



**SWN Production Company, LLC**  
 P O Box 12359  
 Spring, Texas 77391-2359  
 www.swn.com

# SCHOSTAG

---

## Permit Determination

0	CM	12/15/2016	PERMIT DETERMINATION	JH	12/20/2016
<b>REV</b>	<b>BY</b>	<b>DATE</b>	<b>DESCRIPTION</b>	<b>FACILITIES REVIEWED</b>	<b>DATE</b>



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

**PERMIT DETERMINATION FORM**

(PDF)

FOR AGENCY USE ONLY:

PLANT I.D. # \_\_\_\_\_

PDF # \_\_\_\_\_

PERMIT WRITER: \_\_\_\_\_

1. NAME OF APPLICANT (AS REGISTERED WITH THE WV SECRETARY OF STATE'S OFFICE):

**SWN PRODUCTION COMPANY, LLC**

2. NAME OF FACILITY (IF DIFFERENT FROM ABOVE):

**SCHOSTAG**

3. NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM (NAICS) CODE:

**2 1 1 1 1 1**

4A. MAILING ADDRESS:

**179 INNOVATION DRIVE, JANE LEW, WV 26378**

4B. PHYSICAL ADDRESS:

**Pleasant Ridge Rd., Adaline, WV**

5A. DIRECTIONS TO FACILITY (PLEASE PROVIDE MAP AS ATTACHMENT A):

From SR-7 staging go 0.1 mile on SR-7 east to junction of SR-7 and SR- 1/15, (Brock Ridge Rd), and turn left on SR- 1/15 North. Travel 4.0 miles to junction of SR -1/115 and SR-89, (Proctor Creek Rd). Turn right on SR-89 and travel 4.3 miles to Silver Hill VFD on right and CR-6, (Macedonia Ridge Rd), on left. Turn left on CR-6 and travel 3.2 miles to intersection of CR-21/10, (Pleasant Ridge Rd), and CR-92, (Greenfield Ridge Rd). Turn left on CR- 21/10 and travel 0.8 miles with access road on left. **\*\*Note there is no sign for CR-6 Macedonia Ridge Rd\*\***

5B. NEAREST ROAD:

**Pleasant Ridge Rd.**

5C. NEAREST CITY OR TOWN:

**Adaline**

5D. COUNTY:

**Marshall**

5E. UTM NORTHING (KM):

**528.795929**

5F. UTM EASTING (KM):

**4397.297925**

5G. UTM ZONE:

**17N**

6A. INDIVIDUAL TO CONTACT IF MORE INFORMATION IS REQUIRED:

**Clay Murrall**

6B. TITLE:

**Staff Regulatory Specialist**

6C. TELEPHONE:

**304-884-1715**

6D. FAX:

**304-471-2497**

6E. E-MAIL:

**[clay.murrall@swn.com](mailto:clay.murrall@swn.com)**

7A. DAQ PLANT I.D. NO. (FOR AN EXISTING FACILITY ONLY):

\_\_\_\_\_ - \_\_\_\_\_

7B. PLEASE LIST ALL CURRENT 45CSR13, 45CSR14, 45CSR19 AND/OR TITLE V (45CSR30) PERMIT NUMBERS ASSOCIATED WITH THIS PROCESS (FOR AN EXISTING FACILITY ONLY):

7C. IS THIS PDF BEING SUBMITTED AS THE RESULT OF AN ENFORCEMENT ACTION? IF YES, PLEASE LIST:

8A. TYPE OF EMISSION SOURCE (CHECK ONE):

- NEW SOURCE     ADMINISTRATIVE UPDATE  
 MODIFICATION     OTHER (PLEASE EXPLAIN IN 11B)

8B. IF ADMINISTRATIVE UPDATE, DOES DAQ HAVE THE APPLICANT'S CONSENT TO UPDATE THE EXISTING PERMIT WITH THE INFORMATION CONTAINED HEREIN?

- YES     NO

9. IS DEMOLITION OR PHYSICAL RENOVATION AT AN EXISTING FACILITY INVOLVED?

- YES     NO

10A. DATE OF ANTICIPATED INSTALLATION OR CHANGE:

\_\_\_/\_\_\_/20\_\_.

10B. DATE OF ANTICIPATED START-UP:

\_\_\_\_\_/\_\_\_\_\_/20\_\_.

11A. PLEASE PROVIDE A DETAILED PROCESS FLOW DIAGRAM SHOWING EACH PROPOSED OR MODIFIED PROCESS EMISSION POINT AS ATTACHMENT B.

11B. PLEASE PROVIDE A DETAILED PROCESS DESCRIPTION AS ATTACHMENT C.

12. PLEASE PROVIDE MATERIAL SAFETY DATA SHEETS (MSDS) FOR ALL MATERIALS PROCESSED, USED OR PRODUCED AS ATTACHMENT D. FOR CHEMICAL PROCESSES, PLEASE PROVIDE A MSDS FOR EACH COMPOUND EMITTED TO AIR.

13A. REGULATED AIR POLLUTANT EMISSIONS:

⇒ FOR A NEW FACILITY, PLEASE PROVIDE PLANT WIDE EMISSIONS BASED ON THE POTENTIAL TO EMIT (PTE) FOR THE FOLLOWING AIR POLLUTANTS INCLUDING ALL PROCESSES.

⇒ FOR AN EXISTING FACILITY, PLEASE PROVIDE THE PROPOSED CHANGE IN EMISSIONS BASED ON THE PTE OF ALL PROCESS CHANGES FOR THE FOLLOWING AIR POLLUTANTS.

PTE FOR A GIVEN POLLUTANT IS TYPICALLY BEFORE AIR POLLUTION CONTROL DEVICES AND IS COLLECTED BASED ON THE MAXIMUM DESIGN CAPACITY OF PROCESS EQUIPMENT.

POLLUTANT	HOURLY PTE (LB/HR)	YEARLY PTE (TON/YR) (HOURLY PTE MULTIPLIED BY 8760 HR/YR) DIVIDED BY 2000 LB/TON
PM	0.03	0.12
PM <sub>10</sub>	0.12	0.12
VOCs	2.85	12.47
CO	0.31	1.36
NO <sub>x</sub>	0.37	1.61
SO <sub>2</sub>	0.00	0.01
Pb	--	--
HAPs (AGGREGATE AMOUNT)	0.49	2.16
TAPs (INDIVIDUALLY)*		
OTHER (INDIVIDUALLY)*		

\* ATTACH ADDITIONAL PAGES AS NEEDED

13B. PLEASE PROVIDE ALL SUPPORTING CALCULATIONS AS ATTACHMENT E.

CALCULATE AN HOURLY AND YEARLY PTE OF EACH PROCESS EMISSION POINT (SHOWN IN YOUR DETAILED PROCESS FLOW DIAGRAM) FOR ALL AIR POLLUTANTS LISTED ABOVE INCLUDING INDIVIDUAL HAP'S (LISTED IN SECTION 112[b] OF THE 1990 CAAA), TAP'S (LISTED IN 45CSR27), AND OTHER AIR POLLUTANTS (E.G. POLLUTANTS LISTED IN TABLE 45-13A OF 45CSR13, MINERAL ACIDS PER 45CSR7, ETC.).

14. CERTIFICATION OF DATA

I, Carla Suszkowski (type name) attest that all the representations contained in this application, or appended hereto, are true, accurate, and complete to the best of my knowledge based on information and belief after reasonable inquiry, and that I am a **Responsible Official**\*\* (President, Vice President, Secretary or Treasurer, General Partner or Sole Proprietor) of the Applicant.

Signature of Responsible Official: \_\_\_\_\_

TITLE: Regulatory Manager: West Virginia Division

Date: 12 / 21 / 2016

\*\* The definition of the phrase 'Responsible Official' can be found at 45CSR13, Section 2.23.

NOTE: PLEASE CHECK ENCLOSED ATTACHMENTS:

ATTACHMENT A

ATTACHMENT B

ATTACHMENT C

ATTACHMENT D

ATTACHMENT E

Records on all changes are required to be kept and maintained on-site for two (2) years.

THE PERMIT DETERMINATION FORM WITH THE INSTRUCTIONS CAN BE FOUND ON DAQ'S PERMITTING SECTION WEB SITE:

[www.dep.wv.gov/daq](http://www.dep.wv.gov/daq)

**INTRODUCTION NARRATIVE**

The SCHOSTAG Production Facility, located in Marshall County, WV, is comprised of natural gas wells, production units, a heater treater, condensate storage tanks, produced water tanks and associated truck loadouts.

The facility was part of an acquisition and was operational at time of closing. Documentation of permit applicability could not be produced and therefore, SWN Production Company, LLC respectfully submits this request for Permit Determination.

Based on ProMax modeling of production at the facility, SWN has estimated emissions to be below permit thresholds defined in 45CSR13.

**ATTACHMENT A**

**Map of SHOSTAG Production Facility**

# Proximity Map



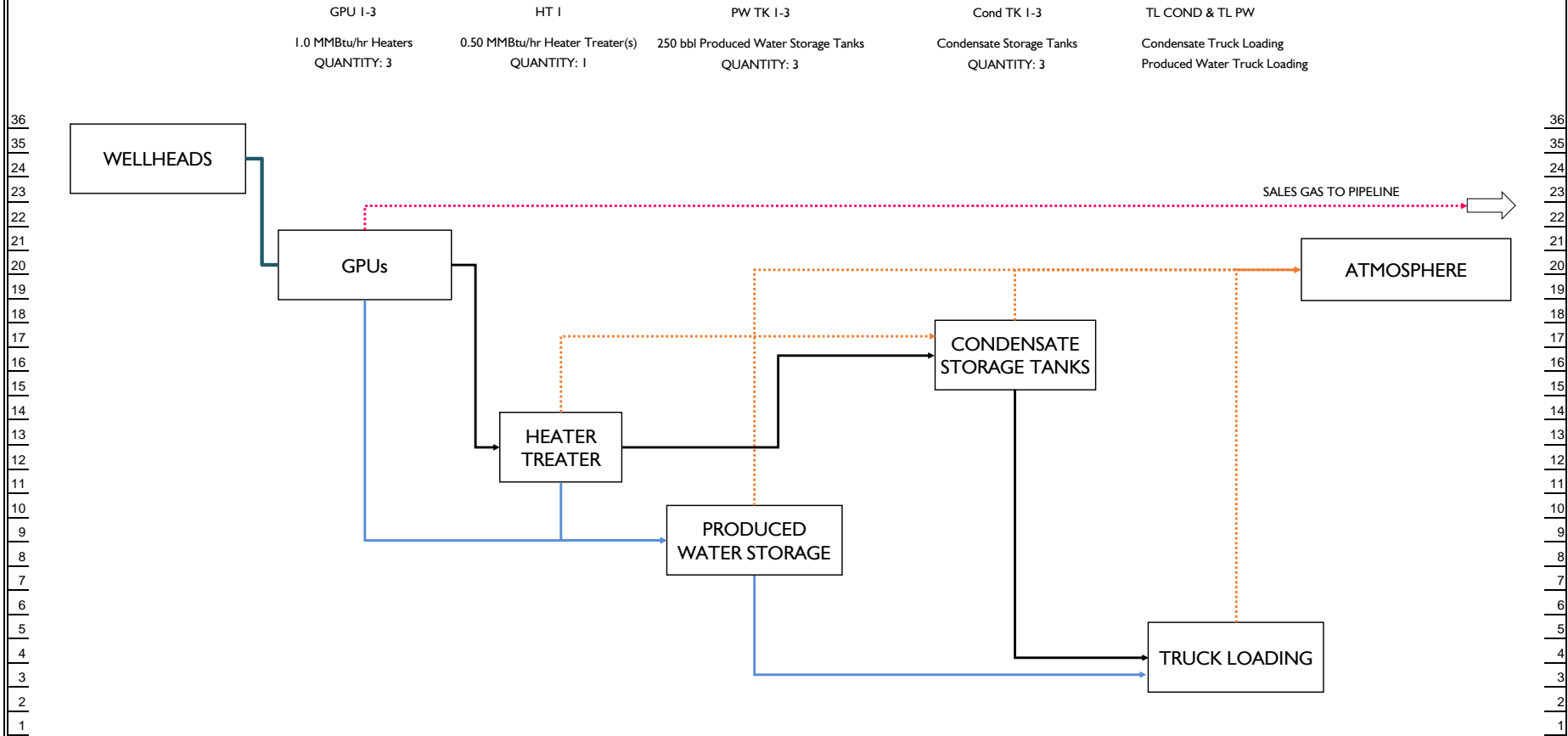
## SCHOSTAG-MSH-PAD1

NAD83 UTM Zone 17N  
X: 528.795929 Y: 4397.297925 Km  
-80.663987 39.725162 Degrees  
MARSHALL, WV

- |                        |                     |
|------------------------|---------------------|
| Schools                | Compressor Stations |
| Residential Structures | Processing Plant    |
| Rivers and Lakes       | Power Plant         |
|                        | Hospital            |

**ATTACHMENT B**

**BLOCK FLOW DIAGRAM**



36  
35  
24  
23  
22  
21  
20  
19  
18  
17  
16  
15  
14  
13  
12  
11  
10  
9  
8  
7  
6  
5  
4  
3  
2  
1

36  
35  
24  
23  
22  
21  
20  
19  
18  
17  
16  
15  
14  
13  
12  
11  
10  
9  
8  
7  
6  
5  
4  
3  
2  
1

GPU I-3  
1.0 MMBtu/hr Heaters  
QUANTITY: 3

HT I  
0.50 MMBtu/hr Heater Treater(s)  
QUANTITY: 1

PW TK I-3  
250 bbl Produced Water Storage Tanks  
QUANTITY: 3

Cond TK I-3  
Condensate Storage Tanks  
QUANTITY: 3

TL COND & TL PW  
Condensate Truck Loading  
Produced Water Truck Loading

	0	CM	12/13/16	PERMIT DETERMINATION	
REV.	BY	DATE	DESCRIPTION	12/15/16	SCHOSTAG





**ATTACHMENT C**

**SCHOSTAG-MSH-PAD1 PROCESS DESCRIPTION**

The SCHOSTAG-MSH-PAD1 is an oil and gas production facility.

Condensate, gas and produced water come from 3 natural gas wells.

Condensate, gas and produced water are routed through 3 Gas Production Units (GPUs) with 3 - 1.0 MMBtu/hr Heaters [GPU 1-3] where separation occurs.

Gas from the GPUs exits the facility via sales pipeline.

Condensate from the GPUs is routed to 1 - 0.50 MMBtu/hr Heater Treater(s) [HT 1].

Produced water from the separators and heater treater flows to 3 - Produced Water Storage Tanks [PW TK 1-3].

Produced water is transported off site by tanker truck. [TL PW].

Condensate from the heater treater flows to 3 - Condensate Storage Tanks [Cond TK 1-3].

Condensate is transported off-site by tanker truck [TL COND].

ATTACHMENT E

SUPPORTING CALCULATIONS

## Emission Summary Sheet

Emission Unit ID Number	Source Description	Potential Emissions (tpy)							CH <sub>4</sub>	CO <sub>2</sub>	CO <sub>2</sub> e
		NOx	CO	VOC	SOx	PM	PM10	Total HAPS			
PW TK 1-3	Produced Water Storage Tanks	---	---	0.04	---	---	---	0.0015	0.1931	0.0080	4.8347
Cond TK 1-3	Condensate Storage Tanks	---	---	9.65	---	---	---	0.9603	1.7971	0.0218	44.9503
GPU 1-3	1.0 MMBtu/hr Heaters	1.38	1.16	0.08	0.01	0.11	0.11	0.0261	0.0318	1659.79	1660.46
HT 1	0.50 MMBtu/hr Heater Treater(s)	0.23	0.19	0.01	0.00	0.02	0.02	0.0044	0.0053	276.63	276.74
TL PW	Produced Water Truck Loading	---	---	0.00	---	---	---	0.0000	0.0019	0.00	0.05
TL COND	Condensate Truck Loading	---	---	0.12	---	---	---	0.9603	1.2618	0.02	31.56
FUGITIVES	Equipmt Component Fugitives Estimate	---	---	2.51	---	---	---	0.1986	2.74	0.00	68.40
PNEUMATICS	Pneumatic Controllers	---	---	0.05	---	---	---	0.0047			
<b>Total TPY</b>		<b>1.61</b>	<b>1.36</b>	<b>12.47</b>	<b>0.01</b>	<b>0.12</b>	<b>0.12</b>	<b>2.16</b>	<b>6.03</b>	<b>1936.47</b>	<b>2086.99</b>
<b>Total Lb/hr</b>		<b>0.37</b>	<b>0.31</b>	<b>2.85</b>	<b>0.00</b>	<b>0.03</b>	<b>0.03</b>	<b>0.49</b>	<b>1.38</b>	<b>442.12</b>	<b>476.48</b>
<b>Total Lb/day</b>		<b>8.84</b>	<b>7.43</b>	<b>68.32</b>	<b>0.05</b>	<b>0.67</b>	<b>0.67</b>	<b>11.81</b>	<b>33.02</b>	<b>10610.77</b>	<b>11435.57</b>

**SCHOSTAG**  
**Heater Detail Sheet**

REV 0

Equipment ID GPU 1-3  
 Equipment Count 3  
 Equipment Usage 1.0 MMBtu/hr Heaters  
 Fuel Heating Value 950 Btu/scf  
 Design Heat Rate\* 1.00 MMBtu/hr  
 Site Heat Rate\* 1.00 MMBtu/hr  
 Potential Operation 8760 hr/yr  
 Potential Fuel Usage 9.22 MMscf/yr

\* These are heat release rates and not the duty for the heater

*Potential Emissions*

Pollutant	Emission Factor (lb/MMscf)	Nominal Rating (MMBtu/hr)	Hrs of Operation (hrs/yr)	Estimated Emissions		Source of Emission Factor
				(lb/hr)	(tpy)	
NOx	100.00	3.000	8760	0.32	1.38	AP-42 <sup>1</sup>
CO	84.00	3.000	8760	0.27	1.16	AP-42 <sup>1</sup>
VOC	5.50	3.000	8760	0.02	0.08	AP-42 <sup>2</sup>
SO2	0.60	3.000	8760	0.00	0.01	AP-42 <sup>2</sup>
PM10	7.60	3.000	8760	0.02	0.11	AP-42 <sup>2</sup>
Benzene	0.002	3.000	8760	0.00	0.0000	AP-42 <sup>3</sup>
Toluene	0.003	3.000	8760	0.00	0.0000	AP-42 <sup>3</sup>
N-Hexane	1.80	3.000	8760	0.01	0.0249	AP-42 <sup>3</sup>
Formaldehyde	0.08	3.000	8760	0.00	0.0010	AP-42 <sup>3</sup>
Total HAPs	1.89	3.000	8760	0.01	0.03	AP-42 <sup>3</sup>
CO <sub>2</sub>	120000.00	3.000	8760	378.95	1659.79	AP-42 <sup>2</sup>
CH <sub>4</sub>	2.30	3.000	8760	0.01	0.03	AP-42 <sup>2</sup>
CO <sub>2</sub> e					1660.46	

<sup>1</sup> EPA AP-42, Volume I, Fifth Edition - July 1998, Table 1.4-1, Emission Factors for Nitrogen Oxides (NOx) and Carbon Monoxide (CO) from Natural Gas Combustion

<sup>2</sup> EPA AP-42, Volume I, Fifth Edition - July 1998, Table 1.4-2, Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion

<sup>3</sup> EPA AP-42, Volume I, Fifth Edition - July 1998, Table 1.4-3, Emission Factors for Speciated Organic Compounds from Natural Gas Combustion

## Heater Treater Detail Sheet

Equipment ID HT 1  
 Equipment Count 1  
 Equipment Usage 0.50 MMBtu/hr Heater Treater(s)  
 Fuel Heating Value 950 Btu/scf  
 Design Heat Rate\* 0.50 MMBtu/hr  
 Site Heat Rate\* 0.50 MMBtu/hr  
 Potential Operation 8760 hr/yr  
 Potential Fuel Usage 4.61 MMscf/yr

\* These are heat release rates and not the duty for the heater

## Potential Emissions

Pollutant	Emission Factor (lb/MMscf)	Nominal Rating (MMBtu/hr)	Hrs of Operation (hrs/yr)	Estimated Emissions		Source of Emission Factor
				(lb/hr)	(tpy)	
NOx	100.00	0.500	8760	0.05	0.23	AP-42 <sup>1</sup>
CO	84.00	0.500	8760	0.04	0.19	AP-42 <sup>1</sup>
VOC	5.50	0.500	8760	0.00	0.01	AP-42 <sup>2</sup>
SO2	0.60	0.500	8760	0.00	0.00	AP-42 <sup>2</sup>
PM10	7.60	0.500	8760	0.00	0.02	AP-42 <sup>2</sup>
Benzene	0.002	0.500	8760	0.00	0.0000	AP-42 <sup>3</sup>
Toluene	0.003	0.500	8760	0.00	0.0000	AP-42 <sup>3</sup>
N-Hexane	1.80	0.500	8760	0.00	0.0041	AP-42 <sup>3</sup>
Formaldehyde	0.08	0.500	8760	0.00	0.0002	AP-42 <sup>3</sup>
Total HAPs	1.89	0.500	8760	0.00	0.00	AP-42 <sup>3</sup>
CO <sub>2</sub>	120000.00	0.500	8760	63.16	276.63	AP-42 <sup>2</sup>
CH <sub>4</sub>	2.30	0.500	8760	0.00	0.01	AP-42 <sup>2</sup>
CO <sub>2</sub> e					276.74	

<sup>1</sup> EPA AP-42, Volume I, Fifth Edition - July 1998, Table 1.4-1, Emission Factors for Nitrogen Oxides (NOx) and Carbon Monoxide (CO) from Natural Gas Combustion

<sup>2</sup> EPA AP-42, Volume I, Fifth Edition - July 1998, Table 1.4-2, Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion

<sup>3</sup> EPA AP-42, Volume I, Fifth Edition - July 1998, Table 1.4-3, Emission Factors for Speciated Organic Compounds from Natural Gas Combustion

**SCHOSTAG**

REV 0

**Tank Detail Sheet**

Source ID Number	Cond TK 1-3	Hours of operation	8760	hr/yr
Equipment ID	Cond TK	Condensate Production	1,281	bbbl/yr
Tank Description	Condensate Storage Tanks			
Tank Usage	Condensate Storage			
Tank Count	3	VOC	1.01E+01	lb/bbbl from Model
Tank Capacity	400 bbl	HAPs	1.50E+00	lb/bbbl from Model
Tank Contents	Condensate	Tank Construction	Welded	(Welded, Bolted, Fiberglass)
Emission Controls	NONE	Roof color & condition	White, good	(eg. light brown, good)
Tank Orientation	Vertical, above ground	shell color & condition	White, good	(eg. white, fair)
Shell Height / Length	20 ft	FR Primary Seal	N/A	
Shell Diameter	12 ft	FR Secondary Seal	N/A	
Roof Slope	0.06	Vent pressure setting	0.03	+/- psig
Roof Type	Cone	VOC Control Efficiency	0%	

**Potential Emissions**

Pollutant		Hrs of Operation (hrs/yr)	Estimated Uncontrolled Emissions <sup>1</sup>			Source of Emission Factor
			(lb/hr)	(tpy)	(lb/yr)	
VOC	Flash	8760	1.47	6.46	12910.25	Model
VOC	W&B	8760	0.73	3.20	6399.18	ProMax
Total			2.20	9.65		
HAPs		8760	2.19E-01	9.60E-01	1920.55	Model
CH4		8760	4.10E-01	1.80E+00		Model
CO2		8760	4.97E-03	2.18E-02		Model
CO2e		8760	1.03E+01	4.50E+01		Model

**SCHOSTAG**  
**Tank Detail Sheet**

REV 0

Source ID Number	PW TK 1-3	Hours of operation	8760	hr/yr
Equipment ID	PW TK	Water Production	4,689	bbbl/yr
Tank Description	Produced Water Storage Tanks	Oil in water	1.00	% Oil
Tank Usage	Produced Water Storage	Oil in water	46.9	bbbl/yr Oil
Tank Count	3	VOC	1.52E-02	lb/bbbl from Model
Tank Capacity	250 bbl	HAPs	6.52E-04	lb/bbbl from Model
Tank Contents	Produced Water	Tank Construction	Welded	(Welded, Bolted, Fiberglass)
Emission Controls	NONE	Roof color & condition	White, good	(eg. light brown, good)
Tank Orientation	Vertical, above ground	shell color & condition	White, good	(eg. white, fair)
Shell Height / Length	14 ft	FR Primary Seal	N/A	
Shell Diameter	11 ft	FR Secondary Seal	N/A	
Roof Slope	0.06	Vent pressure setting	0.03	+/- psig
Roof Type	Cone	VOC Control Efficiency	0%	

**Potential Emissions**

Pollutant		Hrs of Operation (hrs/yr)	Estimated Uncontrolled Emissions <sup>1</sup>			Source of Emission Factor
			(lb/hr)	(tpy)	(lb/yr)	
VOC	Flash	8760	8.16E-03	3.57E-02	7.15E+01	Model
VOC	W&B	8760	1.89E-03	8.27E-03	1.65E+01	ProMax
Total			1.00E-02	4.40E-02		
HAPs		8760	3.49E-04	1.53E-03	3.06E+00	Model
CH4		8760	4.41E-02	1.93E-01		Model
CO2		8760	1.82E-03	7.99E-03		Model
CO2e		8760	1.10E+00	4.83E+00		

**SCHOSTAG**  
**Condensate Truck Loading**

REV 0

TL COND

Select Model Liquid --->Gasoline RVP 11.5  
 or Enter These Factors Directly Below

S= 0.6 saturation factor  
 P= 7.3132 psia true vapor pressure  
 M= 65 lb/lb-mol molecular weight of vapors  
 T= 70 °F temperature  
 $L_L = 6.71 \text{ lb}/1000 \text{ gallons} = 12.46 * S * P * M / (T + 460)$   
 L<sub>L</sub>= 0.282 lb/bbl Loading Losses

Production: 1,281 bbl/year Condensate

3.51060274 bbl/day  
 NONE Control 0%

**Potential Emissions**

Pollutant	Component	Component EF	Uncontrolled		Controlled		
	Wt%	lb/bbl	lb/yr	tpy	(lb/yr)	(tpy)	
VOC		1.88E-01	2.41E+02	1.20E-01	2.41E+02	1.20E-01	
TOTAL HAPS		1.50E+00	1.92E+03	9.60E-01	1.92E+03	9.60E-01	Model
CH4		1.97E+00	2.52E+03	1.26E+00	2.52E+03	1.26E+00	Model
CO2		2.39E-02	3.06E+01	1.53E-02	3.06E+01	1.53E-02	Model

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

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



**SCHOSTAG**  
**Produced Water Truck Loading**

REV 0

TL PW

Select Model Liquid --->Gasoline RVP 11.5

or Enter These Factors Directly Below

S= 0.6 saturation factor  
P= 7.3132 psia true vapor pressure  
M= 65 lb/lb-mol molecular weight of vapors  
T= 70 °F temperature  
 $L_L = 6.71 \text{ lb}/1000 \text{ gallons} = 12.46 * S * P * M / (T + 460)$   
 $L_L = 0.282 \text{ lb}/\text{bbl}$  Loading Losses

Production: 4,689 bbl/year Produced Water  
47 bbl/year oil based on 1% oil in the Produced Water  
**0.12846603** bbl/day  
NONE Control 0%

**Potential Emissions**

Pollutant	Component	Component	EF	Uncontrolled		Controlled		
	Mass Frac	lb/bbl		lb/yr	tpy	(lb/yr)	(tpy)	
VOC			1.52E-02	7.15E-01	3.57E-04	7.15E-01	3.57E-04	
TOTAL HAPS			6.52E-04	3.06E-02	1.53E-05	3.06E-02	1.53E-05	Model
CH4			8.06E-02	3.78E+00	1.89E-03	3.78E+00	1.89E-03	Model
CO2			3.33E-03	1.56E-01	7.82E-05	1.56E-01	7.82E-05	Model

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

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

SCHOSTAG  
 Equip Component Fugitives Estimate

REV 0

	Counts	Emission Factor <sup>1</sup> lb/hr/ component	% Control Efficiency	% VOC	VOC Emissions		Benzene	Toluene	E-benzene	Xylene	n-Hexane	%CH4	CH4 Emissions		CO <sub>2</sub> e	
					lb/hr	tpy	lb/yr	lb/yr	lb/yr	lb/yr	lb/yr		lb/hr	tpy	tpy	
<b>Valve</b>																
Gas/Vapor	14	0.00992	0	17	0.02	0.11	0.03	0.06	0.01	0.09	2.03	59.83	0.08	0.36	9.10	
Light Liquid	39	0.00551	0	100	0.21	0.94	2.16	11.58	2.82	21.74	143.25	1.17	0.00	0.01	0.28	
Water/Oil	18	0.000216	0	50	0.00	0.01	0.04	0.21	0.05	0.39	0.26	1.17	0.00	0.00	0.00	
<b>Pumps Seals</b>																
Light Liquid	0	0.02866	0	100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17	0.00	0.00	0.00	
Water/Oil	0	0.0000529	0	50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17	0.00	0.00	0.00	
<b>Flanges</b>																
Gas/Vapor	54	0.00086	0	17	0.01	0.04	0.01	0.02	0.00	0.03	0.68	59.83	0.03	0.12	3.04	
Light Liquid	77	0.000243	0	100	0.02	0.08	0.19	1.01	0.25	1.89	12.47	100	0.02	0.08	2.05	
Water/Oil	15	0.00000617		50	0.00	0.00	0.00	0.00	0.00	0.01	0.01	100	0.00	0.00	0.01	
<b>Open-Ended Lines</b>																
Gas/Vapor	0	0.00441	0	17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.83	0.00	0.00	0.00	
Light Liquid	0	0.00309	0	100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100	0.00	0.00	0.00	
Water/Oil	0	0.0006	0	50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100	0.00	0.00	0.00	
<b>Other</b>																
Gas/Vapor	9	0.0194	0	17	0.03	0.13	0.04	0.07	0.01	0.12	2.55	59.83	0.10	0.46	11.44	
Light Liquid	6	0.0165	0	100	0.10	0.43	1.00	5.33	1.30	10.02	66.00	100	0.10	0.43	10.84	
Water/Oil	6	0.0309	0	50	0.09	0.41	1.87	9.99	2.44	18.76	12.36	100	0.19	0.81	20.30	
<b>Connectors</b>																
Gas/Vapor	80	0.000441	0	17	0.01	0.03	0.01	0.02	0.00	0.02	0.52	59.83	0.02	0.09	2.31	
Light Liquid	156	0.000463	0	100	0.07	0.32	0.73	3.89	0.95	7.31	48.15	100	0.07	0.32	7.91	
Water/Oil	42	0.000243	0	50	0.01	0.02	0.10	0.55	0.13	1.03	0.68	100	0.01	0.04	1.12	
<b>Total Emissions</b>					0.57	2.51	6.17	32.73	7.96	61.42	288.96		0.62	2.74	68.40	

Note

1. Factors from EPA Document EPA-453/R-95-017, November 1995.

**SCHOSTAG-MSH-PAD1**  
**Pneumatic Controllers**

REV 0

Equipment ID	Continuous Bleed PC	
Equipment Usage		
Equipment Make		
Equipment Model		
Emission Controls		
Equipment Count	0	
Design Flow*	0.00	SCFH
Potential Operation		hr/yr
Service		

Equipment ID	Intermittent Bleed PC	
Equipment Usage	Separator Level Control	
Equipment Make	NORRISEAL	
Equipment Model	1001 A	
Emission Controls	None	
Equipment Count	6	
Design Flow*	0.20	SCFH
Potential Operation	8760	hr/yr
Service	NG	

*Potential Emissions Combined*

Pollutant	% of VOC	Emission Factor (lb/SCF)	Hrs of Operation (hrs/yr)	Estimated Emissions		Source of Emission Factor
				(lb/hr)	(tpy)	
VOC		0.01	8760	0.01	0.05	MODEL
Total HAPs		0.001	8760	0.00	0.00	MODEL
CH4		0.034	8760	0.04	0.18	MODEL
CO2		0.000	8760	0.00	0.00	MODEL

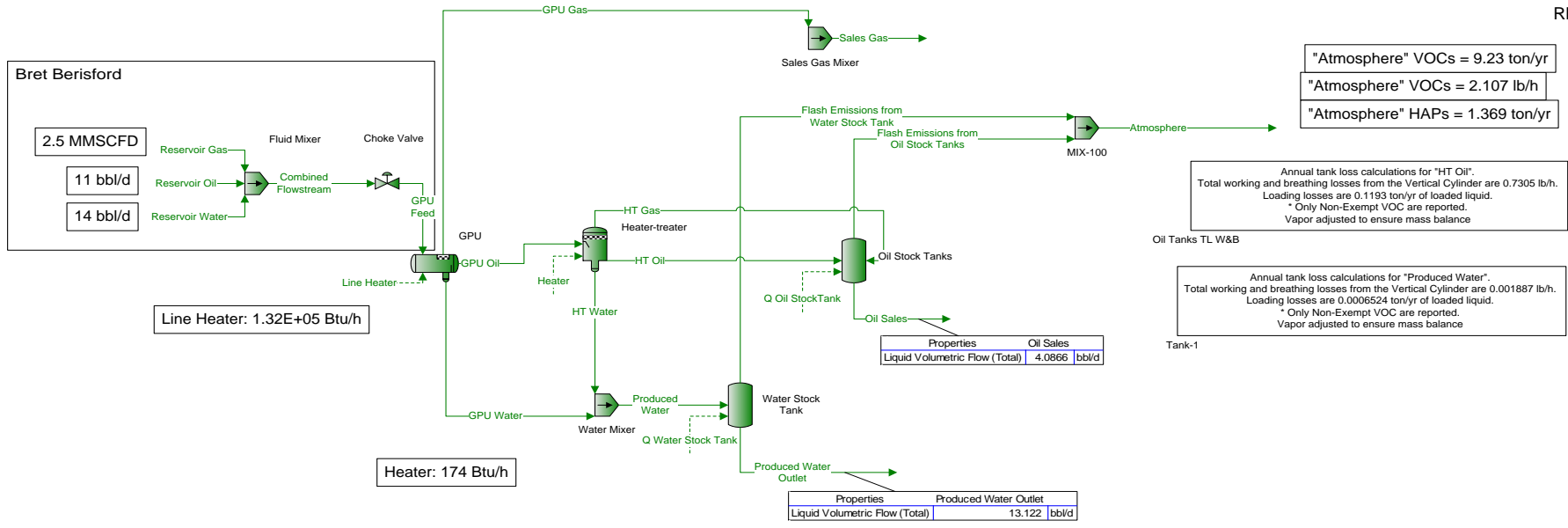


Table with 19 columns: Process Streams, Atmosphere, Combined Flowstream, Flash Emissions from Oil Stock Tanks, Flash Emissions from Water Stock Tank, GPU Feed, GPU Gas, GPU Oil, GPU Water, HT Gas, HT Oil, HT Water, Oil Sales, Produced Water, Produced Water Outlet, Reservoir Gas, Reservoir Oil, Reservoir Water, Sales Gas. Rows include composition data for various hydrocarbons like H2S, Nitrogen, Oxygen, CO2, Water, C1-C4, Naphthalene, Cyclohexane, Benzene, and Xylenes.

Table with 19 columns: Process Streams, Atmosphere, Combined Flowstream, Flash Emissions from Oil Stock Tanks, Flash Emissions from Water Stock Tank, GPU Feed, GPU Gas, GPU Oil, GPU Water, HT Gas, HT Oil, HT Water, Oil Sales, Produced Water, Produced Water Outlet, Reservoir Gas, Reservoir Oil, Reservoir Water, Sales Gas. Rows include properties such as Temperature, Pressure, Mole Fraction Vapor, Molecular Weight, Mass Density, and Heat Capacity.



Process Streams Composition table with columns for Atmosphere, Combined Flowstream, Flash Emissions from Oil Stock Tanks, Flash Emissions from Water Stock Tank, GPU Feed, GPU Gas, GPU Oil, GPU Water, HT Gas, HT Oil, HT Water, Oil Sales, Produced Water, Produced Water Outlet, Reservoir Gas, Reservoir Oil, Reservoir Water, Sales Gas.





Process Streams	Atmosphere		Combined Flowstream	Flash Emissions from Oil Stock Tanks		Flash Emissions from Water Stock Tank		GPU Feed	GPU Gas	GPU Oil	GPU Water	HT Gas	HT Oil	HT Water	Oil Sales	Produced Water	Produced Water Outlet	Reservoir Gas	Reservoir Oil	Reservoir Water	Sales Gas
Composition	Status:	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected
Phase: Mixed Liquid	From Block:	MX-100	Fluid Mixer	Oil Stock Tanks	Water Stock Tank	Choke Valve	GPU	Sales Gas Mixer	Heater-treater	GPU	GPU	Heater-treater	Heater-treater	Heater-treater	Oil Stock Tanks	Water Mixer	Water Stock Tank	--	--	--	Sales Gas Mixer
To Block:	--	Choke Valve	MX-100	MX-100	MX-100	GPU	GPU	Heater-treater	Water Mixer	Oil Stock Tanks	Oil Stock Tanks	Water Mixer	--	Water Stock Tank	--	Water Stock Tank	--	Fluid Mixer	Fluid Mixer	Fluid Mixer	--
Mass Fraction																					
H2S	0																				
Nitrogen	1.25898E-05			0																	
Oxygen	0																				
CO2	9.79056E-05			0																	
Water	0.616333			0.616333																	
C1	0.00575968			0.00575968																	
C2	0.0113404			0.0113404																	
C3	0.0184120			0.0184120																	
iC4	0.00808855			0.00808855																	
nC4	0.0226852			0.0226852																	
Neopentane	1.30615E-05			1.30615E-05																	
iC5	0.0153108			0.0153108																	
nC5	0.0204278			0.0204278																	
2,2-Dimethylbutane	0.000162895			0.000162895																	
Cyclopentane	0																				
2,3-Dimethylbutane	0.000419720			0.000419720																	
2-Methylpentane	0.00260228			0.00260228																	
3-Methylpentane	0.00192145			0.00192145																	
iC6	0.108248			0.108248																	
nC6	0.000532705			0.000532705																	
Methylcyclopentane	0.00104786			0.00104786																	
Cyclohexane	0.00483310			0.00483310																	
2-Methylhexane	0.00537108			0.00537108																	
3-Methylhexane	0																				
2,2,4-Trimethylpentane	0																				
nC7	0.0154232			0.0154232																	
Methylcyclohexane	0.00631009			0.00631009																	
nC8	0.0380822			0.0380822																	
nC9	0.0246023			0.0246023																	
nC10	0.0224206			0.0224206																	
Benzene	9.56885E-05			9.56885E-05																	
Toluene	0.00128330			0.00128330																	
Ethylbenzene	0.00161341			0.00161341																	
meta-Xylene	0.00213050			0.00213050																	
para-Xylene	0																				
ortho-Xylene	0.00309157			0.00309157																	
C11+	0.0412277			0.0412277																	
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	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h	lb/h
H2S	0																				
Nitrogen	0.00409287			0.00409287																	
Oxygen	0																				
CO2	0.0318287			0.0318287																	
Water	200.367			200.367																	
C1	1.87245			1.87245																	
C2	3.68673			3.68673																	
C3	5.98566			5.98566																	
iC4	2.62955			2.62955																	
nC4	7.37484			7.37484																	
Neopentane	0.00424622			0.00424622																	
iC5	4.97748			4.97748																	
nC5	6.64098			6.64098																	
2,2-Dimethylbutane	0.0528914			0.0528914																	
Cyclopentane	0																				
2,3-Dimethylbutane	0.136449			0.136449																	
2-Methylpentane	0.845988			0.845988																	
3-Methylpentane	0.624656			0.624656																	
nC6	35.1908			35.1908																	
Methylcyclopentane	0.173180			0.173180																	
Cyclohexane	0.340654			0.340654																	
2-Methylhexane	1.60373			1.60373																	
3-Methylhexane	1.74611			1.74611																	
2,2,4-Trimethylpentane	0																				
nC7	5.01402			5.01402																	
Methylcyclohexane	2.05138			2.05138																	
nC8	12.3804			12.3804																	
nC9	7.99809			7.99809																	
nC10	7.28883			7.28883																	
Benzene	0.0311079			0.0311079																	
Toluene	0.417195			0.417195																	
Ethylbenzene	0.524511			0.524511																	
meta-Xylene	0.682615			0.682615																	
para-Xylene	0																				
ortho-Xylene	1.00505			1.00505																	
C11+	13.4030			13.4030																	

Process Streams	Atmosphere		Combined Flowstream	Flash Emissions from Oil Stock Tanks		Flash Emissions from Water Stock Tank		GPU Feed	GPU Gas	GPU Oil	GPU Water	HT Gas	HT Oil	HT Water	Oil Sales	Produced Water	Produced Water Outlet	Reservoir Gas	Reservoir Oil	Reservoir Water	Sales Gas
Properties	Status:	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected	Selected
Phase: Mixed Liquid	From Block:	MX-100	Fluid Mixer	Oil Stock Tanks	Water Stock Tank	Choke Valve	GPU	Sales Gas Mixer	Heater-treater	GPU	GPU	Heater-treater	Heater-treater	Heater-treater	Oil Stock Tanks	Water Mixer	Water Stock Tank	--	--	--	Sales Gas Mixer
To Block:	--	Choke Valve	MX-100	MX-100	MX-100	GPU	GPU	Heater-treater	Water Mixer	Oil Stock Tanks	Oil Stock Tanks	Water Mixer	--	Water Stock Tank	--	Water Stock Tank	--	Fluid Mixer	Fluid Mixer	Fluid Mixer	--
Property	Units																				
Temperature	°F	49.7276		49.7276																	
Pressure	psig	225		225																	
Mole Fraction Vapor	0																				
Mole Fraction Light Liquid	0.122748		0.122748																		
Mole Fraction Heavy Liquid	0.877252		0.877252																		
Molecular Weight	lb/mol	25.6300		25.6300																	
Mass Density	lb/ft³	52.4993		52.4993																	
Mass Flow	lbmol/h	12.6842		12.6842																	
Mass Flow	lb/h	325.095		325.095																	
Vapor Volumetric Flow	ft³/h	6.19592		6.19592																	
Liquid Volumetric Flow	gpm	0.772479		0.772479																	
Std Vapor Volumetric Flow	MMSCFD	0.115522		0.115522																	
Std Liquid Volumetric Flow	sgpm	0.787219		0.787219																	
Compressibility	0.0214183		0.0214183																		
Specific Gravity	0.841271		0.841271																		
API Gravity	37.3758		37.3758																		
Enthalpy	Btu/h	-1.48659E+06		-1.48659E+06																	
Mass Enthalpy	Btu/lb	-4601.57		-4601.57																	
Mass Cp	Btu/(lb*°F)	0.805896		0.805896																	
Ideal Gas Cp/Cv Ratio	1.22615		1.22615																		
Dynamic Viscosity	cP	0.830296		0.830296																	
Kinematic Viscosity	cSt	0.987887		0.987887																	
Thermal Conductivity	Btu/(h*°F)	0.207724		0.207724																	
Surface Tension	dyne/cm	0.003246057		0.003246057																	
Net Ideal Gas Heating Value	Btu/lb	501.335		501.335																	
Net Liquid Heating Value	Btu/lb	6705.87		6705.87																	
Gross Ideal Gas Heating Value	Btu/lb	585.068		585.068																	
Gross Liquid Heating Value	Btu/lb	7945.32		7945.32																	

## User Value Sets Report

<b>Client Name:</b>	BB Basis	<b>Job:</b>	C:\Users\murralc\Documents\ProMax Local\SCHOSTAG-MSH-PAD1 (CM).pmx
<b>Location:</b>	0		
<b>Flowsheet:</b>	SCHOSTAG		

### Oil Tanks TL W&B

#### User Value [ShellLength]

Parameter	20* ft	Upper Bound	ft
Lower Bound	0* ft	Enforce Bounds	FALSE

#### User Value [ShellDiam]

Parameter	12* ft	Upper Bound	ft
Lower Bound	0* ft	Enforce Bounds	FALSE

#### User Value [BreatherVP]

Parameter	0.5* psig	Upper Bound	psig
Lower Bound	psig	Enforce Bounds	FALSE

#### User Value [BreatherVacP]

Parameter	-0.0300000* psig	Upper Bound	psig
Lower Bound	psig	Enforce Bounds	FALSE

#### User Value [DomeRadius]

Parameter	ft	Upper Bound	ft
Lower Bound	ft	Enforce Bounds	FALSE

#### User Value [OpPress]

Parameter	0.5* psig	Upper Bound	psig
Lower Bound	psig	Enforce Bounds	FALSE

#### User Value [AvgPercentLiq]

Parameter	50* %	Upper Bound	%
Lower Bound	%	Enforce Bounds	FALSE

#### User Value [MaxPercentLiq]

Parameter	90* %	Upper Bound	%
Lower Bound	%	Enforce Bounds	FALSE

#### User Value [AnnNetTP]

Parameter	4.14872* bbl/day	Upper Bound	bbl/day
Lower Bound	0* bbl/day	Enforce Bounds	FALSE

#### User Value [OREff]

Parameter	0* %	Upper Bound	%
Lower Bound	%	Enforce Bounds	FALSE

#### User Value [MaxAvgT]

Parameter	59.9* °F	Upper Bound	°F
Lower Bound	°F	Enforce Bounds	FALSE

#### User Value [MinAvgT]

Parameter	40.7* °F	Upper Bound	°F
Lower Bound	°F	Enforce Bounds	FALSE

#### User Value [BulkLiqT]

Parameter	50.32* °F	Upper Bound	°F
Lower Bound	°F	Enforce Bounds	FALSE

User Value [AvgP]			
Parameter	14.1085*	psia	Upper Bound psia
Lower Bound		psia	Enforce Bounds FALSE
User Value [ThermI]			
Parameter	1069*	Btu/ft^2/day	Upper Bound Btu/ft^2/day
Lower Bound		Btu/ft^2/day	Enforce Bounds FALSE
User Value [AvgWindSpeed]			
Parameter	9.1*	mi/h	Upper Bound mi/h
Lower Bound		mi/h	Enforce Bounds FALSE
User Value [MaxHourlyLoadingRate]			
Parameter	0.172863*	bb/hr	Upper Bound bb/hr
Lower Bound	0*	bb/hr	Enforce Bounds FALSE
User Value [EntrainedOilFrac]			
Parameter	1*	%	Upper Bound %
Lower Bound		%	Enforce Bounds FALSE
User Value [TurnoverRate]			
Parameter	1.39198*		Upper Bound
Lower Bound			Enforce Bounds FALSE
User Value [L.LossSatFactor]			
Parameter	0.5*		Upper Bound
Lower Bound			Enforce Bounds FALSE
User Value [AtmPressure]			
Parameter	14.1085*	psia	Upper Bound psia
Lower Bound		psia	Enforce Bounds FALSE
User Value [TVP]			
Parameter	12.2206*	psia	Upper Bound psia
Lower Bound		psia	Enforce Bounds FALSE
User Value [AvgLiqSurfaceT]			
Parameter	51.7469*	°F	Upper Bound °F
Lower Bound		°F	Enforce Bounds FALSE
User Value [MaxLiqSurfaceT]			
Parameter	56.4750*	°F	Upper Bound °F
Lower Bound		°F	Enforce Bounds FALSE
User Value [TotalLosses]			
Parameter	0.876303*	lb/h	Upper Bound lb/h
Lower Bound		lb/h	Enforce Bounds FALSE
User Value [WorkingLosses]			
Parameter	0.0932500*	ton/yr	Upper Bound ton/yr
Lower Bound		ton/yr	Enforce Bounds FALSE
User Value [StandingLosses]			
Parameter	1.18615*	ton/yr	Upper Bound ton/yr
Lower Bound		ton/yr	Enforce Bounds FALSE
User Value [RimSealLosses]			
Parameter	0*	ton/yr	Upper Bound ton/yr
Lower Bound		ton/yr	Enforce Bounds FALSE
User Value [WithdrawalLoss]			
Parameter	0*	ton/yr	Upper Bound ton/yr

Lower Bound	ton/yr	Enforce Bounds	FALSE
<b>User Value [LoadingLosses]</b>			
Parameter	0.143131* ton/yr	Upper Bound	ton/yr
Lower Bound	ton/yr	Enforce Bounds	FALSE
<b>User Value [MaxHourlyLoadingLoss]</b>			
Parameter	0.0434151* lb/hr	Upper Bound	lb/hr
Lower Bound	lb/hr	Enforce Bounds	FALSE
<b>User Value [PStar]</b>			
Parameter		Upper Bound	
Lower Bound		Enforce Bounds	FALSE
<b>User Value [DeckFittingLosses]</b>			
Parameter	0* ton/yr	Upper Bound	ton/yr
Lower Bound	ton/yr	Enforce Bounds	FALSE
<b>User Value [DeckSeamLosses]</b>			
Parameter	0* ton/yr	Upper Bound	ton/yr
Lower Bound	ton/yr	Enforce Bounds	FALSE
<b>User Value [FlashingLosses]</b>			
Parameter	2.47133* ton/yr	Upper Bound	ton/yr
Lower Bound	ton/yr	Enforce Bounds	FALSE
<b>User Value [TotalResidual]</b>			
Parameter	190.052* ton/yr	Upper Bound	ton/yr
Lower Bound	ton/yr	Enforce Bounds	FALSE
<b>User Value [GasMoleWeight]</b>			
Parameter	0.0401682* kg/mol	Upper Bound	kg/mol
Lower Bound	kg/mol	Enforce Bounds	FALSE
<b>User Value [VapReportableFrac]</b>			
Parameter	83.3580* %	Upper Bound	%
Lower Bound	%	Enforce Bounds	FALSE
<b>User Value [LiqReportableFrac]</b>			
Parameter	99.6560* %	Upper Bound	%
Lower Bound	%	Enforce Bounds	FALSE
<b>User Value [FlashReportableFrac]</b>			
Parameter	62.9235* %	Upper Bound	%
Lower Bound	%	Enforce Bounds	FALSE
<b>User Value [BlockReady]</b>			
Parameter	1*	Upper Bound	
Lower Bound		Enforce Bounds	FALSE
<b>Notes:</b>			
This User Value Set was programmatically generated. GUID={BF9A5D7E-95BD-4D98-A48C-4F7A30076B8D}			
<b>Tank Losses</b>			
<b>User Value [BlockReady]</b>			
Parameter	1*	Upper Bound	
Lower Bound		Enforce Bounds	FALSE
<b>Notes:</b>			
This User Value Set was programmatically generated. GUID={BF9A5D7E-95BD-4D98-A48C-4F7A30076B8D}			

Tank-1		
<b>User Value [ShellLength]</b>		
Parameter	14* ft	Upper Bound ft
Lower Bound	0* ft	Enforce Bounds FALSE
<b>User Value [ShellDiam]</b>		
Parameter	11* ft	Upper Bound ft
Lower Bound	0* ft	Enforce Bounds FALSE
<b>User Value [BreatherVP]</b>		
Parameter	0.5* psig	Upper Bound psig
Lower Bound	psig	Enforce Bounds FALSE
<b>User Value [BreatherVacP]</b>		
Parameter	-0.0300000* psig	Upper Bound psig
Lower Bound	psig	Enforce Bounds FALSE
<b>User Value [DomeRadius]</b>		
Parameter	ft	Upper Bound ft
Lower Bound	ft	Enforce Bounds FALSE
<b>User Value [OpPress]</b>		
Parameter	0.5* psig	Upper Bound psig
Lower Bound	psig	Enforce Bounds FALSE
<b>User Value [AvgPercentLiq]</b>		
Parameter	50* %	Upper Bound %
Lower Bound	%	Enforce Bounds FALSE
<b>User Value [MaxPercentLiq]</b>		
Parameter	90* %	Upper Bound %
Lower Bound	%	Enforce Bounds FALSE
<b>User Value [AnnNetTP]</b>		
Parameter	13.0691* bbl/day	Upper Bound bbl/day
Lower Bound	0* bbl/day	Enforce Bounds FALSE
<b>User Value [OREff]</b>		
Parameter	0* %	Upper Bound %
Lower Bound	%	Enforce Bounds FALSE
<b>User Value [MaxAvgT]</b>		
Parameter	59.9* °F	Upper Bound °F
Lower Bound	°F	Enforce Bounds FALSE
<b>User Value [MinAvgT]</b>		
Parameter	40.7* °F	Upper Bound °F
Lower Bound	°F	Enforce Bounds FALSE
<b>User Value [BulkLiqT]</b>		
Parameter	50.32* °F	Upper Bound °F
Lower Bound	°F	Enforce Bounds FALSE
<b>User Value [AvgP]</b>		
Parameter	14.1085* psia	Upper Bound psia
Lower Bound	psia	Enforce Bounds FALSE
<b>User Value [ThermI]</b>		
Parameter	1069* Btu/ft^2/day	Upper Bound Btu/ft^2/day
Lower Bound	Btu/ft^2/day	Enforce Bounds FALSE
<b>User Value [AvgWindSpeed]</b>		

Parameter	9.1* mi/h	Upper Bound	mi/h
Lower Bound	mi/h	Enforce Bounds	FALSE
<b>User Value [MaxHourlyLoadingRate]</b>			
Parameter	0.544547* bbl/hr	Upper Bound	bbl/hr
Lower Bound	0* bbl/hr	Enforce Bounds	FALSE
<b>User Value [EntrainedOilFrac]</b>			
Parameter	1* %	Upper Bound	%
Lower Bound	%	Enforce Bounds	FALSE
<b>User Value [TurnoverRate]</b>			
Parameter	7.45496*	Upper Bound	
Lower Bound		Enforce Bounds	FALSE
<b>User Value [LLossSatFactor]</b>			
Parameter	0.5*	Upper Bound	
Lower Bound		Enforce Bounds	FALSE
<b>User Value [AtmPressure]</b>			
Parameter	14.1085* psia	Upper Bound	psia
Lower Bound	psia	Enforce Bounds	FALSE
<b>User Value [TVP]</b>			
Parameter	13.4803* psia	Upper Bound	psia
Lower Bound	psia	Enforce Bounds	FALSE
<b>User Value [AvgLiqSurfaceT]</b>			
Parameter	51.7469* °F	Upper Bound	°F
Lower Bound	°F	Enforce Bounds	FALSE
<b>User Value [MaxLiqSurfaceT]</b>			
Parameter	56.4750* °F	Upper Bound	°F
Lower Bound	°F	Enforce Bounds	FALSE
<b>User Value [TotalLosses]</b>			
Parameter	0.0218189* lb/h	Upper Bound	lb/h
Lower Bound	lb/h	Enforce Bounds	FALSE
<b>User Value [WorkingLosses]</b>			
Parameter	0.00491465* ton/yr	Upper Bound	ton/yr
Lower Bound	ton/yr	Enforce Bounds	FALSE
<b>User Value [StandingLosses]</b>			
Parameter	0.0269409* ton/yr	Upper Bound	ton/yr
Lower Bound	ton/yr	Enforce Bounds	FALSE
<b>User Value [RimSealLosses]</b>			
Parameter	0* ton/yr	Upper Bound	ton/yr
Lower Bound	ton/yr	Enforce Bounds	FALSE
<b>User Value [WithdrawalLoss]</b>			
Parameter	0* ton/yr	Upper Bound	ton/yr
Lower Bound	ton/yr	Enforce Bounds	FALSE
<b>User Value [LoadingLosses]</b>			
Parameter	0.00754355* ton/yr	Upper Bound	ton/yr
Lower Bound	ton/yr	Enforce Bounds	FALSE
<b>User Value [MaxHourlyLoadingLoss]</b>			
Parameter	0.0753268* lb/hr	Upper Bound	lb/hr
Lower Bound	lb/hr	Enforce Bounds	FALSE

User Value [PStar]			
Parameter		Upper Bound	
Lower Bound		Enforce Bounds	FALSE
User Value [DeckFittingLosses]			
Parameter	0* ton/yr	Upper Bound	ton/yr
Lower Bound	ton/yr	Enforce Bounds	FALSE
User Value [DeckSeamLosses]			
Parameter	0* ton/yr	Upper Bound	ton/yr
Lower Bound	ton/yr	Enforce Bounds	FALSE
User Value [FlashingLosses]			
Parameter	0.313023* ton/yr	Upper Bound	ton/yr
Lower Bound	ton/yr	Enforce Bounds	FALSE
User Value [TotalResidual]			
Parameter	835.951* ton/yr	Upper Bound	ton/yr
Lower Bound	ton/yr	Enforce Bounds	FALSE
User Value [GasMoleWeight]			
Parameter	0.0200563* kg/mol	Upper Bound	kg/mol
Lower Bound	kg/mol	Enforce Bounds	FALSE
User Value [VapReportableFrac]			
Parameter	8.64807* %	Upper Bound	%
Lower Bound	%	Enforce Bounds	FALSE
User Value [LiqReportableFrac]			
Parameter	0.00111252* %	Upper Bound	%
Lower Bound	%	Enforce Bounds	FALSE
User Value [FlashReportableFrac]			
Parameter	11.3086* %	Upper Bound	%
Lower Bound	%	Enforce Bounds	FALSE
User Value [BlockReady]			
Parameter	1*	Upper Bound	
Lower Bound		Enforce Bounds	FALSE
<b>Notes:</b>			
This User Value Set was programmatically generated. GUID={97026097-1A7E-4033-A469-B14FC158532F}			