



WEST VIRGINIA
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 DIVISION OF AIR QUALITY
 601 57th Street, SE
 Charleston, WV 25304
 Phone: (304) 926-0475 · www.dep.wv.gov/daq

APPLICATION FOR GENERAL PERMIT REGISTRATION
 CONSTRUCT, MODIFY, RELOCATE OR ADMINISTRATIVELY UPDATE
 A STATIONARY SOURCE OF AIR POLLUTANTS

<input checked="" type="checkbox"/> CONSTRUCTION	<input type="checkbox"/> MODIFICATION	<input type="checkbox"/> RELOCATION	<input checked="" type="checkbox"/> CLASS I ADMINISTRATIVE UPDATE
<input type="checkbox"/> CLASS I ADMINISTRATIVE UPDATE			
CHECK WHICH TYPE OF GENERAL PERMIT REGISTRATION YOU ARE APPLYING FOR:			
<input type="checkbox"/> G10-D – Coal Preparation and Handling	<input type="checkbox"/> G40-C – Nonmetallic Minerals Processing		
<input type="checkbox"/> G20-B – Hot Mix Asphalt	<input type="checkbox"/> G50-B - Concrete Batch		
<input type="checkbox"/> G30-D – Natural Gas Compressor Stations	<input type="checkbox"/> G60-C – Class II Emergency Generator		
<input type="checkbox"/> G33-A – Spark Ignition Internal Combustion Engines	<input type="checkbox"/> G65-C – Class I Emergency Generator		
<input type="checkbox"/> G35-A – Natural Gas Compressor Stations (Flare/Glycol Dehydration Unit)	<input checked="" type="checkbox"/> G70-A – Class II Oil and Natural Gas Production Facility		

SECTION I. GENERAL INFORMATION

1. Name of Applicant (as registered with the WV Secretary of State's Office): Noble Energy, Inc		2. Federal Employer ID No. (FEIN): 73-0785597	
3. Applicant's mailing address: c/o Clayton Murrell 1000 Noble Energy Drive Canonsburg, PA 15317		4. Applicant's Physical Address 730 Les Lane	
5. If applicant is a subsidiary corporation, please provide the name of parent corporation:			
6. WV BUSINESS REGISTRATION. Is the applicant a resident of the State of West Virginia? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
- IF YES, provide a copy of the Certificate of Incorporation/ Organization / Limited Partnership (one page) including any name change amendments or other Business Registration Certificate as Attachment A.			
- IF NO, provide a copy of the Certificate of Authority / Authority of LLC / Registration (one page) including any name change amendments or other Business Certificate as Attachment A.			

SECTION II. FACILITY INFORMATION

7. Type of plant or facility (stationary source) to be constructed, modified, relocated or administratively updated (e.g., coal preparation plant, primary crusher, etc.): Oil and Gas Production Facility	8a. Standard Industrial Classification (SIC) code: 1311	8b. North American Industry Classification System (NAICS) code: 211111
9. DAQ Plant ID No. (for existing facilities only): 051-00223	10. List all current 45CSR13 and other General Permit numbers associated with this process (for existing facilities only): G70-A187	

A: PRIMARY OPERATING SITE INFORMATION		
11A. Facility name of primary operating site: Web 22 Production Facility	12A. Address of primary operating site: Mailing: _____ Physical: <u>See Section 14A</u>	
13A. Does the applicant own, lease, have an option to buy, or otherwise have control of the proposed site? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO - IF YES, please explain: <u>Lease</u> _____ - IF NO, YOU ARE NOT ELIGIBLE FOR A PERMIT FOR THIS SOURCE.		
14A. - For Modifications or Administrative Updates at an existing facility, please provide directions to the present location of the facility from the nearest state road; - For Construction or Relocation permits, please provide directions to the proposed new site location from the nearest state road. Include a MAP as Attachment F . From Interstate I-70, take Dallas Pike Road Exit (Exit 11), at bottom of ramp, make a right if traveling east or left if traveling west onto CR 41 (Dallas Pike Road), and travel Dallas Pike Road approximately 5.2 miles to the town of Dallas, make a right onto CR 26 (Number Two Ridge Road), travel Number Two Ridge Road for 5.43 miles to CR 15 (Majorsville/Dry Ridge Road), make a right onto Majorsville/Dry Ridge Road and travel approximately 4.6 miles to the turn around, turn vehicle around and travel back approximately 1.0 miles to lease road on right.		
15A. Nearest city or town: Dallas	16A. County Marshall County	17A. UTM Coordinates Northing (KM): 4419301.367583 Easting (KM): 541045.590077 Zone: 17N
18A. Briefly describe the proposed new operation or change (s) to the facility: Oil and gas production facility		19A. Latitude & Longitude Coordinates (NAD83, Decimal Degrees to 5 digits): Latitude: 39.92274 Longitude: -80.51989

B: 1st ALTERNATE OPERATING SITE INFORMATION (only available for G20, G40, & G50 General Permits)

11B. Name of 1st alternate operating site:	12B. Address of 1st alternate operating site: Mailing: _____ Physical: _____	
13B. Does the applicant own, lease, have an option to buy, or otherwise have control of the proposed site? <input type="checkbox"/> YES <input type="checkbox"/> NO - IF YES, please explain: _____ _____ - IF NO, YOU ARE NOT ELIGIBLE FOR A PERMIT FOR THIS SOURCE.		

<p>14B. - For Modifications or Administrative Updates at an existing facility, please provide directions to the present location of the facility from the nearest state road; - For Construction or Relocation permits, please provide directions to the proposed new site location from the nearest state road. Include a MAP as Attachment F.</p>		
15B. Nearest city or town:	16B. County	17B. UTM Coordinates Northing (KM): Easting (KM): Zone:
18B. Briefly describe the proposed new operation or change (s) to the facility:		19B. Latitude & Longitude Coordinates (NAD83, Decimal Degrees to 5 digits): Latitude: Longitude:

C: 2nd ALTERNATE OPERATING SITE INFORMATION (only available for G20, G40, & G50 General Permits)

11C. Name of 1st alternate operating site:	12C. Address of 1st alternate operating site:	
	Mailing: _____	Physical: _____
<p>13C. Does the applicant own, lease, have an option to buy, or otherwise have control of the proposed site? <input type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>- IF YES, please explain: _____</p> <p>- IF NO, YOU ARE NOT ELIGIBLE FOR A PERMIT FOR THIS SOURCE.</p>		
<p>14C. - For Modifications or Administrative Updates at an existing facility, please provide directions to the present location of the facility from the nearest state road; - For Construction or Relocation permits, please provide directions to the proposed new site location from the nearest state road. Include a MAP as Attachment F.</p>		
15C. Nearest city or town:	16C. County	17C. UTM Coordinates Northing (KM): Easting (KM): Zone:
18C. Briefly describe the proposed new operation or change (s) to the facility:		19C. Latitude & Longitude Coordinates (NAD83, Decimal Degrees to 5 digits): Latitude: Longitude:

20. Provide the date of anticipated installation or change: 1/1/2016 If this is an after the fact permit application, provide the date upon which the proposed change did happen: / /	21. Date of anticipated Start-up if registration is granted: 1/31/2016						
22. Provide maximum projected Operating Schedule of activity/activities outlined in this application if other than 8760 hours/year. (Note: anything other than 24/7/52 may result in a restriction to the facility's operation).							
Hours per day	24	Days per week	7	Weeks per year	52	Percentage of Operation	100

SECTION III. ATTACHMENTS AND SUPPORTING DOCUMENTS

23. Include a check payable to WVDEP – Division of Air Quality with the appropriate application fee (per 45CSR22 and 45CSR13).
24. Include a Table of Contents as the first page of your application package.

All of the required forms and additional information can be found under the Permitting Section (General Permits) of DAQ's website, or requested by phone.

25. Please check all attachments included with this permit application. Please refer to the appropriate reference document for an explanation of the attachments listed below.

- ATTACHMENT A : CURRENT BUSINESS CERTIFICATE
- ATTACHMENT B: PROCESS DESCRIPTION
- ATTACHMENT C: DESCRIPTION OF FUGITIVE EMISSIONS
- ATTACHMENT D: PROCESS FLOW DIAGRAM
- ATTACHMENT E: PLOT PLAN
- ATTACHMENT F: AREA MAP
- ATTACHMENT G: EQUIPMENT DATA SHEETS AND REGISTRATION SECTION
- ATTACHMENT H: AIR POLLUTION CONTROL DEVICE SHEETS
- ATTACHMENT I: EMISSIONS CALCULATIONS
- ATTACHMENT J: CLASS I LEGAL ADVERTISEMENT
- ATTACHMENT K: ELECTRONIC SUBMITTAL
- ATTACHMENT L: GENERAL PERMIT REGISTRATION APPLICATION FEE
- ATTACHMENT M: SITING CRITERIA WAIVER
- ATTACHMENT N: MATERIAL SAFETY DATA SHEETS (MSDS)
- ATTACHMENT O: EMISSIONS SUMMARY SHEETS
- OTHER SUPPORTING DOCUMENTATION NOT DESCRIBED ABOVE (Equipment Drawings, Aggregation Discussion, etc.)

Please mail an original and two copies of the complete General Permit Registration Application with the signature(s) to the DAQ Permitting Section, at the address shown on the front page of this application. Please DO NOT fax permit applications. For questions regarding applications or West Virginia Air Pollution Rules and Regulations, please refer to the website shown on the front page of the application or call the phone number also provided on the front page of the application.

SECTION IV. CERTIFICATION OF INFORMATION

This General Permit Registration Application shall be signed below by a Responsible Official. A Responsible Official is a President, Vice President, Secretary, Treasurer, General Partner, General Manager, a member of a Board of Directors, or Owner, depending on business structure. A business may certify an Authorized Representative who shall have authority to bind the Corporation, Partnership, Limited Liability Company, Association, Joint Venture or Sole Proprietorship. Required records of daily throughput, hours of operation and maintenance, general correspondence, Emission Inventory, Certified Emission Statement, compliance certifications and all required notifications must be signed by a Responsible Official or an Authorized Representative. If a business wishes to certify an Authorized Representative, the official agreement below shall be checked off and the appropriate names and signatures entered. Any administratively incomplete or improperly signed or unsigned Registration Application will be returned to the applicant.

FOR A CORPORATION (domestic or foreign)

I certify that I am a President, Vice President, Secretary, Treasurer or in charge of a principal business function of the corporation

FOR A PARTNERSHIP

I certify that I am a General Partner

FOR A LIMITED LIABILITY COMPANY

I certify that I am a General Partner or General Manager

FOR AN ASSOCIATION

I certify that I am the President or a member of the Board of Directors

FOR A JOINT VENTURE

I certify that I am the President, General Partner or General Manager

FOR A SOLE PROPRIETORSHIP

I certify that I am the Owner and Proprietor

I hereby certify that _____ is an Authorized Representative and in that capacity shall represent the interest of the business (e.g., Corporation, Partnership, Limited Liability Company, Association Joint Venture or Sole Proprietorship) and may obligate and legally bind the business. If the business changes its Authorized Representative, a Responsible Official shall notify the Director of the Office of Air Quality immediately and/or,

I hereby certify that all information contained in this General Permit Registration Application and any supporting documents

Signature _____ Date 12/22/15
(Please use blue ink) Responsible Official

Name & Title RJ Moses Operations Manager Marcellus Business Unit
(Please print or type)

Signature _____ Date _____
(Please use blue ink) Authorized Representative (if applicable)

Applicant's Name Noble Energy, Inc

Phone & Fax (724) 820-3010
Phone Fax

Email rl.moses@nblenergy.com cc: clayton.murral@nblenergy.com

Noble Energy, Inc
Web 22 Production Facility
Permit G70-A Application

ATTACHMENT G

Equipment Data Sheets and Registration Section Applicability Form

STORAGE VESSEL EMISSION UNIT DATA SHEET

Provide the following information for each new or modified bulk liquid storage tank.

I. GENERAL INFORMATION (required)

1. Bulk Storage Area Name	2. Tank Name
Web 22 Pad Tank Battery	1-400 bbl Condensate Tank
3. Emission Unit ID number	4. Emission Point ID number
6S-TK5	4E-COMB1
5. Date Installed or Modified (for existing tanks)	6. Type of change:
	<input checked="" type="checkbox"/> New Construction <input type="checkbox"/> New Stored Material <input type="checkbox"/> Other
7A. Description of Tank Modification (if applicable)	
7B. Will more than one material be stored in this tank? If so, a separate form must be completed for each material. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
7C. Provide any limitations on source operation affecting emissions. (production variation, etc.)	

I. TANK INFORMATION (required)

8. Design Capacity (specify barrels or gallons). Use the internal cross-sectional area multiplied by internal height. 400 bbl			
9A. Tank Internal Diameter (ft.)	12	9B. Tank Internal Height (ft.)	20
10A. Maximum Liquid Height (ft.)	19.5	10B. Average Liquid Height (ft.)	10
11A. Maximum Vapor Space Height (ft.)	18.3	11B. Average Vapor Space Height (ft.)	10
12. Nominal Capacity (specify barrels or gallons). This is also known as "working volume.		393 bbl	
13A. Maximum annual throughput (gal/yr) per tank	1,042,440	13B. Maximum daily throughput (gal/day) per tank	2,856
14. Number of tank turnovers per year	63 per tank	15. Maximum tank fill rate (gal/min)	2211
16. Tank fill method <input checked="" type="checkbox"/> Submerged <input type="checkbox"/> Splash <input type="checkbox"/> Bottom Loading			
17. Is the tank system a variable vapor space system? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, (A) What is the volume expansion capacity of the system (gal)? (B) What are the number of transfers into the system per year?			
18. Type of tank (check all that apply): <input checked="" type="checkbox"/> Fixed Roof <input checked="" type="checkbox"/> vertical <input type="checkbox"/> horizontal <input type="checkbox"/> flat roof <input checked="" type="checkbox"/> cone roof <input type="checkbox"/> dome roof <input type="checkbox"/> other (describe) <input type="checkbox"/> External Floating Roof <input type="checkbox"/> pontoon roof <input type="checkbox"/> double deck roof <input type="checkbox"/> Domed External (or Covered) Floating Roof <input type="checkbox"/> Internal Floating Roof <input type="checkbox"/> vertical column support <input type="checkbox"/> self-supporting <input type="checkbox"/> Variable Vapor Space <input type="checkbox"/> lifter roof <input type="checkbox"/> diaphragm <input type="checkbox"/> Pressurized <input type="checkbox"/> spherical <input type="checkbox"/> cylindrical <input type="checkbox"/> Underground <input type="checkbox"/> Other (Describe)			

III. TANK CONSTRUCTION AND OPERATION INFORMATION (check which one applies)

<input checked="" type="checkbox"/> Refer to enclosed TANKS Summary Sheets
<input type="checkbox"/> Refer to the responses to items 19-26 in section VII

IV. SITE INFORMATION (check which one applies)

<input checked="" type="checkbox"/> Refer to enclosed TANKS Summary Sheets
<input type="checkbox"/> Refer to the responses to items 27-33 in section VII

25D. If yes, how is the secondary seal mounted? (check one) <input type="checkbox"/> Shoe <input type="checkbox"/> Rubber (describe):	
25E. Is the floating roof equipped with a weather shield? <input type="checkbox"/> Yes <input type="checkbox"/> No	
25F. Describe deck fittings:	
26. Complete the following section for Internal Floating Roof Tanks <input checked="" type="checkbox"/> Does not apply	
26A. Deck Type: <input type="checkbox"/> Bolted <input type="checkbox"/> Welded	26B. For bolted decks, provide deck construction:
26C. Deck seam. Continuous sheet construction: <input type="checkbox"/> 5 ft wide <input type="checkbox"/> 6 ft wide <input type="checkbox"/> 7 ft wide <input type="checkbox"/> 5 x 7.5 ft wide <input type="checkbox"/> 5 x 12 ft wide <input type="checkbox"/> other (describe)	
26D. Deck seam length (ft.):	26E. Area of deck (ft ²):
26F. For column supported tanks, # of columns:	
26G. For column supported tanks, diameter of column:	
SITE INFORMATION:	
27. Provide the city and state on which the data in this section are based:	
28. Daily Avg. Ambient Temperature (°F):	29. Annual Avg. Maximum Temperature (°F):
30. Annual Avg. Minimum Temperature (°F):	31. Avg. Wind Speed (mph):
32. Annual Avg. Solar Insulation Factor (BTU/ft ² -day):	33. Atmospheric Pressure (psia):
LIQUID INFORMATION:	
34. Avg. daily temperature range of bulk liquid (°F):	34A. Minimum (°F):
	34B. Maximum (°F):
35. Avg. operating pressure range of tank (psig):	35A. Minimum (psig):
	35B. Maximum (psig):
36A. Minimum liquid surface temperature (°F):	36B. Corresponding vapor pressure (psia):
37A. Avg. liquid surface temperature (°F):	37B. Corresponding vapor pressure (psia):
38A. Maximum liquid surface temperature (°F):	38B. Corresponding vapor pressure (psia):
39. Provide the following for each liquid or gas to be stored in the tank. Add additional pages if necessary.	
39A. Material name and composition:	
39B. CAS number:	
39C. Liquid density (lb/gal):	
39D. Liquid molecular weight (lb/lb-mole):	
39E. Vapor molecular weight (lb/lb-mole):	
39F. Maximum true vapor pressure (psia):	
39G. Maxim Reid vapor pressure (psia):	
39H. Months Storage per year. From:	
To:	

STORAGE VESSEL EMISSION UNIT DATA SHEET

Provide the following information for each new or modified bulk liquid storage tank.

I. GENERAL INFORMATION (required)

1. Bulk Storage Area Name Web 22 Produced Water Tank Battery	2. Tank Name 4-400 bbl Produced Water Tanks
3. Emission Unit ID number IS-TK1-4	4. Emission Point ID number IE-TK1-4
5. Date Installed or Modified (for existing tanks)	6. Type of change: <input type="checkbox"/> New Construction <input type="checkbox"/> New Stored Material <input checked="" type="checkbox"/> Other
7A. Description of Tank Modification (if applicable)	Existing tanks to be incorporated into registration
7B. Will more than one material be stored in this tank? If so, a separate form must be completed for each material. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
7C. Provide any limitations on source operation affecting emissions. (production variation, etc.)	

I. TANK INFORMATION (required)

8. Design Capacity (specify barrels or gallons). Use the internal cross-sectional area multiplied by internal height. 400 bbl			
9A. Tank Internal Diameter (ft.)	12	9B. Tank Internal Height (ft.)	20
10A. Maximum Liquid Height (ft.)	19.5	10B. Average Liquid Height (ft.)	10
11A. Maximum Vapor Space Height (ft.)	18.3	11B. Average Vapor Space Height (ft.)	10
12. Nominal Capacity (specify barrels or gallons). This is also known as "working volume.		393 bbl	
13A. Maximum annual throughput (gal/yr) per tank	6,499,920	13B. Maximum daily throughput (gal/day) per tank	17,808
14. Number of tank turnovers per year	387 per tank	15. Maximum tank fill rate (gal/min)	1171.8
16. Tank fill method <input checked="" type="checkbox"/> Submerged <input type="checkbox"/> Splash <input type="checkbox"/> Bottom Loading			
17. Is the tank system a variable vapor space system? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
If yes, (A) What is the volume expansion capacity of the system (gal)? (B) What are the number of transfers into the system per year?			
18. Type of tank (check all that apply): <input checked="" type="checkbox"/> Fixed Roof <input checked="" type="checkbox"/> vertical <input type="checkbox"/> horizontal <input type="checkbox"/> flat roof <input checked="" type="checkbox"/> cone roof <input type="checkbox"/> dome roof <input type="checkbox"/> other (describe) <input type="checkbox"/> External Floating Roof <input type="checkbox"/> pontoon roof <input type="checkbox"/> double deck roof <input type="checkbox"/> Domed External (or Covered) Floating Roof <input type="checkbox"/> Internal Floating Roof <input type="checkbox"/> vertical column support <input type="checkbox"/> self-supporting <input type="checkbox"/> Variable Vapor Space <input type="checkbox"/> lifter roof <input type="checkbox"/> diaphragm <input type="checkbox"/> Pressurized <input type="checkbox"/> spherical <input type="checkbox"/> cylindrical <input type="checkbox"/> Underground <input type="checkbox"/> Other (Describe)			

III. TANK CONSTRUCTION AND OPERATION INFORMATION (check which one applies)

<input type="checkbox"/> Refer to enclosed TANKS Summary Sheets
<input type="checkbox"/> Refer to the responses to items 19-26 in section VII

IV. SITE INFORMATION (check which one applies)

<input checked="" type="checkbox"/> Refer to enclosed TANKS Summary Sheets
<input type="checkbox"/> Refer to the responses to items 27-33 in section VII

25D. If yes, how is the secondary seal mounted? (check one) <input type="checkbox"/> Shoe <input type="checkbox"/> Rim		
25E. Is the floating roof equipped with a weather shield? <input type="checkbox"/> Yes <input type="checkbox"/> No		
25F. Describe deck fittings:		
26. Complete the following section for Internal Floating Roof Tanks <input checked="" type="checkbox"/> Does not apply		
26A. Deck Type: <input type="checkbox"/> Bolted <input type="checkbox"/> Welded	26B. For bolted decks, provide deck construction:	
26C. Deck seam. Continuous sheet construction: <input type="checkbox"/> 5 ft wide <input type="checkbox"/> 6 ft wide <input type="checkbox"/> 7 ft wide <input type="checkbox"/> 5 x 7.5 ft wide <input type="checkbox"/> 5 x 12 ft wide <input type="checkbox"/> other (describe)		
26D. Deck seam length (ft.):	26E. Area of deck (ft ²):	
26F. For column supported tanks, # of columns:		
26G. For column supported tanks, diameter of column:		
SITE INFORMATION:		
27. Provide the city and state on which the data in this section are based:		
28. Daily Avg. Ambient Temperature (°F):	29. Annual Avg. Maximum Temperature (°F):	
30. Annual Avg. Minimum Temperature (°F):	31. Avg. Wind Speed (mph):	
32. Annual Avg. Solar Insulation Factor (BTU/ft ² -day):	33. Atmospheric Pressure (psia):	
LIQUID INFORMATION:		
34. Avg. daily temperature range of bulk liquid (°F):	34A. Minimum (°F):	34B. Maximum (°F):
35. Avg. operating pressure range of tank (psig):	35A. Minimum (psig):	35B. Maximum (psig):
36A. Minimum liquid surface temperature (°F):	36B. Corresponding vapor pressure (psia):	
37A. Avg. liquid surface temperature (°F):	37B. Corresponding vapor pressure (psia):	
38A. Maximum liquid surface temperature (°F):	38B. Corresponding vapor pressure (psia):	
39. Provide the following for each liquid or gas to be stored in the tank. Add additional pages if necessary.		
39A. Material name and composition:		
39B. CAS number:		
39C. Liquid density (lb/gal):		
39D. Liquid molecular weight (lb/lb-mole):		
39E. Vapor molecular weight (lb/lb-mole):		
39F. Maximum true vapor pressure (psia):		
39G. Maxim Reid vapor pressure (psia):		
39H. Months Storage per year. From:		
To:		

**TANK TRUCK LOADING
EMISSION UNIT DATA SHEET**

Furnish the following information for each new or modified bulk liquid transfer area or loading rack at the natural gas production pad. This form is to be used for bulk liquid transfer operations to tank trucks.

1. Emission Unit ID: 7S-TL2		2. Emission Point ID: 4E-COMB1		3. Year Installed/ Modified: 2016	
4. Emission Unit Description: Condensate Truck Loadout					
5. Loading Area Data:					
5A. Number of pumps: <p style="text-align: center;">1</p>		5B. Number of liquids loaded: <p style="text-align: center;">1</p>		5C. Maximum number of tank trucks loading at one time: <p style="text-align: center;">1</p>	
6. Describe cleaning location, compounds and procedure for tank trucks: N/A					
7. Are tank trucks pressure tested for leaks at this or any other location? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If YES, describe:					
8. Projected Maximum Operating Schedule (for rack or transfer point as a whole):					
Maximum	Jan. - Mar.	Apr. - June	July - Sept.	Oct. - Dec.	
hours/day	24	24	24	24	
days/week	7	7	7	7	

9. Bulk Liquid Data <i>(add pages as necessary)</i> :					
Liquid Name	Condensate				
Max. daily throughput (1000 gal/day) (per tank)	2.86				
Max. annual throughput (1000 gal/yr) (per tank)	1,042				
Loading Method ¹	SUB				
Max. Fill Rate (gal/min)	TBD				
Average Fill Time (min/loading)	TBD				
Max. Bulk Liquid Temperature (°F)	99.0				
True Vapor Pressure ²	12				
Cargo Vessel Condition ³	TBD				
Control Equipment or Method ⁴	Vapor Combustor				
Minimum collection efficiency (%)	98%				
Minimum control efficiency (%)	98%				
<i>* Continued on next page</i>					

Maximum Emission Rate	Loading (lb/hr)	0.02 controlled	
	Annual (ton/yr)	0.07 controlled	
Estimation Method ⁵		EPA	
Notes:			
¹ BF = Bottom Fill SP = Splash Fill SUB = Submerged Fill			
² At maximum bulk liquid temperature			
³ B = Ballasted Vessel, C = Cleaned, U = Uncleaned (dedicated service), O = other (describe)			
⁴ List as many as apply (complete and submit appropriate <i>Air Pollution Control Device Sheets as Attachment "H"</i>):			
CA = Carbon Adsorption			
VB = Dedicated Vapor Balance (closed system)			
ECD = Enclosed Combustion Device			
F = Flare			
TO = Thermal Oxidation or Incineration			
⁵ EPA = EPA Emission Factor as stated in AP-42			
MB = Material Balance			
TM = Test Measurement based upon test data submittal			
O = other (describe)			

10. Proposed Monitoring, Recordkeeping, Reporting, and Testing	
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.	
MONITORING <i>Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment operation air pollution control device.</i>	RECORDKEEPING <i>Please describe the proposed recordkeeping that will accompany the monitoring.</i>
Track Loading Throughput	Maintain loading throughput records.
REPORTING <i>Please describe the proposed frequency of reporting of the recordkeeping.</i>	TESTING <i>Please describe any proposed emissions testing for this process equipment air pollution control device.</i>
11. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty:	

**TANK TRUCK LOADING
EMISSION UNIT DATA SHEET**

Furnish the following information for each new or modified bulk liquid transfer area or loading rack at the natural gas production pad. This form is to be used for bulk liquid transfer operations to tank trucks.

1. Emission Unit ID: 2S-TL1		2. Emission Point ID: 2E-TL1		3. Year Installed/ Modified: 2015	
4. Emission Unit Description: Produced Water Truck Loadout					
5. Loading Area Data:					
5A. Number of pumps: <p style="text-align: center;">1</p>		5B. Number of liquids loaded: <p style="text-align: center;">1</p>		5C. Maximum number of tank trucks loading at one time: <p style="text-align: center;">1</p>	
6. Describe cleaning location, compounds and procedure for tank trucks: N/A					
7. Are tank trucks pressure tested for leaks at this or any other location? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If YES, describe:					
8. Projected Maximum Operating Schedule (for rack or transfer point as a whole):					
Maximum	Jan. - Mar.	Apr. - June	July - Sept.	Oct. - Dec.	
hours/day	24	24	24	24	
days/week	7	7	7	7	

9. Bulk Liquid Data (add pages as necessary):			
Liquid Name	Produced Water		
Max. daily throughput (1000 gal/day) (per tank)	71.2		
Max. annual throughput (1000 gal/yr) (per tank)	26,000		
Loading Method ¹	SUB		
Max. Fill Rate (gal/min)	TBD		
Average Fill Time (min/loading)	TBD		
Max. Bulk Liquid Temperature (°F)	70.0		
True Vapor Pressure ²	< 1		
Cargo Vessel Condition ³	TBD		
Control Equipment or Method ⁴	N/A		
Minimum collection efficiency (%)	N/A		
Minimum control efficiency (%)	N/A		
* Continued on next page			

Maximum Emission Rate	Loading (lb/hr)	0.53	uncontrolled	
	Annual (ton/yr)	2.32	uncontrolled	
Estimation Method ⁵	EPA			
Notes:				
¹ BF = Bottom Fill SP = Splash Fill SUB = Submerged Fill				
² At maximum bulk liquid temperature				
³ B = Ballasted Vessel, C = Cleaned, U = Uncleaned (dedicated service), O = other (describe)				
⁴ List as many as apply (complete and submit appropriate <i>Air Pollution Control Device Sheets as Attachment "H"</i>):				
CA = Carbon Adsorption				
VB = Dedicated Vapor Balance (closed system)				
ECD = Enclosed Combustion Device				
F = Flare				
TO = Thermal Oxidation or Incineration				
⁵ EPA = EPA Emission Factor as stated in AP-42				
MB = Material Balance				
TM = Test Measurement based upon test data submittal				
O = other (describe)				

10. Proposed Monitoring, Recordkeeping, Reporting, and Testing	
Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.	
MONITORING <i>Please list and describe the process parameters and ranges that are proposed to be monitored in order to demonstrate compliance with the operation of this process equipment operation/air pollution control device.</i>	RECORDKEEPING <i>Please describe the proposed recordkeeping that will accompany the monitoring.</i>
Track Loading Throughput	Maintain loading throughput records.
REPORTING <i>Please describe the proposed frequency of reporting of the recordkeeping.</i>	TESTING <i>Please describe any proposed emissions testing for this process equipment air pollution control device.</i>
11. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty:	

Noble Energy, Inc.; Web 22 Production Facility
Emission Summary Sheet

Emission Unit ID Number	Source Description	Potential Emissions (tpy)														
		NOX	CO	VOC	SOX	PM	PM10	Formaldehyde	Total HAPS	CO ₂	CH ₄	CO ₂ e				
1S-TK1-4	4-400 bbl Produced Water Tanks			10.70								1.57				
2S-TL1	Produced Water Truck Loadout			2.32								0.50				
3S-GPU1	1.0 MMBtu/hr Heater	0.36	0.30	0.02	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.01	430.82	0.01	0.01	431.03
3S-GPU2	1.0 MMBtu/hr Heater	0.36	0.30	0.02	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.01	430.82	0.01	0.01	431.03
3S-GPU3	1.0 MMBtu/hr Heater	0.36	0.30	0.02	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.01	430.82	0.01	0.01	431.03
3S-GPU4	1.0 MMBtu/hr Heater	0.36	0.30	0.02	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.01	430.82	0.01	0.01	431.03
3S-GPU5	1.0 MMBtu/hr Heater	0.36	0.30	0.02	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.01	430.82	0.01	0.01	431.03
3S-GPU6	1.0 MMBtu/hr Heater	0.36	0.30	0.02	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.01	430.82	0.01	0.01	431.03
3S-GPU7	1.0 MMBtu/hr Heater	0.36	0.30	0.02	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.01	430.82	0.01	0.01	431.03
3S-GPU8	1.0 MMBtu/hr Heater	0.36	0.30	0.02	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.01	430.82	0.01	0.01	431.03
3S-GPU9	1.0 MMBtu/hr Heater	0.36	0.30	0.02	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.01	430.82	0.01	0.01	431.03
3S-GPU10	1.0 MMBtu/hr Heater	0.36	0.30	0.02	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.01	430.82	0.01	0.01	431.03
4S-COMB1	Vapor Combustor	3.48	18.96	8.69								1.17	6029.09	0.10	0.10	6031.51
5S-PILOT1	Combustor Pilot Emissions	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.62	0.00	0.00	8.62
6S-TK5	1-400 bbl Condensate Tank			1.04								0.15				
7S-TL2	Condensate Truck Loadout			1.61								0.35				
8S-FC	Fuel Cell Generator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.29	0.00	0.00	3.29
9S-LP	Low Pressure Separator Heater	0.36	0.30	0.02	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.01	430.82	0.01	0.01	431.03
FUG	Equipmt Component Fugitives Estimate			33.04								4.05	13.12			327.91
Total Facility Emissions (tpy)		7.44	22.29	57.61	0.02	0.30	0.30	0.00	0.00	0.00	0.00	7.86	10793.13	0.19	0.19	11112.61
Total Facility Emissions (lb/hr)		1.70	5.09	13.15	0.01	0.07	0.07	0.00	0.00	0.00	0.00	1.80	2,464	0.04	0.04	2,537
Total Facility Emissions for Major Source Threshold* (tpy)		7.44	22.29	24.57	0.02	0.30	0.30	0.00	0.00	0.00	3.81	10780.01	0.19	0.19	10784.70	

*Excludes fugitive emissions per 45 CSR 14-2.43.e.

Noble Energy, Inc. Web 22 Production Facility
 Tank Detail Sheet

Source ID Number	6S-TK5			HYSYS lb/hr*	14
Equipment ID		Source Location	Zone:	HYSYS VOC wt%	81%
Tank Description	1-400 bbl Condensate Tank		Horizontal:	HYSYS prod bbl/d	68.00
Tank Usage	Condensate Storage		Vertical:	to tanks	
Tank Make		Potential operation		8,760 hr/yr	
Tank Capacity	400 bbl				
Serial Number		Potential throughput		68 bbl/day	For all tanks combined
Date in Service		Potential throughput		24,820 bbl/yr	1,042,440 gal/yr/tk
Tank Contents	Condensate			3.9 lb VOC/bbl	From HYSYS
Emission Controls	VDU				
Tank Orientation	Vertical, above ground	Tank Construction	Welded		(Welded, Bolted, Fiberglass)
Shell Height / Length	20 ft	Roof color & condition	Green, good		(eg. light brown, good)
Shell Diameter	12 ft	shell color & condition	Green, good		(eg. white, fair)
Roof Slope	0.06	FR Primary Seal	N/A		
Roof Type (Cone, Dome, IFR, EFR, None)	Cone	FR Secondary Seal	N/A		
Permit Status		Vent pressure setting	0.03 +/- psig		
		VOC Control Efficiency	98 %		Vent to VDU

Potential Emissions

Pollutant	CAS	Hrs of Operation (hrs/yr)	Estimated Uncontrolled Emissions ¹			Source of Emission Factor	Control
			(lb/hr)	(tpy)	(lb/yr)		
VOC/flash		8760	11.15	48.86	97,717 HYSYS	VDU	
VOC W&B		8760	0.74	3.25	6,502 TANKS 4.0.9d	VDU	
Total VOC			11.90	52.11		VDU	
Total BTEX	0.23% Wt%	8,760	0.03	0.14	HYSYS	VDU	
Total Methane	4.19% Wt%	8,760	0.01	0.03	HYSYS	VDU	
Total CO2e			0.15	0.64	EPA		

¹Emissions include working and breathing

Noble Energy, Inc; Web 22 Production Facility
 Condensate Truck Loadout

Source ID Number	7S-TL2	<u>Location</u>	
Source Description	Condensate Truck Loadout	Zone	17N
Source Usage	Condensate Truck Loadout	Easting	541045.59
		Northing	4419301.37
		Latitude	39.922742
Potential operation	8,760	Longitude	-80.519892
Capture Efficiency ³	0%		

<i>HAP Speciation</i>		
BTEX	2.63% mol% of VOC	from HYSYS, "Condensate from Tanks" stream
BTEX	2.71% wt% of VOC	
n-Hexane	21.66% mol% of VOC	from HYSYS, "Condensate from Tanks" stream
n-Hexane	18.78% wt% of VOC	
Total HAPs	21.49% wt% of VOC	

Potential Emissions

Pollutant	EPA S Factor	True VP of Liquid (psia)	Mol. Wt. of Vapors ⁴ (lb/lb-mol)	T of Liquid ⁵ (R)	Oil Volume (bbl/yr)	Estimated Emissions			Source of Emission Factor	Notes
						(lb/1000 gal)	(PPH)	(tpy)		
VOC	0.6	12	64	559	24,820	10.27	0.00	0.00	AP-42 ¹	To VDU
HAPs							0.00	0.00	HYSYS	To VDU
VOC	0.6	12	64	559	24,820	10.83	1.29	5.65	AP-42 ¹	Uncaptured
HAPs							0.00	1.21	HYSYS	Uncaptured

¹EPA AP-42, Volume I, Fifth Edition - January 1995, Table 5.2-1, Saturation (S) Factors for Calculating Petroleum Liquid Loading Losses

²API Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Natural Gas Industry, Table 5-12

³EPA AP-42, Volume I, Fifth Edition - January 1995, Section 5.2.2.1.1. Assumes a minimum collection efficiency of 70%.

⁴Molecular Weight of Vapors comes from TANKS4.0.9 run, Liquid Contents of Storage Tank table

⁵Temperature comes from HYSYS run, "Condensate from Tanks" stream

Noble Energy, Inc; Web 22 Production Facility
 Tank Detail Sheet

Source ID Number	1S-TK1-4	Source Location	Zone:	
Equipment ID			Horizontal:	
Tank Description	4-400 bbl Produced Water Tanks		Vertical:	
Tank Usage	Produced Water Storage			
Tank Make		Potential operation		8,760 hr/yr
Tank Capacity	400 bbl	Potential water production		1,696 bbl/day
Serial Number		Potential water production		619,040 bbl/yr
Date in Service		Potential oil production*		10,214 Oil/yr
				25,999,680
Tank Contents	Produced Water	Emission Factor		0.01846 lb/bbl VOC from FESCO Flash Study
Emission Controls	NONE			
Tank Orientation	Vertical, above ground	Tank Construction	Welded	(Welded, Bolted, Fiberglass)
Shell Height / Length	20 ft	Roof color & condition	Green, good	(eg. light brown, good)
Shell Diameter	12 ft	shell color & condition	Green, good	(eg. white, fair)
Roof Slope	0.06	FR Primary Seal	N/A	
Roof Type (Cone, Dome, IFR, EFR, None)	Cone	FR Secondary Seal	N/A	
Permit Status		Vent pressure setting		0.03 +/- psig
		VOC Control Efficiency		0% %
				Vent to Atmosphere

Potential Emissions

Pollutant	CAS	Hrs of Operation (hrs/yr)	Estimated Uncontrolled Emissions ¹		Source of Emission Factor	Control
			(lb/hr)	(tpy)		
VOC-Flash		8760	1.30	5.71	11,427 FESCO Flash Summary	NONE
VOC-W&B			1.14	4.98	12,362 TANKS 4.0.9d	NONE
Total VOC			2.44	10.70		NONE
Total HAPs			0.358	1.569		NONE

¹Emissions include working and breathing

*Assumes 1.65% oil in PW

Noble Energy, Inc; Web 22 Production Facility
 Produced Water Truck Loadout

Source ID Number	2S-TL1	<u>Location</u>
Source Description	Produced Water Truck Loadout	Zone 17N
Source Usage	Produced Water Truck Loadout	Easting 541045.59
Potential operation	8,760	Northing 4419301.37
		Latitude 39.922742
		Longitude -80.519892

<i>HAP Speciation</i>		
BTEX	2.71% wt% of VOC	Based on FESCO PW study; ratio of lb BTEX/bbl to lb VOC/bbl of PW
Total HAPs	21.49% wt% of VOC	

Potential Emissions

Pollutant	EPA S Factor	True VP of Liquid (psia)	Mol. Wt. of Vapors ⁴ (lb/lb-mol)	T of Liquid ⁵ (R)	Oil Volume (bbl/yr) ²	Estimated Emissions			Source of Emission Factor	Notes
						(lb/1000 gal)	PPH	(tpy)		
VOC	0.6	12.00	64	530	10,214	10.83	0.53	2.32	AP-42 ¹	ATMOSPHERE
HAPs							0.00	0.499	AP-42 ¹	ATMOSPHERE

¹EPA AP-42, Volume I, Fifth Edition - January 1995, Table 5.2-1, Saturation (S) Factors for Calculating Petroleum Liquid Loading Losses

²The oil volume for this calculation assumes that 1.65% of the produced water volume is oil.

³EPA AP-42, Volume I, Fifth Edition - January 1995, Section 5.2.2.1.1. Assumes a minimum collection efficiency of 70%.

⁴Molecular Weight of Vapors comes from TANKS4.0.9 run, Liquid Contents of Storage Tank table

⁵Temperature comes from HYSYS run, "Water Out" stream

Noble Energy, Inc
Noble Energy, Inc; Web 22 Production Facility
Permit G70-A Application

ATTACHMENT O

Emissions Summary Sheets

G-70 A EMISSION SUMMARY SHEET
Noble Energy, Inc; Web 22 Production Facility

Emission Point ID No. (Must match Emission Units Table & Plot Plan)	Emission Point Type ¹	Emission Unit Vented Through This Point (Must match Emission Units Table & Plot Plan)		Air Pollution Control Device (Must match Emission Units Table & Plot Plan)		Vent Time for Emission Unit (chemical processes only)		All Regulated Pollutants - Chemical Name/CAS# (Specify VOCs & HAPs) See Detail Sheets	Maximum Potential Uncontrolled Emissions ³		Maximum Potential Controlled Emissions ⁴		Emission Form or Phase (At exit conditions, Solid, Liquid or Gas/Vapor)	Est. Method Used ⁵	Emission Concentration ⁷ (ppmv or mg/m ³)
		ID No.	Source	ID No.	Device Type	Short Term?	Max (t/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
1E-TK1-4	Vent	1S-TK1-4	4-400 bbl Produced Water Tanks	N/A	N/A	N/A	N/A	VOCs	2.44	10.70	2.44	10.70	Gas/Vapor	Tanks, Flash Study	
2E-TL1	Vent	2S-TL1	Produced water truck loadout	N/A	N/A	N/A	N/A	HAPs	0.36	1.57	0.36	1.57	Gas/Vapor	Tanks, Flash Study	
								VOCs	0.53	2.32	0.53	2.32	Gas/Vapor	Tanks, Flash Study	
								HAPs	0.11	0.50	0.11	0.50	Gas/Vapor	Tanks, Flash Study	
								NOx	0.82	3.59	0.82	3.59	Gas/Vapor	AP-42	
								CO	0.69	3.02	0.69	3.02	Gas/Vapor	AP-42	
								VOCs	0.05	0.20	0.05	0.20	Gas/Vapor	AP-42	
								SO2	0.00	0.02	0.00	0.02	Gas/Vapor	AP-42	
								PM1-10	0.06	0.27	0.06	0.27	Particulate	AP-42	
								Formaldehyde	0.00	0.00	0.00	0.00	Gas/Vapor	AP-42	
								HAPs	0.02	0.07	0.02	0.07	Gas/Vapor	AP-42	
								CO2e	984.08	4,310.26	984.08	4,310.26	Gas/Vapor	AP-42	
								NOx	0.80	3.48	0.80	3.48	Gas/Vapor	AP-42	
								CO	4.33	18.96	4.33	18.96	Gas/Vapor	AP-42	
								CO2e	1377.06	6,031.51	1377.06	6,031.51	Gas/Vapor	AP-42	
								VOCs	11.90	52.11	0.23	1.02	Gas/Vapor	AP-42, HYSYS, Tanks	
								HAPs	1.75	7.65	0.03	0.15	Gas/Vapor	AP-42, HYSYS, Tanks	
								VOCs to VDU	0.86	3.75	0.02	0.07	Gas/Vapor	AP-42, HYSYS, Tanks	
								VOCs uncaptured	0.37	1.61	0.37	1.61	Gas/Vapor	AP-42, HYSYS, Tanks	
								HAPs to VDU	0.18	0.81	0.00	0.02	Gas/Vapor	AP-42, HYSYS, Tanks	
								HAPs uncaptured	0.08	0.35	0.08	0.35	Gas/Vapor	AP-42, HYSYS, Tanks	
								VOCs	88.43	387.34	1.73	7.59	Gas/Vapor	AP-42, HYSYS	
								HAPs	11.69	51.22	0.23	1.00	Gas/Vapor	AP-42, HYSYS	
								NOx	0.00	0.01	0.00	0.01	Gas/Vapor	AP-42	
								CO	0.00	0.01	0.00	0.01	Gas/Vapor	AP-42	
								VOCs	0.00	0.00	0.00	0.00	Gas/Vapor	AP-42	
								SO2	0.00	0.00	0.00	0.00	Gas/Vapor	AP-42	
								PM1-10	0.00	0.00	0.00	0.00	Particulate	AP-42	
								Formaldehyde	0.00	0.00	0.00	0.00	Gas/Vapor	AP-42	
								HAPs	0.00	0.00	0.00	0.00	Gas/Vapor	AP-42	
								CO2e	1.97	8.62	1.97	8.62	Gas/Vapor	AP-42	
								NOx	0.00	0.00	0.00	0.00	Gas/Vapor	AP-42	
								CO	0.00	0.00	0.00	0.00	Gas/Vapor	AP-42	
								VOCs	0.00	0.00	0.00	0.00	Gas/Vapor	AP-42	
								SO2	0.00	0.00	0.00	0.00	Gas/Vapor	AP-42	
								PM1-10	0.00	0.00	0.00	0.00	Particulate	AP-42	
								Formaldehyde	0.00	0.00	0.00	0.00	Gas/Vapor	AP-42	
								HAPs	0.00	0.00	0.00	0.00	Gas/Vapor	AP-42	
								CO2e	0.75	3.29	0.75	3.29	Gas/Vapor	AP-42	
								NOx	0.08	0.36	0.08	0.36	Gas/Vapor	AP-42	
								CO	0.07	0.30	0.07	0.30	Gas/Vapor	AP-42	
								VOCs	0.00	0.02	0.00	0.02	Gas/Vapor	AP-42	
								SO2	0.00	0.00	0.00	0.00	Gas/Vapor	AP-42	
								PM1-10	0.01	0.03	0.01	0.03	Particulate	AP-42	
								Formaldehyde	0.00	0.00	0.00	0.00	Gas/Vapor	AP-42	
								HAPs	0.00	0.01	0.00	0.01	Gas/Vapor	AP-42	
								CO2e	98.41	431.03	98.41	431.03	Gas/Vapor	AP-42	

Stream #	Description	1		2		3		4		5		6		7		8		
		Well Fluid to Sand Separator	Well Fluid to GPU Separator	Produced Gas to Sales Pipeline	Water to Tanks	Condensate to LP Separator	Condensate from LP Separator	Flash Gas from LP Separator	Flash Gas from Production Tanks									
	Unit																	
Vapor Fraction		0.7756	0.7738	1.0000	0.0000	0.0000	0.0000	0.3186	0.0000	1.0000	1.0000	1.0000	1.0000					
Temperature	F	79.4	70.0	70.0	70.0	70.0	70.0	39.1	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0	99.0
Pressure	psig	2000	600	600	600	600	600	25	25	25	25	25	25	25	25	25	25	25
Mass Flow	lb/hr	55.727	55.727	43.123	-	-	-	0.107	-	-	-	-	-	-	-	-	-	-
Vapor Flow	MMSCFD	116753	116753	91192	24719	24719	24719	841	665	665	665	665	665	665	665	665	665	665
Liquid Flow	barrel/day	20837	20837	-	1696	1696	1696	93	68	68	68	68	68	68	68	68	68	68
Methane		0.6510	0.6510	0.8408	0.0000	0.8408	0.0000	0.1787	0.0058	0.0058	0.0058	0.0058	0.0058	0.0058	0.0058	0.0058	0.0058	0.0058
Ethane		0.0861	0.0861	0.1110	0.0000	0.1110	0.0000	0.1062	0.0163	0.0163	0.0163	0.0163	0.0163	0.0163	0.0163	0.0163	0.0163	0.0163
Propane		0.0210	0.0210	0.0270	0.0000	0.0270	0.0000	0.0781	0.0332	0.0332	0.0332	0.0332	0.0332	0.0332	0.0332	0.0332	0.0332	0.0332
i-Butane		0.0026	0.0026	0.0033	0.0000	0.0033	0.0000	0.0211	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160	0.0160
n-Butane		0.0044	0.0044	0.0055	0.0000	0.0055	0.0000	0.0483	0.0433	0.0433	0.0433	0.0433	0.0433	0.0433	0.0433	0.0433	0.0433	0.0433
i-Pentane		0.0013	0.0013	0.0016	0.0000	0.0016	0.0000	0.0311	0.0384	0.0384	0.0384	0.0384	0.0384	0.0384	0.0384	0.0384	0.0384	0.0384
n-Pentane		0.0021	0.0021	0.0026	0.0000	0.0026	0.0000	0.0647	0.0849	0.0849	0.0849	0.0849	0.0849	0.0849	0.0849	0.0849	0.0849	0.0849
n-Hexane		0.0018	0.0018	0.0020	0.0000	0.0020	0.0000	0.1378	0.2118	0.2118	0.2118	0.2118	0.2118	0.2118	0.2118	0.2118	0.2118	0.2118
n-Heptane		0.0005	0.0005	0.0004	0.0000	0.0004	0.0000	0.0742	0.1205	0.1205	0.1205	0.1205	0.1205	0.1205	0.1205	0.1205	0.1205	0.1205
n-Octane		0.0004	0.0004	0.0003	0.0000	0.0003	0.0000	0.1153	0.1911	0.1911	0.1911	0.1911	0.1911	0.1911	0.1911	0.1911	0.1911	0.1911
n-Nonane		0.0002	0.0002	0.0001	0.0000	0.0001	0.0000	0.0608	0.1014	0.1014	0.1014	0.1014	0.1014	0.1014	0.1014	0.1014	0.1014	0.1014
n-Decane		0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0279	0.0467	0.0467	0.0467	0.0467	0.0467	0.0467	0.0467	0.0467	0.0467	0.0467
C10+*		0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0358	0.0599	0.0599	0.0599	0.0599	0.0599	0.0599	0.0599	0.0599	0.0599	0.0599
Nitrogen		0.0027	0.0027	0.0035	0.0000	0.0035	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CO2		0.0008	0.0008	0.0011	0.0000	0.0011	0.0000	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Oxygen		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
H2O		0.2248	0.2248	0.0007	1.0000	0.0007	1.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Benzene		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
Toluene		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0035	0.0057	0.0057	0.0057	0.0057	0.0057	0.0057	0.0057	0.0057	0.0057	0.0057
E-Benzene		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0012	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
o-Xylene		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0105	0.0175	0.0175	0.0175	0.0175	0.0175	0.0175	0.0175	0.0175	0.0175	0.0175
Cyclohexane		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0031	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049