gas	To Flare	VRT to Flare	VRT to Sales	Water Flash	Water Loadout	Water Tank feed	1
Composition Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total From Block:	SPLT-102	SPLT-102	MIX-101	Inlet Mixer	SPLT-102	MIX-108	SPLT-103	SPLT-103	Water Tank	Water Tank	MIX-100	SPLT-104
To Block:	--	--	SPLT-102	SPLT-100	--	--	MIX-108	MIX-103	--	--	Water Tank	MIX-101
Std Vapor Volumetric Flow	MMSCFD	MMSCFD	MMSCFD	MMSCFD	MMSCFD	MMSCFD	MMSCFD	MMSCFD	MMSCFD	MMSCFD	MMSCFD	MMSCFD
Water	7.81975E-06	0.00313920	0.00314702	2.42979	0	0	0	0	9.16436E-06	2.42638	2.42639	0
H2S	0	0	0	0	0	0	0	0	0	0	0	0
N2	1.96309E-05	0.00788072	0.00790035	0.00799167	0	0	0	0	4.67421E-06	6.40551E-07	5.31476E-06	0
CO2	2.44381E-06	0.000981057	0.000983501	0.00107498	0	0	0	0	3.60201E-06	1.90734E-05	2.26754E-05	0
C1	0.000191571	0.0769052	0.0770967	0.0794604	0	0	0	0	8.12772E-05	2.28486E-05	0.000104126	0
C2	8.69903E-05	0.0349219	0.0350089	0.0402094	0	0	0	0	4.27753E-05	1.68317E-05	5.96070E-05	0
C3	6.93900E-05	0.0278563	0.0279257	0.0413456	0	0	0	0	2.52515E-05	6.93960E-06	3.21911E-05	0
iC4	7.14940E-06	0.00287009	0.00287724	0.00575456	0	0	0	0	1.60428E-06	2.82607E-07	1.88688E-06	0
nC4	2.18237E-05	0.00876102	0.00878284	0.0207593	0	0	0	0	7.32157E-06	1.85237E-06	9.17393E-06	0
iC5	3.95149E-06	0.00158631	0.00159026	0.00656530	0	0	0	0	8.61487E-07	1.45100E-07	1.00659E-06	0
nC5	3.94434E-06	0.00158344	0.00158738	0.00795922	0	0	0	0	4.92256E-07	3.74531E-08	5.29709E-07	0
2-Methylpentane	8.49482E-07	0.000341021	0.000341870	0.00327696	0	0	0	0	1.20952E-07	1.18423E-08	1.32794E-07	0
3-Methylpentane	7.01352E-07	0.000281555	0.000282256	0.00294330	0	0	0	0	1.98050E-07	4.52881E-08	2.43338E-07	0
nC6	1.37134E-06	0.000550519	0.000551891	0.00686342	0	0	0	0	1.08313E-07	5.42869E-09	1.13742E-07	0
Cyclohexane	4.00897E-07	0.000160938	0.000161339	0.00228065	0	0	0	0	2.64809E-07	2.28337E-07	4.93146E-07	0
C7	3.17723E-06	0.00127549	0.00127866	0.0419385	0	0	0	0	1.62779E-07	5.69736E-09	1.68477E-07	0
Methylcyclohexane	2.07016E-09	8.31056E-07	8.33126E-07	2.41988E-05	0	0	0	0	7.85135E-10	2.88960E-10	1.07410E-09	0
Benzene	9.69229E-08	3.89092E-05	3.90062E-05	0.000473444	0	0	0	0	1.27012E-07	3.94137E-06	4.06838E-06	0
Toluene	2.70223E-07	0.000108480	0.000108750	0.00376375	0	0	0	0	3.47273E-07	8.17796E-06	8.52523E-06	0
Ethylbenzene	3.21812E-08	1.29190E-05	1.29512E-05	0.00117734	0	0	0	0	3.76037E-08	7.50818E-07	7.88421E-07	0
o-Xylene	3.51299E-08	1.41028E-05	1.41379E-05	0.00157616	0	0	0	0	4.20676E-08	1.26112E-06	1.30318E-06	0
2,2,4-Trimethylpentane	0	0	0	0	0	0	0	0	0	0	0	0
C8	7.17060E-07	0.000287860	0.000288577	0.0261605	0	0	0	0	1.75994E-08	2.76161E-10	1.78756E-08	0
C9	3.15657E-08	1.26719E-05	1.27035E-05	0.00323554	0	0	0	0	5.05048E-10	6.69560E-12	5.11743E-10	0
C10	0	0	0	0	0	0	0	0	0	0	0	0
C10+	1.88618E-10	7.57197E-08	7.59084E-08	0.0655047	0	0	0	0	3.35646E-15	5.71890E-20	3.35652E-15	0
Mole Fraction												
Water	0.0185127	0.0185127	0.0185127	0.867742	0.0185127				0.0513548	0.999966	0.999896	
H2S	0	0	0	0	0				0	0	0	
N2	0.0464746	0.0464746	0.0464746	0.00285404	0.0464746				0.0261931	2.63986E-07	2.19018E-06	
CO2	0.00578554	0.00578554	0.00578554	0.000383902	0.00578554				0.0201848	7.86058E-06	9.34437E-06	
C1	0.453529	0.453529	0.453529	0.0283774	0.453529				0.455457	9.41642E-06	4.29095E-05	
C2	0.205943	0.205943	0.205943	0.0143599	0.205943				0.239702	6.93673E-06	2.45636E-05	
C3	0.164276	0.164276	0.164276	0.0147656	0.164276				0.141503	2.85997E-06	1.32657E-05	
iC4	0.0169257	0.0169257	0.0169257	0.00205511	0.0169257				0.00898997	1.16469E-07	7.77571E-07	
nC4	0.0516659	0.0516659	0.0516659	0.00741369	0.0516659				0.0410282	7.63402E-07	3.78051E-06	
iC5	0.00935485	0.00935485	0.00935485	0.00234464	0.00935485				0.00482756	5.97989E-08	4.14807E-07	
nC5	0.00933793	0.00933793	0.00933793	0.00284245	0.00933793				0.00275848	1.54353E-08	2.18289E-07	
2-Methylpentane	0.00201108	0.00201108	0.00201108	0.00117029	0.00201108				0.000677786	4.88047E-09	5.47237E-08	
3-Methylpentane	0.00166040	0.00166040	0.00166040	0.00105113	0.00166040				0.00110982	1.86643E-08	1.00278E-07	
nC6	0.00324655	0.00324655	0.00324655	0.00245111	0.00324655				0.000606961	2.23729E-09	4.68723E-08	
Cyclohexane	0.000949094	0.000949094	0.000949094	0.000814482	0.000949094				0.00148392	9.41030E-08	2.03222E-07	
C7	0.00752186	0.00752186	0.00752186	0.0149774	0.00752186				0.000912175	2.34802E-09	6.94281E-08	
Methylcyclohexane	4.90095E-06	4.90095E-06	4.90095E-06	8.64203E-06	4.90095E-06				4.39970E-06	1.19087E-10	4.42627E-10	
Benzene	0.000229458	0.000229458	0.000229458	0.000169079	0.000229458				0.000711742	1.62433E-06	1.67655E-06	
Toluene	0.000639734	0.000639734	0.000639734	0.00134414	0.000639734				0.00194603	3.37033E-06	3.51319E-06	
Ethylbenzene	7.61866E-05	7.61866E-05	7.61866E-05	0.000420460	7.61866E-05				0.000210721	3.09429E-07	3.24903E-07	
o-Xylene	8.31675E-05	8.31675E-05	8.31675E-05	0.000562889	8.31675E-05				0.000235736	5.19735E-07	5.37033E-07	
2,2,4-Trimethylpentane	0	0	0	0	0				0	0	0	
C8	0.00169758	0.00169758	0.00169758	0.00934260	0.00169758				9.86226E-05	1.13812E-10	7.36639E-09	
C9	7.47295E-05	7.47295E-05	7.47295E-05	0.00115550	7.47295E-05				2.83016E-06	2.75941E-12	2.10886E-10	
C10	0	0	0	0	0				0	0	0	
C10+	4.46538E-07	4.46538E-07	4.46538E-07	0.0233935	4.46538E-07				1.88088E-11	2.35689E-20	1.38320E-15	
Mass Fraction												
Water	0.0112425	0.0112425	0.0112425	0.572930	0.0112425				0.0336760	0.999921	0.999812	
H2S	0	0	0	0	0				0	0	0	
N2	0.0438870	0.0438870	0.0438870	0.00293019	0.0438870				0.0267086	4.10474E-07	3.40539E-06	
CO2	0.00858311	0.00858311	0.00858311	0.000619208	0.00858311				0.0323347	1.92017E-05	2.28254E-05	
C1	0.245262	0.245262	0.245262	0.0166845	0.245262				0.265961	8.38487E-06	3.82073E-05	
C2	0.208747	0.208747	0.208747	0.0158248	0.208747				0.262356	1.15775E-05	4.09953E-05	
C3	0.244187	0.244187	0.244187	0.0238625	0.244187				0.227123	6.99997E-06	3.24675E-05	
iC4	0.0331621	0.0331621	0.0331621	0.00437770	0.0331621				0.0190195	3.75743E-07	2.50845E-06	
nC4	0.101228	0.101228	0.101228	0.0157923	0.101228				0.0868008	2.46283E-06	1.21959E-05	
iC5	0.0227520	0.0227520	0.0227520	0.00619977	0.0227520				0.0126781	2.39476E-07	1.66111E-06	
nC5	0.0227109	0.0227109	0.0227109	0.00751608	0.0227109				0.00724432	6.18134E-08	8.74146E-07	
2-Methylpentane	0.00584209	0.00584209	0.00584209	0.00369612	0.00584209				0.00212606	2.33445E-08	2.61746E-07	
3-Methylpentane	0.00482336	0.00482336	0.00482336	0.00331978	0.00482336				0.00348125	8.92757E-08	4.79634E-07	
nC6	0.00943105	0.00943105	0.00943105	0.00774132	0.00943105				0.00190389	1.07015E-08	2.24193E-07	
Cyclohexane	0.00269257	0.00269257	0.00269257	0.00251220	0.00269257				0.00454583	4.39588E-07	9.49283E-07	
C7	0.0254072	0.0254072	0.0254072	0.0550023	0.0254072				0.00332700	1.30592E-08	3.86130E-07	
Methylcyclohexane	1.62213E-05	1.62213E-05	1.62213E-05	3.10982E-05	1.62213E-05				1.57243E-05	6.49015E-10	2.41218E-09	
Benzene	0.000604190	0.000604190	0.000604190	0.000484035	0.000604190				0.00202366	7.04256E-06	7.26869E-06	
Toluene	0.00198698	0.00198698	0.00198698	0.00453893	0.00198698				0.00652664	1.72366E-05	1.79665E-05	
Ethylbenzene	0.000272656	0.000272656	0.000272656	0.00163597	0.000272656				0.000814309	1.82340E-06	1.91451E-06	
o-Xylene	0.000297639	0.000297639	0.000297639	0.00219015	0.000297639				0.000910975	3.06269E-06	3.16450E-06	
2,2,4-Trimethylpentane	0	0	0	0	0				0	0	0	
C8	0.00653673	0.00653673	0.00653673	0.0391122	0.00653673				0.000410063	7.21611E-10	4.67038E-08	
C9	0.000323088	0.000323088	0.000323088	0.00543143	0.000323088				1.32125E-05	1.96440E-11	1.50122E-09	
C10	0	0	0	0	0				0	0	0	
C10+	3.64425E-06	3.64425E-06	3.64425E-06	0.207567	3.64425E-06				1.65750E-10	3.16718E-19	1.85867E-14	
Mass Flow	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
Water	0.0154678	6.20949	6.22495	4806.23	0	0	0	0	0.0181275	4799.48	4799.50	0
H2S	0	0	0	0	0	0	0	0	0	0	0	0
N2	0.0603810	24.2397	24.3001	24.5809	0	0	0	0	0.0143770	0.00197022	0.0163473	0
CO2	0.0118089	4.74063	4.75244	5.19446	0	0	0	0	0.0174055	0.0921657	0.109571	0
C1	0.337439	135.463	135.801	139.964	0	0	0	0	0.143164	0.0402462	0.183411	0
C2	0.287201	115.295	115.583	132.752	0	0	0	0	0.141224	0.0555703	0.196794	0
C3	0.335960	134.870	135.206	200.180	0	0	0	0	0.122258	0.0335989	0.155857	0
iC4	0.0456254	18.3161	18.3617	36.7239	0	0	0	0	0.0102380	0.00180352	0.0120415	0
nC4	0.139273	55.9103	56.0496	132.480	0	0	0	0	0.0467241	0.0118213	0.0585454	0
iC5	0.0313029	12.5664	12.5977	52.0090	0	0	0	0	0.00682453	0.00114945	0.00797399	0
nC5	0.0312463	12.5437	12.5749	63.0514	0	0	0	0	0.00389955	0.000296696	0.00419625	0
2-Methylpentane	0.00803771	3.22670	3.23474	31.0062	0	0	0	0	0.00114444	0.000112050	0.00125649	0
3-Methylpentane	0.00663612	2.66404	2.67068	27.8492	0	0	0	0	0.00187393	0.000428511	0.00230244	0
nC6	0.0129755	5.20896	5.22193	64.9410	0	0	0	0	0.00102485	5.13657E-05	0.00107622	0
Cyclohexane	0.00370451	1.48716	1.49086	21.0745	0	0	0	0	0.00244698	0.00210996	0.00455694	0
C7	0.0349559	14.0329	14.0678	461.407	0	0	0	0	0.00179090	6.26823E-05	0.00185358	0
Methylcyclohexane	2.23177E-05	0.00895933	0.00898165	0.260879	0	0	0	0	8.46427E-06	3.11518E-06	1.15795E-05	0
Benzene	0.000831263	0.333707	0.334538	4.06051	0	0	0	0	0.00108932	0.0338033	0.0348926	0
Toluene	0.00273375	1.09745	1.10019	38.0765	0	0	0	0	0.00351323	0.0827334	0.0862466	0
Ethylbenzene	0.000375128	0.150593	0.150968	13.7240	0	0	0	0	0.000438336	0.00875207	0.00919041	0
o-Xylene	0.000409500	0.164392	0.164801	18.3729	0	0	0	0	0.000490370	0.0147005	0.0151909	0
2,2,4-Trimethylpentane	0	0	0	0	0	0	0	0	0	0	0	0
C8	0.00899342	3.61037	3.61936	328.107	0	0	0	0	0.000220733	3.46364E-06	0.000224197	0
C9	0.000444514	0.178448	0.178893	45.5635	0	0	0	0	7.11217E-06	9.42886E-08	7.20646E-06	0
C10	0	0	0	0	0	0	0	0	0	0	0	0
C10+	5.01387E-06	0.00201279	0.00201781	1741.26	0	0	0	0	8.92219E-11	1.52021E-15	8.92235E-11	0

Process Streams	2	3	6	8	9	10	11	12	14	15	18	21
Composition Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total From Block:	SPLT-105	Heater Treater	MIX-103	VRU	--	Heater Treater	SPLT-101	SPLT-101	VRT	VRT	--	SPLT-100
To Block:	MIX-103	MIX-100	VRU	MIX-101	--	SPLT-101	MIX-102	VRT	MIX-102	SPLT-103	--	HP Separator
Std Vapor Volumetric Flow	MMSCFD	MMSCFD	MMSCFD	MMSCFD	MMSCFD	MMSCFD	MMSCFD	MMSCFD	MMSCFD	MMSCFD	MMSCFD	MMSCFD
Water	1.83817E-05	2.42639	1.83817E-05	1.83817E-05	7.49682E-06*	0.000256697	0.000256697	0	0	0	7.49682E-06*	0
H2S	0	0	0	0	0*	0	0	0	0	0	0*	0
N2	4.61458E-05	5.31476E-06	4.61458E-05	4.61458E-05	3.27149E-07*	8.60076E-05	8.60076E-05	0	0	0	3.27149E-07*	0
CO2	5.74461E-06	2.26754E-05	5.74461E-06	5.74461E-06	1.72786E-06*	6.87992E-05	6.87992E-05	0	0	0	1.72786E-06*	0
C1	0.000450321	0.000104126	0.000450321	0.000450321	2.37349E-05*	0.00225950	0.00225950	0	0	0	2.37349E-05*	0
C2	0.000204486	5.96070E-05	0.000204486	0.000204486	0.000548532*	0.00514097	0.00514097	0	0	0	0.000163655*	0
C3	0.000163113	3.21911E-05	0.000163113	0.000163113	0.00576504*	0.0133877	0.0133877	0	0	0	0.000264941*	0
iC4	1.68059E-05	1.88688E-06	1.68059E-05	1.68059E-05	0.00185777*	0.00287543	0.00287543	0	0	0	3.48158E-05*	0
nC4	5.13004E-05	9.17393E-06	5.13004E-05	5.13004E-05	0.00863707*	0.0119673	0.0119673	0	0	0	0.000113234*	0
iC5	9.28867E-06	1.00659E-06	9.28867E-06	9.28867E-06	0.00431719*	0.00497403	0.00497403	0	0	0	2.19498E-05*	0
nC5	9.27187E-06	5.29709E-07	9.27187E-06	9.27187E-06	0.00571236*	0.00637131	0.00637131	0	0	0	2.18766E-05*	0
2-Methylpentane	1.99686E-06	1.32794E-07	1.99686E-06	1.99686E-06	0.00279338*	0.00293495	0.00293495	0	0	0	4.63274E-06*	0
3-Methylpentane	1.64865E-06	2.43338E-07	1.64865E-06	1.64865E-06	0.00254424*	0.00266080	0.00266080	0	0	0	3.80634E-06*	0
nC6	3.22358E-06	1.13742E-07	3.22358E-06	3.22358E-06	0.00608771*	0.00631141	0.00631141	0	0	0	7.25177E-06*	0
Cyclohexane	9.42380E-07	4.93146E-07	9.42380E-07	9.42380E-07	0.00205240*	0.00211882	0.00211882	0	0	0	2.16008E-06*	0
C7	7.46865E-06	1.68477E-07	7.46865E-06	7.46865E-06	0.0401754*	0.0406597	0.0406597	0	0	0	1.53630E-05*	0
Methylcyclohexane	4.86628E-09	1.07410E-09	4.86628E-09	4.86628E-09	2.30390E-05*	2.33646E-05	2.33646E-05	0	0	0	1.04008E-08*	0
Benzene	2.27834E-07	4.06838E-06	2.27834E-07	2.27834E-07	0.000414217*	0.000430369	0.000430369	0	0	0	5.26662E-07*	0
Toluene	6.35208E-07	8.52523E-06	6.35208E-07	6.35208E-07	0.00360429*	0.00364648	0.00364648	0	0	0	1.34369E-06*	0
Ethylbenzene	7.56476E-08	7.88421E-07	7.56476E-08	7.56476E-08	0.00115896*	0.00116360	0.00116360	0	0	0	1.44532E-07*	0
o-Xylene	8.25791E-08	1.30318E-06	8.25791E-08	8.25791E-08	0.00155571*	0.00156072	0.00156072	0	0	0	1.55623E-07*	0
2,2,4-Trimethylpentane	0	0	0	0	0*	0	0	0	0	0	0*	0
C8	1.68557E-06	1.78756E-08	1.68557E-06	1.68557E-06	0.0257711*	0.0258719	0.0258719	0	0	0	3.12419E-06*	0
C9	7.42008E-08	5.11743E-10	7.42008E-08	7.42008E-08	0.00321876*	0.00322284	0.00322284	0	0	0	1.23499E-07*	0
C10	0	0	0	0	0*	0	0	0	0	0	0*	0
C10+	4.43379E-10	3.35652E-15	4.43379E-10	4.43379E-10	0.0655046*	0.0655046	0.0655046	0	0	0	2.99090E-10*	0
Mole Fraction												
Water	0.0185127	0.999896	0.0185127	0.0185127	4.12423E-05*	0.00126143	0.00126143	0.00126143			0.0108273*	0.867742
H2S	0	0	0	0	0*	0	0	0			0*	0
N2	0.0464746	2.19018E-06	0.0464746	0.0464746	1.79974E-06*	0.000422647	0.000422647	0.000422647			0.000472483*	0.00285404
CO2	0.00578554	9.34437E-06	0.00578554	0.00578554	9.50546E-06*	0.000338084	0.000338084	0.000338084			0.00249545*	0.000383902
C1	0.453529	4.29095E-05	0.453529	0.453529	0.000130573*	0.0111033	0.0111033	0.0111033			0.0342790*	0.0283774
C2	0.205943	2.45636E-05	0.205943	0.205943	0.00301764*	0.0252631	0.0252631	0.0252631			0.236359*	0.0143599
C3	0.164276	1.32657E-05	0.164276	0.164276	0.0317152*	0.0657882	0.0657882	0.0657882			0.382641*	0.0147656
iC4	0.0169257	7.77571E-07	0.0169257	0.0169257	0.0102202*	0.0141301	0.0141301	0.0141301			0.0502826*	0.00205511
nC4	0.0516659	3.78051E-06	0.0516659	0.0516659	0.0475151*	0.0588079	0.0588079	0.0588079			0.163538*	0.00741369
iC5	0.00935485	4.14807E-07	0.00935485	0.00935485	0.0237502*	0.0244428	0.0244428	0.0244428			0.0317010*	0.00234464
nC5	0.00933793	2.18289E-07	0.00933793	0.00933793	0.0314255*	0.0313090	0.0313090	0.0313090			0.0315952*	0.00284245
2-Methylpentane	0.00201108	5.47237E-08	0.00201108	0.00201108	0.0153673*	0.0144226	0.0144226	0.0144226			0.00669082*	0.00117029
3-Methylpentane	0.00166040	1.00278E-07	0.00166040	0.00166040	0.0139966*	0.0130753	0.0130753	0.0130753			0.00549729*	0.00105113
nC6	0.00324655	4.68723E-08	0.00324655	0.00324655	0.0334903*	0.0310147	0.0310147	0.0310147			0.0104734*	0.00245111
Cyclohexane	0.000949094	2.03222E-07	0.000949094	0.000949094	0.0112909*	0.0104120	0.0104120	0.0104120			0.00311969*	0.000814482
C7	0.00752186	6.94281E-08	0.00752186	0.00752186	0.221017*	0.199805	0.199805	0.199805			0.0221880*	0.0149774
Methylcyclohexane	4.90095E-06	4.42627E-10	4.90095E-06	4.90095E-06	0.000126745*	0.000114815	0.000114815	0.000114815			1.50213E-05*	8.64203E-06
Benzene	0.000229458	1.67655E-06	0.000229458	0.000229458	0.00227873*	0.00211486	0.00211486	0.00211486			0.000760630*	0.000169079
Toluene	0.000639734	3.51319E-06	0.000639734	0.000639734	0.0198283*	0.0179190	0.0179190	0.0179190			0.00194062*	0.00134414
Ethylbenzene	7.61866E-05	3.24903E-07	7.61866E-05	7.61866E-05	0.00637582*	0.00571803	0.00571803	0.00571803			0.000208740*	0.000420460
o-Xylene	8.31675E-05	5.37033E-07	8.31675E-05	8.31675E-05	0.00855844*	0.00766949	0.00766949	0.00766949			0.000224758*	0.000562889
2,2,4-Trimethylpentane	0	0	0	0	0*	0	0	0			0*	0
C8	0.00169758	7.36639E-09	0.00169758	0.00169758	0.141775*	0.127136	0.127136	0.127136			0.00451210*	0.00934260
C9	7.47295E-05	2.10886E-10	7.47295E-05	7.47295E-05	0.0177074*	0.0158373	0.0158373	0.0158373			0.000178364*	0.00115550
C10	0	0	0	0	0*	0	0	0			0*	0
C10+	4.46538E-07	1.38320E-15	4.46538E-07	4.46538E-07	0.360361*	0.321894	0.321894	0.321894			4.31959E-07*	0.0233935
Mass Fraction												
Water	0.0112425	0.999812	0.0112425	0.0112425	5.06628E-06	0.000167314	0.000167314	0.000167314			0.00414087	0.572930
H2S	0	0	0	0	0	0	0	0			0	0
N2	0.0438870	3.40539E-06	0.0438870	0.0438870	3.43781E-07	8.71710E-05	8.71710E-05	8.71710E-05			0.000280985	0.00293019
CO2	0.00858311	2.28254E-05	0.00858311	0.00858311	2.85250E-06	0.000109547	0.000109547	0.000109547			0.00233145	0.000619208
C1	0.245262	3.82073E-05	0.245262	0.245262	1.42833E-05	0.00131145	0.00131145	0.00131145			0.0116743	0.0166845
C2	0.208747	4.09953E-05	0.208747	0.208747	0.000618718	0.00559286	0.00559286	0.00559286			0.150877	0.0158248
C3	0.244187	3.24675E-05	0.244187	0.244187	0.00953605	0.0213585	0.0213585	0.0213585			0.358194	0.0238625
iC4	0.0331621	2.50845E-06	0.0331621	0.0331621	0.00405048	0.00604664	0.00604664	0.00604664			0.0620428	0.00437770
nC4	0.101228	1.21959E-05	0.101228	0.101228	0.0188313	0.0251655	0.0251655	0.0251655			0.201786	0.0157923
iC5	0.0227520	1.66111E-06	0.0227520	0.0227520	0.0116843	0.0129840	0.0129840	0.0129840			0.0485549	0.00619977
nC5	0.0227109	8.74146E-07	0.0227109	0.0227109	0.0154602	0.0166313	0.0166313	0.0166313			0.0483929	0.00751608
2-Methylpentane	0.00584209	2.61746E-07	0.00584209	0.00584209	0.00902994	0.00915069	0.00915069	0.00915069			0.0122404	0.00369612
3-Methylpentane	0.00482336	4.79634E-07	0.00482336	0.00482336	0.00822454	0.00829591	0.00829591	0.00829591			0.0100569	0.00331978
nC6	0.00943105	2.24193E-07	0.00943105	0.00943105	0.0196792	0.0196779	0.0196779	0.0196779			0.0191602	0.00774132
Cyclohexane	0.00269257	9.49283E-07	0.00269257	0.00269257	0.00647944	0.00645159	0.00645159	0.00645159			0.00557373	0.00251220
C7	0.0254072	3.86130E-07	0.0254072	0.0254072	0.151010	0.147404	0.147404	0.147404			0.0471983	0.0550023
Methylcyclohexane	1.62213E-05	2.41218E-09	1.62213E-05	1.62213E-05	8.48565E-05	8.29998E-05	8.29998E-05	8.29998E-05			3.13104E-05	3.10982E-05
Benzene	0.000604190	7.26869E-06	0.000604190	0.000604190	0.00121371	0.00121626	0.00121626	0.00121626			0.00126131	0.000484035
Toluene	0.00198698	1.79665E-05	0.00198698	0.00198698	0.0124575	0.0121558	0.0121558	0.0121558			0.00379588	0.00453893
Ethylbenzene	0.000272656	1.91451E-06	0.000272656	0.000272656	0.00461554	0.00446947	0.00446947	0.00446947			0.000470455	0.00163597
o-Xylene	0.000297639	3.16450E-06	0.000297639	0.000297639	0.00619557	0.00599482	0.00599482	0.00599482			0.000506557	0.00219015
2,2,4-Trimethylpentane	0	0	0	0	0	0	0	0			0	0
C8	0.00653673	4.67038E-08	0.00653673	0.00653673	0.110428	0.106923	0.106923	0.106923			0.0109417	0.0391122
C9	0.000323088	1.50122E-09	0.000323088	0.000323088	0.0154858	0.0149549	0.0149549	0.0149549			0.000485638	0.00543143
C10	0	0	0	0	0	0	0	0			0	0
C10+	3.64425E-06	1.85867E-14	3.64425E-06	3.64425E-06	0.594892	0.573768	0.573768	0.573768			2.22008E-06	0.207567
Mass Flow	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
Water	0.0363598	4799.50	0.0363598	0.0363598	0.0148291*	0.507758	0.507758	0	0	0	0.0148291*	0
H2S	0	0	0	0	0*	0	0	0	0	0	0*	0
N2	0.141936	0.0163473	0.141936	0.141936	0.00100625*	0.264544	0.264544	0	0	0	0.00100625*	0
CO2	0.0277589	0.109571	0.0277589	0.0277589	0.00834928*	0.332449	0.332449	0	0	0	0.00834928*	0
C1	0.793210	0.183411	0.793210	0.793210	0.0418074*	3.97995	3.97995	0	0	0	0.0418074*	0
C2	0.675116	0.196794	0.675116	0.675116	1.81099*	16.9730	16.9730	0	0	0	0.540313*	0
C3	0.789733	0.155857	0.789733	0.789733	27.9121*	64.8183	64.8183	0	0	0	1.28275*	0
iC4	0.107251	0.0120415	0.107251	0.107251	11.8558*	18.3502	18.3502	0	0	0	0.222184*	0
nC4	0.327385	0.0585454	0.327385	0.327385	55.1193*	76.3716	76.3716	0	0	0	0.722626*	0
iC5	0.0735830	0.00797399	0.0735830	0.0735830	34.1999*	39.4033	39.4033	0	0	0	0.173882*	0
nC5	0.0734500	0.00419625	0.0734500	0.0734500	45.2522*	50.4723	50.4723	0	0	0	0.173302*	0
2-Methylpentane	0.0188941	0.00125649	0.0188941	0.0188941	26.4307*	27.7702	27.7702	0	0	0	0.0438345*	0
3-Methylpentane	0.0155994	0.00230244	0.0155994	0.0155994	24.0733*	25.1762	25.1762	0	0	0	0.0360152*	0
nC6	0.0305012	0.00107622	0.0305012	0.0305012	57.6013*	59.7179	59.7179	0	0	0	0.0686156*	0
Cyclohexane	0.00870811	0.00455694	0.00870811	0.00870811	18.9654*	19.5791	19.5791	0	0	0	0.0199603*	0
C7	0.0821700	0.00185358	0.0821700	0.0821700	442.009*	447.338	447.338	0	0	0	0.169024*	0
Methylcyclohexane	5.24616E-05	1.15795E-05	5.24616E-05	5.24616E-05	0.248376*	0.251885	0.251885	0	0	0	0.000112127*	0
Benzene	0.00195403	0.0348926	0.00195403	0.00195403	3.55255*	3.69108	3.69108	0	0	0	0.00451694*	0
Toluene	0.00642616	0.0862466	0.00642616	0.00642616	36.4633*	36.8901	36.8901	0	0	0	0.0135936*	0
Ethylbenzene	0.000881803	0.00919041	0.000881803	0.000881803	13.5097*	13.5638	13.5638	0	0	0	0.00168477*	0
o-Xylene	0.000962602	0.0151909	0.000962602	0.000962602	18.1345*	18.1929	18.1929	0	0	0	0.00181406*	0
2,2,4-Trimethylpentane	0	0	0	0	0*	0	0	0	0	0	0*	0
C8	0.0211406	0.000224197	0.0211406	0.0211406	323.224*	324.487	324.487	0	0	0	0.0391838*	0
C9	0.00104491	7.20646E-06	0.00104491	0.00104491	45.3272*	45.3846	45.3846	0	0	0	0.00173914*	0
C10	0	0	0	0	0*	0	0	0	0	0	0*	0
C10+	1.17860E-05	8.92235E-11	1.17860E-05	1.17860E-05	1741.25*	1741.25	1741.25	0	0	0	7.95044E-06*	0

Process Streams		Heater Treater Gas	HP Flared Gas	HT Flared Gas	Inlet Gas	Inlet Oil	Inlet Separator Gas	Inlet Water	Oil Flash	Oil Loadout	Oil Tank Feed
Properties	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	Heater Treater	SPLT-104	SPLT-105	--	--	HP Separator	--	Oil Tank	Oil Tank	MIX-102
	To Block:	SPLT-105	--	MIX-101	Inlet Mixer	Inlet Mixer	SPLT-104	Inlet Mixer	--	--	Oil Tank
Property	**Units**										
Temperature	°F	110*	113	110	84.9*	84.9*	113*	84.9*	90.1620*	90.1620	110
Pressure	psig	56*	84	56	67.4*	67.4*	84*	67.4*	0*	0	56
Molecular Weight	lb/lbmol	29.6651		29.6651	27.0087	129.410		18.0153	44.9414	145.350	135.823
Mass Flow	lb/h	553.696	0	550.462	442.972	3139.66	0	4806.23	95.2829	2939.49	3034.77
Std Vapor Volumetric Flow	MMSCFD	0.169993	0*	0.169*	0.149375*	0.220964	0	2.42979	0.0193096	0.184188	0.203497
Std Liquid Volumetric Flow	sgpm	2.60116	0	2.58597	2.20996	8.74906*	0	9.60801*	0.375696	7.99173	8.36743
Net Ideal Gas Heating Value	Btu/ft^3	1489.19		1489.19	1363.09	6508.26		0	2327.22	7292.78	6821.60
Gross Ideal Gas Heating Value	Btu/ft^3	1629.47		1629.47	1493.86	6985.07		50.3100	2528.77	7821.00	7318.83

Process Streams		Pilot Gas	Sales	Sales Gas	Sat. Gas	Sweep Blanket Gas	To Flare	VRT to Flare	VRT to Sales	Water Flash	Water Loadout	Water Tank feed	1
Properties	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	SPLT-102	SPLT-102	MIX-101	Inlet Mixer	SPLT-102	MIX-108	SPLT-103	SPLT-103	Water Tank	Water Tank	MIX-100	SPLT-104
	To Block:	--	--	SPLT-102	SPLT-100	--	--	MIX-108	MIX-103	--	--	Water Tank	MIX-101
Property	**Units**												
Temperature	°F	110.221	110.221	110.221	84.4361					90.1620*	90.1620	110	113
Pressure	psig	56	56	56	67.4	56	8	8	8	0*	0	56	84
Molecular Weight	lb/lbmol	29.6651	29.6651	29.6651	27.2854	29.6651				27.4727	18.0161	18.0168	
Mass Flow	lb/h	1.37583	552.320	553.696	8388.87	0	0	0	0	0.538291	4799.86	4800.40	0
Std Vapor Volumetric Flow	MMSCFD	0.0004224*	0.169571	0.169993	2.80013	0*	0	0	0	0.000178452	2.42646	2.42664	0
Std Liquid Volumetric Flow	sgpm	0.00646339	2.59470	2.60116	20.5670	0	0	0	0	0.00261048	9.59583	9.59844	0
Net Ideal Gas Heating Value	Btu/ft^3	1489.19	1489.19	1489.19	586.295	1489.19				1343.53	0.0542104	0.153008	
Gross Ideal Gas Heating Value	Btu/ft^3	1629.47	1629.47	1629.47	674.553	1629.47				1473.69	50.3665	50.4711	

Process Streams		2	3	6	8	9	10	11	12	14	15	18	21
Properties	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	SPLT-105	Heater Treater	MIX-103	VRU	--	Heater Treater	SPLT-101	SPLT-101	VRT	VRT	--	SPLT-100
	To Block:	MIX-103	MIX-100	VRU	MIX-101	--	SPLT-101	MIX-102	VRT	MIX-102	SPLT-103	--	HP Separator
Property	**Units**												
Temperature	°F	110	110	110	149.640	90.1620	110	110	110			90.1620	
Pressure	psig	56	56	56	84*	-3.57445	56	56	56	8	8*	1.27567	67.4
Molecular Weight	lb/lbmol	29.6651	18.0168	29.6651	29.6651	146.654	135.823	135.823	135.823			47.1051	27.2854
Mass Flow	lb/h	3.23413	4800.40	3.23413	3.23413	2927.01	3034.77	3034.77	0	0	0	3.58115	0
Std Vapor Volumetric Flow	MMSCFD	0.000992925	2.42664	0.000992925	0.000992925	0.181775	0.203497	0.203497	0	0	0	0.000692402	0
Std Liquid Volumetric Flow	sgpm	0.0151933	9.59844	0.0151933	0.0151933	7.94316	8.36743	8.36743	0	0	0	0.0139407	0
Net Ideal Gas Heating Value	Btu/ft^3	1489.19	0.153008	1489.19	1489.19	7357.13	6821.60	6821.60	6821.60			2443.77	586.295
Gross Ideal Gas Heating Value	Btu/ft^3	1629.47	50.4711	1629.47	1629.47	7889.58	7318.83	7318.83	7318.83			2653.80	674.553

Process Streams		22	25	26	27	28	31	32 - Oil Tool W&B
Composition	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	SPLT-100	--	--	--	HP Separator	MIX-104	MIX-105
	To Block:	MIX-104	MIX-105	--	MIX-105	MIX-104	Heater Treater	--
Std Vapor Volumetric Flow		MMSCFD	MMSCFD	MMSCFD	MMSCFD	MMSCFD	MMSCFD	MMSCFD
Water		2.42979	1.33949E-05*	0.000223078*	1.27272E-05*	0	2.42979	2.61222E-05
H2S		0	0*	0*	0*	0	0	0
N2		0.00799167	5.84532E-07*	8.45405E-05*	5.55395E-07*	0	0.00799167	1.13993E-06
CO2		0.00107498	3.08724E-06*	6.10507E-05*	2.93335E-06*	0	0.00107498	6.02059E-06
C1		0.0794604	4.24082E-05*	0.00215306*	4.02943E-05*	0	0.0794604	8.27025E-05
C2		0.0402094	0.000292411*	0.00402219*	0.000277835*	0	0.0402094	0.000570246
C3		0.0413456	0.000473383*	0.00669952*	0.000449786*	0	0.0413456	0.000923170
IC4		0.00575456	6.22070E-05*	0.000896343*	5.91061E-05*	0	0.00575456	0.000121313
nC4		0.0207593	0.000202320*	0.00293563*	0.000192235*	0	0.0207593	0.000394556
IC5		0.00656530	3.92188E-05*	0.000580364*	3.72639E-05*	0	0.00656530	7.64827E-05
nC5		0.00795922	3.90879E-05*	0.000582715*	3.71395E-05*	0	0.00795922	7.62274E-05
2-Methylpentane		0.00327696	8.27755E-06*	0.000125428*	7.86493E-06*	0	0.00327696	1.61425E-05
3-Methylpentane		0.00294330	6.80096E-06*	0.000103296*	6.46195E-06*	0	0.00294330	1.32629E-05
nC6		0.00686342	1.29571E-05*	0.000198436*	1.23112E-05*	0	0.00686342	2.52683E-05
Cyclohexane		0.00228065	3.85952E-06*	5.88904E-05*	3.66713E-06*	0	0.00228065	7.52665E-06
C7		0.0419385	2.74499E-05*	0.000430799*	2.60816E-05*	0	0.0419385	5.35314E-05
Methylcyclohexane		2.41988E-05	1.85835E-08*	2.89326E-07*	1.76572E-08*	0	2.41988E-05	3.62407E-08
Benzene		0.000473444	9.41012E-07*	1.43167E-05*	8.94105E-07*	0	0.000473444	1.83512E-06
Toluene		0.00376375	2.40083E-06*	3.75018E-05*	2.28116E-06*	0	0.00376375	4.68199E-06
Ethylbenzene		0.00117734	2.58242E-07*	4.13495E-06*	2.45369E-07*	0	0.00117734	5.03611E-07
o-Xylene		0.00157616	2.78059E-07*	4.46762E-06*	2.64199E-07*	0	0.00157616	5.42258E-07
2,2,4-Trimethylpentane		0	0*	0*	0*	0	0	0
C8		0.0261605	5.58213E-06*	8.98697E-05*	5.30388E-06*	0	0.0261605	1.08860E-05
C9		0.00323554	2.20662E-07*	3.64976E-06*	2.09663E-07*	0	0.00323554	4.30325E-07
C10		0	0*	0*	0*	0	0	0
C10+		0.0655047	5.34398E-10*	1.08276E-08*	5.07760E-10*	0	0.0655047	1.04216E-09
Mole Fraction								
Water		0.867742	0.0108273*	0.0115527*	0.0108273*		0.867742	0.0108273
H2S		0	0*	0*	0*		0	0
N2		0.00285404	0.000472483*	0.00437816*	0.000472483*		0.00285404	0.000472483
CO2		0.000383902	0.00249545*	0.00316168*	0.00249545*		0.000383902	0.00249545
C1		0.0283774	0.0342790*	0.111502*	0.0342790*		0.0283774	0.0342790
C2		0.0143599	0.236359*	0.208300*	0.236359*		0.0143599	0.236359
C3		0.0147656	0.382641*	0.346953*	0.382641*		0.0147656	0.382641
IC4		0.00205511	0.0502826*	0.0464196*	0.0502826*		0.00205511	0.0502826
nC4		0.00741369	0.163538*	0.152030*	0.163538*		0.00741369	0.163538
IC5		0.00234464	0.0317010*	0.0300557*	0.0317010*		0.00234464	0.0317010
nC5		0.00284245	0.0315952*	0.0301775*	0.0315952*		0.00284245	0.0315952
2-Methylpentane		0.00117029	0.00669082*	0.00649562*	0.00669082*		0.00117029	0.00669082
3-Methylpentane		0.00105113	0.00549729*	0.00534948*	0.00549729*		0.00105113	0.00549729
nC6		0.00245111	0.0104734*	0.0102766*	0.0104734*		0.00245111	0.0104734
Cyclohexane		0.000814482	0.00311969*	0.00304980*	0.00311969*		0.000814482	0.00311969
C7		0.0149774	0.0221880*	0.0223101*	0.0221880*		0.0149774	0.0221880
Methylcyclohexane		8.64203E-06	1.50213E-05*	1.49836E-05*	1.50213E-05*		8.64203E-06	1.50213E-05
Benzene		0.000169079	0.000760630*	0.000741431*	0.000760630*		0.000169079	0.000760630
Toluene		0.00134414	0.00194062*	0.00194214*	0.00194062*		0.00134414	0.00194062
Ethylbenzene		0.000420460	0.000208740*	0.000214140*	0.000208740*		0.000420460	0.000208740
o-Xylene		0.000562889	0.000224758*	0.000231368*	0.000224758*		0.000562889	0.000224758
2,2,4-Trimethylpentane		0	0*	0*	0*		0	0
C8		0.00934260	0.00451210*	0.00465415*	0.00451210*		0.00934260	0.00451210
C9		0.00115550	0.000178364*	0.000189013*	0.000178364*		0.00115550	0.000178364
C10		0	0*	0*	0*		0	0
C10+		0.0233935	4.31959E-07*	5.60737E-07*	4.31959E-07*		0.0233935	4.31959E-07
Mass Fraction								
Water		0.572930	0.00414087	0.00463104	0.00414087		0.572930	0.00414087
H2S		0	0	0	0		0	0
N2		0.00293019	0.000280985	0.00272905	0.000280985		0.00293019	0.000280985
CO2		0.000619208	0.00233145	0.00309612	0.00233145		0.000619208	0.00233145
C1		0.0166845	0.0116743	0.0398022	0.0116743		0.0166845	0.0116743
C2		0.0158248	0.150877	0.139368	0.150877		0.0158248	0.150877
C3		0.0238625	0.358194	0.340423	0.358194		0.0238625	0.358194
IC4		0.00437770	0.0620428	0.0600339	0.0620428		0.00437770	0.0620428
nC4		0.0157923	0.201786	0.196618	0.201786		0.0157923	0.201786
IC5		0.00619977	0.0485549	0.0482514	0.0485549		0.00619977	0.0485549
nC5		0.00751608	0.0483929	0.0484468	0.0483929		0.00751608	0.0483929
2-Methylpentane		0.00369612	0.0122404	0.0124554	0.0122404		0.00369612	0.0122404
3-Methylpentane		0.00331978	0.0100569	0.0102576	0.0100569		0.00331978	0.0100569
nC6		0.00774132	0.0191602	0.0197054	0.0191602		0.00774132	0.0191602
Cyclohexane		0.00251220	0.00557373	0.00571121	0.00557373		0.00251220	0.00557373
C7		0.0550023	0.0471983	0.0497429	0.0471983		0.0550023	0.0471983
Methylcyclohexane		3.10982E-05	3.13104E-05	3.27355E-05	3.13104E-05		3.10982E-05	3.13104E-05
Benzene		0.000484035	0.00126131	0.00128867	0.00126131		0.000484035	0.00126131
Toluene		0.00453893	0.00379588	0.00398175	0.00379588		0.00453893	0.00379588
Ethylbenzene		0.00163597	0.000470455	0.000505861	0.000470455		0.00163597	0.000470455
o-Xylene		0.00219015	0.000506557	0.000546560	0.000506557		0.00219015	0.000506557
2,2,4-Trimethylpentane		0	0	0	0		0	0
C8		0.0391122	0.0109417	0.0118296	0.0109417		0.0391122	0.0109417
C9		0.00543143	0.000485638	0.000539411	0.000485638		0.00543143	0.000485638
C10		0	0	0	0		0	0
C10+		0.207567	2.22008E-06	3.02069E-06	2.22008E-06		0.207567	2.22008E-06
Liquid Vol Flow		lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
Water		4806.23	0.0264958*	0.441258*	0.0251750*	0	4806.23	0.0516708
H2S		0	0*	0*	0*	0	0	0
N2		24.5809	0.00179792*	0.260031*	0.00170829*	0	24.5809	0.00350621
CO2		5.19446	0.0149181*	0.295007*	0.0141744*	0	5.19446	0.0290925
C1		139.964	0.0746992*	3.79247*	0.0709757*	0	139.964	0.145675
C2		132.752	0.965403*	13.2794*	0.917280*	0	132.752	1.88268
C3		200.180	2.29194*	32.4365*	2.17769*	0	200.180	4.46964
IC4		36.7239	0.396987*	5.72021*	0.377198*	0	36.7239	0.774186
nC4		132.480	1.29115*	18.7344*	1.22679*	0	132.480	2.51794
IC5		52.0090	0.310684*	4.59753*	0.295197*	0	52.0090	0.605881
nC5		63.0514	0.309647*	4.61615*	0.294212*	0	63.0514	0.603859
2-Methylpentane		31.0062	0.0783213*	1.18678*	0.0744172*	0	31.0062	0.152738
3-Methylpentane		27.8492	0.0643500*	0.977378*	0.0611424*	0	27.8492	0.125492
nC6		64.9410	0.122599*	1.87758*	0.116487*	0	64.9410	0.239086
Cyclohexane		21.0745	0.0356641*	0.544181*	0.0338863*	0	21.0745	0.0695504
C7		461.407	0.302003*	4.73965*	0.286949*	0	461.407	0.588952
Methylcyclohexane		0.260879	0.000200343*	0.00311913*	0.000190356*	0	0.260879	0.000390699
Benzene		4.06051	0.00807067*	0.122788*	0.00766833*	0	4.06051	0.0157390
Toluene		38.0765	0.0242883*	0.379392*	0.0230776*	0	38.0765	0.0473660
Ethylbenzene		13.7240	0.00301025*	0.0481999*	0.00286020*	0	13.7240	0.00587046
o-Xylene		18.3729	0.0032412e*	0.0520778*	0.00307969*	0	18.3729	0.00632095
2,2,4-Trimethylpentane		0	0*	0*	0*	0	0	0
C8		328.107	0.0700116*	1.12715*	0.0665217*	0	328.107	0.136533
C9		45.5635	0.00310741*	0.0513966*	0.00295251*	0	45.5635	0.00605991
C10		0	0*	0*	0*	0	0	0
C10+		1741.26	1.42054E-05*	0.000287820*	1.34973E-05*	0	1741.26	2.77028E-05

Process Streams		22	25	26	27	28	31	32 - Oil Tool W&B
Properties	Status:	Solved	Solved	Solved	Solved	Solved	Solved	Solved
Phase: Total	From Block:	SPLT-100	--	--	--	HP Separator	MIX-104	MIX-105
	To Block:	MIX-104	MIX-105	--	MIX-105	MIX-104	Heater Treater	--
Property	Units							
Temperature	°F	84.4361	90.1620	90.1620	90.1620	113	84.4361	90.1620
Pressure	psig	67.4	1.27567	7.57697E-13	1.27567	84	67.4	1.27567
Molecular Weight	lb/lbmol	27.2854	47.1051	44.9414	47.1051		27.2854	47.1051
Mass Flow	lb/h	8388.87	6.39861	95.2829	6.07965	0	8388.87	12.4783
Std Vapor Volumetric Flow	MMSCFD	2.80013	0.00123715	0.0193096	0.00117548	0	2.80013	0.00241263
Std Liquid Volumetric Flow	sgpm	20.5670	0.0249084	0.375696	0.0236668	0	20.5670	0.0485753
Net Ideal Gas Heating Value	Btu/ft^3	586.295	2443.77	2327.22	2443.77		586.295	2443.77
Gross Ideal Gas Heating Value	Btu/ft^3	674.553	2653.80	2528.77	2653.80		674.553	2653.80

Attachment 3:

Production Data

Ward Production

Row Labels	Sum of Oil	Sum of Water	Sum of Gas Prod-Emissions	Sum of HP Flare
9-Oct	296.08	350.42	171.9	0
10-Oct	281.08	316.67	171.45	11.38
11-Oct	278.38	345.33	175.16	0
12-Oct	294.03	353	178.47	9.49
13-Oct	278.78	289.59	170.2	15.07
14-Oct	273.14	396.68	167.15	7.8
15-Oct	280.42	372.58	171.1	1.23
16-Oct	297.51	350.33	180.33	8.33
17-Oct	277.61	341.91	169.58	0.07
18-Oct	253.72	256.59	156.66	71.47
19-Oct	254.15	363.34	156.88	15.02
20-Oct	302.13	340.24	182.84	14.89
21-Oct	264.2	373.82	162.31	17.4
22-Oct	301.82	369.91	182.67	1.5
23-Oct	300.4	370.51	181.91	12.47
24-Oct	282.12	367.91	172.01	4.91
25-Oct	296.35	331.25	179.7	19.63
26-Oct	194.87	252.91	124.83	30.27
27-Oct	212.91	251.25	133.36	97.7
28-Oct	287.85	362.83	175.12	116.22
29-Oct	330.02	337.74	197.93	148.26
30-Oct	290.44	311.59	176.52	75.1
31-Oct	306.56	363.99	185.24	10.67
1-Nov	273.75	348.58	167.49	42.52
2-Nov	294.97	349.58	178.98	2.61
3-Nov	251.87	287.24	159.75	0
4-Nov	216.38	197.92	143.43	0
5-Nov	293.625	331.625	185.9	13.72
6-Nov	221.595	340.795	146.94	2.27
7-Nov	230.39	234.16	144.04	25.15
Grand Total	**8217.15**	**9860.29**	**5049.85**	**775.15**
Average	273.91	328.68	168.33	N/A

Attachment 4:

Sampling Data

SPL-inc.
5057 Owan Industrial Part
Drive Unit 5
Williston, ND 58801

EXTENDED HYDROCARBON LIQUID STUDY
CERTIFICATE OF ANALYSIS

Company:	Marathon	Sample Name:	**Ward Rohr Pressurized Liquid**
Sample Date:	9/30/2020	Lab ID Number:	20100002-005A
Sample Facility:	Ward Rohr	Date Tested:	10/2/2020
Sample Equipment:	Treater	Test Method:	GPA 2186M
Sample Location:	ND	Date Reported:	10/2/2020
Sample Pressure:	67.4 PSIG		
Sample Temperature:	84.9°F		
Sampling Method:	GPA-2174		
Type Sample:	Spot		

Components	Mole %	Weight %	Liq. Vol. %
Carbon Dioxide	0.017	0.006	0.005
Nitrogen	0.021	0.005	0.004
Methane	1.272	0.160	0.382
Ethane	3.523	0.829	1.670
Propane	8.687	2.996	4.241
iso-Butane	1.756	0.799	1.018
n-Butane	7.158	3.254	3.999
iso-Pentane	2.656	1.499	1.721
n-Pentane	3.232	1.824	2.076
2-Methylpentane	1.483	1.000	1.097
3-Methylpentane	1.332	0.898	0.963
Other Hexanes	1.009	0.680	0.746
Heptanes	18.865	14.167	14.592
Octanes	11.827	10.267	10.348
Nonanes	1.460	1.465	1.451
Decanes+	29.638	55.806	51.603
Benzene	0.210	0.129	0.104
Toluene	1.696	1.223	1.006
Ethylbenzene	0.532	0.441	0.363
m-Xylene	0.550	0.457	0.377
p-Xylene	0.089	0.074	0.061
o-Xylene	0.072	0.059	0.048
n-Hexane	2.913	1.964	2.123
2,2,4-Trimethylpentane	0.000	0.000	0.000
Totals	**100.000**	**100.000**	**100.000**

Page 1 of 2

CALCULATED SAMPLE CHARACTERISTICS

	Total	C10+
RELATIVE SPECIFIC GRAVITY	**0.71819**	**0.7773**
API GRAVITY AT 60/60 F	**65.5**	**50.53**
TRUE VAPOR PRESSURE AT 100 F, PSIA	**116.690**	**0.0008**
AVERAGE MOLECULAR WEIGHT	**127.846**	**242.1**
AVERAGE BOILING POINT, F	**244.878**	**563.3**
BTU / GALLON OF LIQUID AT 14.73 PSIA	**122,029**	**130,288**
LBS / GALLON OF LIQUID	**5.988**	**6.481**

NOTATION: ALL CALCULATIONS PERFORMED USING PHYSICAL CONSTANTS FROM GPA 2145-16, THE TABLES OF PHYSICAL CONSTANTS FOR HYDROCARBONS AND OTHER COMPOUNDS OF INTEREST TO THE NATURAL GAS INDUSTRY.

QUALITY CONTROL DATA

Company:	Marathon	Sample Name:	Ward Rohr
Date Sampled:	9/30/2020	Date Tested:	10/2/2020

Page 2 of 2

Zedi US Inc
5057 Owan Industrial Park
Williston, ND 58801
701-368-7180

Client:	MARATHON OIL	**Analysis Date:**	9/30/2020
Sample ID:	Ward-Rohr CTB DAY 1	**Date Sampled:**	9/30/2020
Unique #:	Not Indicated	**Purpose:**	SEMI ANNUAL
Sample Temperature:	66 DEG F	**Sample Pressure:**	65 PSI
Sampled By:	MITCH STENBERG	**Type Sample:**	On-Site
		County:	MOUNTRAIL

Components	Mole%	Weight%	Liq. Vol. %
Hydrogen Sulfide	0.0000	0.0000	0.0000
Nitrogen	5.3190	5.5187	2.7402
Carbon Dioxide	0.6945	1.1320	0.5550
Methane	51.3135	30.4890	40.7366
Ethane	21.7069	24.1744	27.1847
Propane	14.8285	24.2176	19.1306
iso-Butane	1.2548	2.7012	1.9228
n-Butane	3.3087	7.1226	4.8847
iso-Pentane	0.4630	1.2372	0.7929
n-Pentane	0.5473	1.4625	0.9290
Cyclopentane	0.0032	0.0103	0.0055
n-Hexane	0.2856	0.9115	0.5458
Cyclohexane	0.0234	0.0729	0.0373
Other Hexanes	0.0108	0.0344	0.0184
Heptanes	0.1693	0.6283	0.3658
Methylcyclohexane	0.0162	0.0589	0.0305
2,2,4-Trimethylpentane	0.0000	0.0000	0.0000
Benzene	0.0063	0.0182	0.0083
Toluene	0.0108	0.0369	0.0169
Ethylbenzene	0.0012	0.0047	0.0022
Xylenes	0.0034	0.0134	0.0062
Octanes	0.0178	0.0753	0.0427
Nonanes	0.0063	0.0299	0.0166
Decanes+	0.0095	0.0501	0.0273
Total:	100.0000	100.0000	100.0000

ADDITIONAL BTEX DATA

Components	Mole%	Weight%	Liq. Vol. %
Cyclopentane	0.003	0.010	0.005
Cyclohexane	0.023	0.073	0.037
2-Methylpentane	0.007	0.022	0.012
3-Methylpentane	0.004	0.013	0.007
n-Hexane	0.286	0.912	0.546
Methylcyclohexane	0.016	0.059	0.031
2,2,4-Trimethylpentane	0.000	0.000	0.000
Benzene	0.006	0.018	0.008
Toluene	0.011	0.037	0.017
Ethylbenzene	0.001	0.005	0.002
m-Xylene	0.001	0.002	0.001
p-Xylene	0.002	0.009	0.004
o-Xylene	0.001	0.002	0.001

SAMPLE CHARACTERISTICS

SPECIFIC GRAVITY @ 60/60 F, calculated	**0.9322**
TOTAL GPM (Ethane Inclusive)	**11.9134**
CALCULATED BTU / REAL CF @ 14.73 PSIA, dry basis	**1505.5967**
CALCULATED BTU / REAL CF @ 14.73 PSIA, wet basis	**1479.3934**
AVERAGE MOLECULAR WEIGHT	**26.9998**
MOLAR MASS RATIO	**0.9315**
RELATIVE DENSITY (G x Z (Air) / Z), calculated	**0.9377**
IDEAL GROSS HEATING VALUE, BTU / IDEAL CF @ 14.696 PSIA	**1493.4243**
COMPRESSIBILITY FACTOR (Z)	**0.9942**

PROPANE GPM	**4.0748**
BUTANE GPM	**1.4500**
GASOLINE GPM (PENTANE AND HEAVIER)	**0.5983**
TOTAL ACID GAS MOLE %	**0.6945**
H2S MOLE %	**0.0000**
H2S PPM	**0.0000**
VOC WEIGHT FRACTION	**0.3861**

NOTATION: ALL CALCULATIONS PERFORMED USING PHYSICAL CONSTANTS FROM GPA 2145-09, THE TABLES OF PHYSICAL CONSTANTS FOR HYDROCARBONS AND OTHER COMPOUNDS OF INTEREST TO THE NATURAL GAS INDUSTRY.