

Gulfwide Offshore Activities Data System for CY2008 (GOADS-2008)

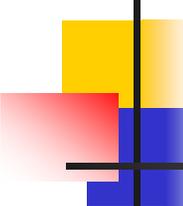
Ms. Holli Ensz, MMS
Ms. Darcy Wilson, ERG
Mr. John Carroll, ERG
Mr. Regi Oommen, ERG
Mr. Brian Boyer, COMM Engineering

October 24, 2007



MMS Introduction

- Background
 - Laws/ Regulations of MMS AQ Program
 - What is GOADS?
 - Why have GOADS Studies? Purpose?
- GOADS-2008
 - Structures to be Included
 - Schedule
 - MMS Website
 - FAQs



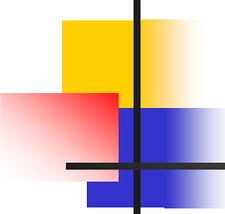
Laws/ Regulations of MMS AQ Program

- OCS Lands Act (43 U.S.C. 1334 (a)(8))
 - MMS has the authority and responsibility to comply with onshore National Ambient Air Quality Standards (NAAQS), as established in the Clean Air Act
- Federal Clean Air Act Amendments of 1990
 - Establishes NAAQS
 - Requires MMS-EPA Coordination
 - Designated OCS Area Responsibility



What is GOADS?

- Gulfwide Offshore Activities Data System (GOADS)
- CY emissions data for NAAQS criteria pollutants (CO, SO₂, NO_x, PM₁₀, PM_{2.5}, VOC) and greenhouse gases (CO₂, CH₄, N₂O)
- Platform and non-platform emissions on the OCS in the Gulf of Mexico
- Past efforts- 2000 and 2005



Why have GOADS Studies?

- The collection and compilation of an air emissions inventory is one of the tasks MMS conducts to assure coordination of air pollution control regulations between OCS offshore sources and state's sources onshore (as per Sec 328(b) of the 1990 CAAA).
- EPA proposed more stringent NAAQS for ozone and PM2.5 and has new regional haze regulations to improve visibility.
- State agencies may need to conduct computer modeling for ozone and regional haze for use in their SIPs.
- Inventory will be used to augment the MMS NEPA process by providing a more accurate inventory to compute emission trends and to perform necessary air quality impacts assessments.
- Global change issues



Purpose for GOADS-2008

- Same as past:
 - Coordination with EPA
 - Support EPA and states ozone and regional haze modeling
 - MMS NEPA process
 - Global climate change issues
- 2000 wasn't on "cycle" with EPA's efforts
- 2005 wasn't a typical year due to the hurricanes



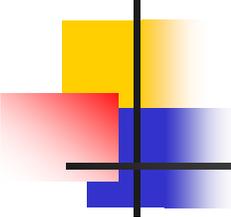
Structures to be Included

- All structures in the Western Gulf of Mexico (OCS west of $87^{\circ} 30'$ West longitude)
- Flag minor sources exempt from reporting:
 - Living quarters
 - Caissons
 - Wellhead protectors
 - Other (describe)



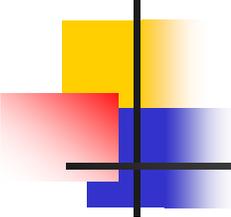
Schedule

- Collect activity data for input into GOADS-2008 from January 1, 2008 to December 31, 2008
- All activity data must be submitted to MMS by April 17, 2009



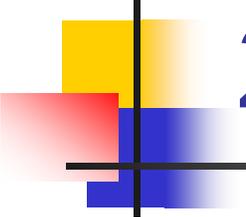
MMS Website

- www.gomr.mms.gov/homepg/regulate/environ/requirements.html
- Under "Air Quality," click on "Gulfwide Offshore Activities Data System (GOADS)"
- Then click on "2008 Effort"
- Included on the website:
 - NTL No. 2007-G25
 - GOADS-2008 Software and User's Guide
 - How to Submit Emissions Reports
 - Technical Support/Updates- FAQs and Master List for Importing



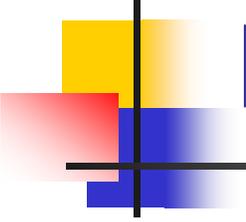
FAQs

- A FAQs link on MMS' website will direct you on how to subscribe to the GOADS internet forum
- If you registered for the GOADS-2005 forum, you are registered for the GOADS-2008 forum
- All technical questions and associated answers related to GOADS-2008 will be listed on this forum
- Any policy issues should be addressed to MMS
- This forum will also direct you on how to get 2005 static import files



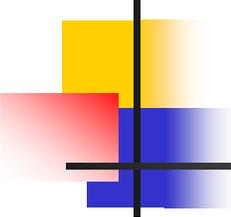
Data Organization for GOADS- 2008

- User/operator information: static
- Platform description data: static
- Equipment description data: static
- Monthly platform and equipment activity data: dynamic



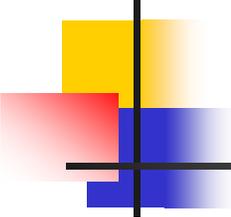
Examples of Static Platform Descriptive Data

- User ID
- Address
- Complex ID
- Structure ID
- Area
- Block
- Latitude/longitude
- Lease number
- Sales gas composition



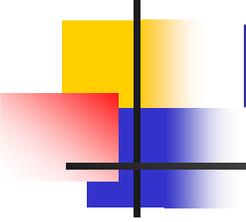
Examples of Static Equipment Descriptive Data

- Equipment ID
- Stack parameters
- Fugitive component count
- Boilers: heat input, fuel usage rate; fuel heating value
- Diesel engines: horsepower, fuel usage rate, fuel heating value
- Mud degassing: mud type



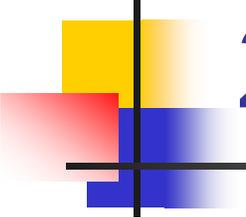
Examples of Static Equipment Descriptive Data, continued

- Natural gas turbines and engines: horsepower, fuel usage rate, fuel heating value, make and model
- Pneumatic pumps: make and model
- Pressure level controllers: make and model
- Storage tanks: dimensions



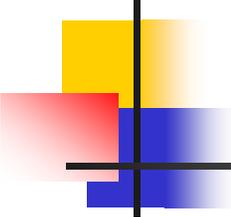
Examples of Dynamic Equipment Data (monthly)

- Operating hours
- Total fuel used
- Processed throughput
- Volume flared
- Volume vented



Other Features of GOADS- 2008

- Access file import and export features
- Excel export feature
- Flag inactive platforms or equipment as “No Emissions to Report”
- Flag minor sources exempt from reporting:
 - Living quarters
 - Caissons
 - Wellhead protectors
 - Other (describe)



Interaction with GOADS-2005

- Import feature for GOADS-2005 static description platform and equipment data
- Request GOADS-2005 files from MMS for import into GOADS-2008
- January, 2008 descriptive fields populated
- Review data closely and edit as needed
- Create records for new structures and equipment that were not in place in 2005

New User

Please enter your User Information

MMS Company No*: (5 characters or less)

Contact Name*:

Phone*: () - ext

Fax: () -

Email:

Company Name*:

Address 1*:

Address 2:

City*:

State*:

Zip Code*:

Inventory Year*:

* = Required Information

OK

Cancel

MMS Gulfwide Offshore Activity Data System (GOADS-2008) - Activity Edit Mode

File Edit Help

Operator: ERG
 Monthly Survey 2008/01

General Information

Add Next Monthly Survey

GOADS-2005 Registered User

Contact Name: ERG
 Phone: (919) 468 - 7860 ext
 Fax: () -
 Email: darcy.wilson@erg.com

Company Name: Eastern Research Group
 Address 1: 1600 Perimeter Park Drive
 Address 2:
 City: Morrisville
 State: NC
 Zip Code: 27560

Edit Description Data Print Screen Edit Data

Operator: ERG

MMS Gulfwide Offshore Activity Data System (GOADS-2008) - Activity Edit Mode

File Edit Help

- Open a different GOADS database
- QC GOADS-2008 Monthly Survey
- Export GOADS-2008 Inventory Database
- Export GOADS-2008 Monthly Survey
- Export Struct/Equip Desc to Spreadsheet
- Export GOADS-2008 Structure Data
- Import GOADS-2008 Structure Data
- Print Annual Inventory QA Summary Form
- Exit Program

Information

Next Monthly Survey

GOADS-2005 Registered User

Contact Name: Darcy Wilson

Phone: (919) 468 - 7860 ext

Fax: () -

Email:

Company Name: ERG

Address 1: 1600 Perimeter Park Drive

Address 2:

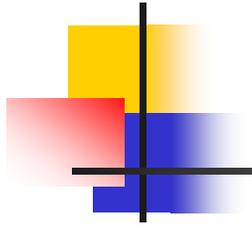
City: Morrisville

State: NC

Zip Code: 27560

Edit Description Data Print Screen Edit Data

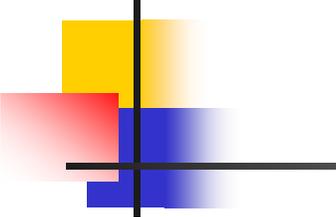
Operator: ERG



Import GOADS-2005 Structure Data

MMS Complex ID	MMS Structure ID	Area	Block	Struct Name
456	01	Gre...	608	Marco Polo

Select File Import Selected Structures Close



Export GOADS-2005 Structure Data

MMS Complex ID	MMS Structure ID	Area	Block	Struct Name
12112	12	23	3	213

Export File Path and Filename:

MMS Gulfwide Offshore Activity Data System (GOADS-2008) - Description Edit Mode

File Edit Help

Structure

Operator: ERG
11, 11, ERG

General Information | Sales Gas | QC Results

MMS Struct. ID:	11	Lease Number:	1111	Structure Contact Info:	
MMS Cmplx. ID:	11111111	Longitude (dec. degrees):	1111	Name:	ERG
Area:	11	Latitude (dec. degrees):	1111	Phone:	(919) 468 - 7860
Block:	11	Distance To Shore (mi):	111	Email:	erg.com
Structure Name:	ERG				

Add New Equipment

Minor Source Exempt from Reporting: No

Edit Activity Data | Print Screen | Run QC | Edit Data

Operator: ERG\11, 11, ERG

MMS Gulfwide Offshore Activity Data System (GOADS-2008) - Description Edit Mode

File Edit Help

Structure - EDIT DATA

Operator: ERG
 11, 11, ERG
 22, 22, ere
 22, 22, ERG

General Information Sales Gas QC Results

MMS Struct. ID: 12
 MMS Cmplx. ID: 1221
 Area: 22
 Block: 22
 Structure Name: ere

Lease Number:
 Longitude (dec. degrees):
 Latitude (dec. degrees):
 Distance To Shore (mi):

Structure Contact Info.
 Name:
 Phone: () -
 Email:

Add New Equipment

Minor Source Exempt from Reporting: Yes ▾

▾
 Caisson
 Living Quarters
 Wellhead Protector
 Other (describe in comments)

Edit Activity Data Print Screen Run QC Save Cancel End Edit & Save

Operator: ERG\22, 22, ere

MMS Gulfwide Offshore Activity Data System (GOADS-2008) - Description Edit Mode

File Edit Help

Amine Unit - EDIT DATA

Operator: ERG
 11, 11, ERG
 Amine Unit: 11111

General Info. | Model Inputs | Ventilation System | Control Equipment | QC Results

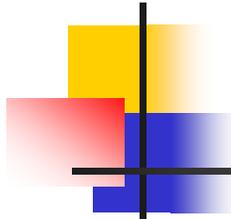
Unprocessed Natural Gas Concentrations (% by volume)

H2S:	<input type="text"/>
Methane:	<input type="text"/>
Ethane:	<input type="text"/>
C3 Hydrocarbons:	<input type="text"/>
C4 Hydrocarbons:	<input type="text"/>
C5 Hydrocarbons:	<input type="text"/>
C6 Hydrocarbons:	<input type="text"/>
C7 Hydrocarbons:	<input type="text"/>
C8+ Hydrocarbons:	<input type="text"/>

Total= 100%

Edit Activity Data | Print Screen | Run QC | Save | Cancel | End Edit & Save

Operator: ERG\11, 11, ERG\Amine Unit: 11111



MMS Gulfwide Offshore Activity Data System (GOADS-2008) - Activity Edit Mode

File Edit Help

Amine Unit - EDIT DATA

Operator: ERG

- Monthly Survey 2008/01
 - 11, 11, ERG
 - Amine Unit: 11111
- Monthly Survey 2008/02

General Info. | **QC Results**

Processed Throughput (MMscf):

Hours Operated (hrs):

Unprocessed Natural Gas Concentrations (% by volume)

H2S:

Methane:

Ethane:

C3 Hydrocarbons:

C4 Hydrocarbons:

C5 Hydrocarbons:

C6 Hydrocarbons:

C7 Hydrocarbons:

C8+ Hydrocarbons:

Total= 100%

Comments:

No Emissions to Report

Edit Description Data | Print Screen | Run QC | Save | Cancel | End Edit & Save

Operator: ERG\Monthly Survey 2008/01\11, 11, ERG\Amine Unit: 11111

MMS Gulfwide Offshore Activity Data System (GOADS-2008) - Description Edit Mode

File Edit Help

Amine Unit - EDIT DATA

Operator: ERG
 11, 11, ERG
 Amine Unit: 11111

General Info. **Model Inputs** Ventilation System Control Equipment QC Results

Amine Type:

Unprocessed sour gas feed pressure (psig):

Unprocessed sour gas feed temperature (F):

Equipped with a flash tank:

Flash Tank Temperature (F):

Flash Tank pressure (psig):

Destination of Flash Gas:

Number of Absorber Trays:

Lean amine feed pressure (psig):

Lean amine feed temperature (F):

Lean amine feed flowrate (gal/min):

lean amine feed amine content (% wt):

lean amine feed H2S content (% wt):

lean amine feed CO2 content (% wt):

Edit Activity Data Print Screen Run QC Save Cancel End Edit & Save

Operator: ERG\11, 11, ERG\Amine Unit: 11111

MMS Gulfwide Offshore Activity Data System (GOADS-2008) - Description Edit Mode

File Edit Help

Glycol Dehydrator - EDIT DATA

Operator: ERG
 11, 11, ERG
 Amine Unit: 11111
 Glycol Unit: 111

General Information | Ventilation System | Control Equipment | QC Results

Wet Gas Temperature (°F):

Wet Gas Pressure (psig):

Equipped with a flash tank? No

Destination of Flash Gas:

Flash Tank Temperature (°F):

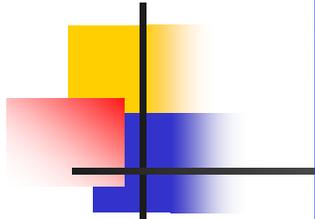
Flash Tank Pressure (psig):

Uses stripping gas?

Stripping Gas Flowrate (scf/min):

Edit Activity Data | **Print Screen** | Run QC | Save | Cancel | End Edit & Save

Operator: ERG\11, 11, ERG\Glycol Unit: 111



MMS Gulfwide Offshore Activity Data System (GOADS-2008) - Activity Edit Mode

File Edit Help

Glycol Dehydrator - EDIT DATA

Operator: ERG

- Monthly Survey 2008/01
 - 11, 11, ERG
 - Amine Unit: 11111
 - Glycol Unit: 111
- Monthly Survey 2008/02

General Information | QC Results

Wet Gas Temperature (°F):

Wet Gas Pressure (psig):

Equipped with a flash tank? No

Destination of Flash Gas:

Flash Tank Temperature (°F):

Flash Tank Pressure (psig):

Uses stripping gas?

Stripping Gas Flowrate (scf/min):

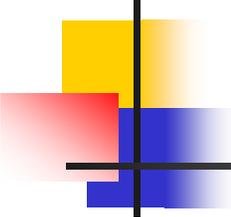
Processed Throughput (MMscf):

Comments:

No Emissions to Report

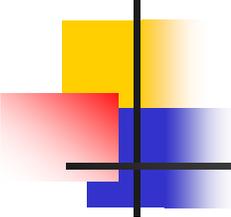
Edit Description Data | **Print Screen** | Run QC | Save | Cancel | End Edit & Save

Operator: ERG\Monthly Survey 2008/01\11, 11, ERG\Glycol Unit: 111



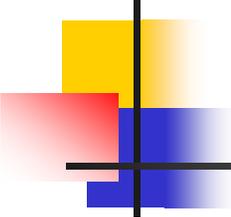
QA Summary Form

- Print and submit with GOADS-2008 file
- Can be printed at any time
- Does not supersede QC results
- Identifies key data that are needed to calculate emission estimates
- Data fields listed in Appendix B of User's Guide



Exporting Files

- Export entire inventory at one time for submittal to MMS (preferred)
- Can export select monthly surveys
- Can export only descriptive data



Technical Issues

- Volume vented
- Volume flared
- Losses from flashing
- Fuel usage

MMS Gulfwide Offshore Activity Data System (GOADS-2008) - Description Edit Mode

File Edit Help

Vent - EDIT DATA

Operator: ERG
 11, 11, ERG
 Amine Unit: 11111
 Boiler, Heater, or Burner:
 Cold Vent: 111
 Diesel or Gasoline Eng:
 Glycol Unit: 111
 Losses from Flashing: 1

General Information | Control Equipment | QC Results

Vent Type:

Stack Outlet Elevation (ft msl):
 Stack Inner Diameter (in):
 Avg. Exit Velocity (ft/s), excl. upsets:
 Avg. Exit Temperature (°F):
 Stack Orientation (degrees):
 Installed Control Equipment:
 Condenser Temperature (°F):
 Condenser Pressure (psia):

Operator: ERG\11, 11, ERG\Cold Vent: 111

MMS Gulfwide Offshore Activity Data System (GOADS-2008) - Activity Edit Mode

File Edit Help

Vent - EDIT DATA

Operator: ERG
 Monthly Survey 2008/01
 11, 11, ERG
 Amine Unit: 11111
 Boiler, Heater, or Bu
 Cold Vent: 111
 Diesel or Gasoline E
 Glycol Unit: 111
 Losses from Flashin
 Monthly Survey 2008/02

General Information | QC Results

Vent Type:

Stack Outlet Elevation (ft msl):

Hours Operated (hrs), including upsets:

Stack Inner Diameter (in):

Volume Vented (Mscf), including upsets:

Avg. Exit Velocity (ft/s), excl. upsets:

Vent Gas H2S Concentration (ppmv):

Avg. Exit Temperature (°F):

Vent Gas VOC Concentration (ppmv):

Stack Orientation (degrees):

Avg Molecular Weight of VOCs (lb/lb-mol):

Installed Control Equipment:

Condenser Temperature (°F):

Condenser Pressure (psia):

Comments:

No Emissions to Report

Edit Description Data | Print Screen | Run QC | Save | Cancel | End Edit & Save

Operator: ERG\Monthly Survey 2008/01\11, 11, ERG\Cold Vent: 111

MMS Gulfwide Offshore Activity Data System (GOADS-2008) - Description Edit Mode

File Edit Help

Flare - EDIT DATA

Operator: ERG
 11, 11, ERG
 Amine Unit: 11111
 Boiler, Heater, or Burner: 111
 Cold Vent: 111
 Combustion Flare: 111
 Diesel or Gasoline Engine: 111
 Glycol Unit: 111
 Losses from Flashing: 111

General Information | Control Equipment | QC Results

Flare Gas H₂S Concentration (ppmv):

Is there a continuous pilot? No

Pilot Fuel Feed Rate (Mscf/day):

Flare Combustion Efficiency (%):

Smoking Condition:

Stack Outlet Elevation (ft msl):

Stack Inner Diameter (in):

Avg. Exit Velocity (ft/s), excl. upsets:

Avg. Combustion Temp. (°F):

Stack Orientation (degrees):

Operator: ERG\11, 11, ERG\Combustion Flare: 111

MMS Gulfwide Offshore Activity Data System (GOADS-2008) - Activity Edit Mode

File Edit Help

Flare - EDIT DATA

Operator: ERG
 Monthly Survey 2008/01
 11, 11, ERG
 Amine Unit: 11111
 Boiler, Heater, or Bu
 Cold Vent: 111
 Combustion Flare: 1
 Diesel or Gasoline E
 Glycol Unit: 111
 Losses from Flashin
 Monthly Survey 2008/02

General Information | QC Results

Flare Gas H2S Concentration (ppmv):
 Is there a continuous pilot? No
 Pilot Fuel Feed Rate (Mscf/day):
 Flare Combustion Efficiency (%):
 Smoking Condition:
 Hours Operated (hrs), including upsets:
 Volume Flared (Mscf), including upsets:

Stack Outlet Elevation (ft msl):
 Stack Inner Diameter (in):
 Avg. Exit Velocity (ft/s), excl. upsets:
 Avg. Combustion Temp. (°F):
 Stack Orientation (degrees):

Comments:

No Emissions to Report

Edit Description Data | Print Screen | Run QC | Save | Cancel | End Edit & Save

Operator: ERG\Monthly Survey 2008/01\11, 11, ERG\Combustion Flare: 111

MMS Gulfwide Offshore Activity Data System (GOADS-2008) - Activity Edit Mode

File Edit Help

Losses from Flashing - EDIT DATA

Operator: ERG

- Monthly Survey 2008/01
 - 11, 11, ERG
 - Amine Unit: 11111
 - Boiler, Heater, or Bu
 - Diesel or Gasoline E
 - Glycol Unit: 111
 - Losses from Flashin
 - Monthly Survey 2008/02

General Information | QC Results

Type of Vessel:

API gravity of stored oil:

Operating Pressure of Vessel (psig):

Operating Temperature of Vessel (F):

Oil/Condensate Throughput (bbls):

Op Press upstream of Vessel (psig):

Op Temp upstream of Vessel (F):

SCF of flash per bbl of oil:

Comments:

No Emissions to Report

Operator: ERG\Monthly Survey 2008/01\11, 11, ERG\Losses from Flashing: 1111

MMS Gulfwide Offshore Activity Data System (GOADS-2008) - Description Edit Mode

File Edit Help

Losses from Flashing - EDIT DATA

Operator: ERG
11, 11, ERG
Amine Unit: 11111
Boiler, Heater, or Burner
Diesel or Gasoline Engine
Glycol Unit: 111
Losses from Flashing: 1111

General Information Ventilation System QC Results

Type of Vessel:
API gravity of stored oil:

- Separator
- Heater Treater
- Surge Tank
- Storage Tank
- Other

Navigation: < [] >

Buttons: Edit Activity Data Print Screen Run QC Save Cancel End Edit & Save

Operator: ERG\11, 11, ERG\Losses from Flashing: 1111

MMS Gulfwide Offshore Activity Data System (GOADS-2008) - Activity Edit Mode

File Edit Help

Losses from Flashing - EDIT DATA

Operator: ERG

- Monthly Survey 2008/01
 - 11, 11, ERG
 - Amine Unit: 11111
 - Boiler, Heater, or Bu
 - Diesel or Gasoline E
 - Glycol Unit: 111
 - Losses from Flashin
- Monthly Survey 2008/02

General Information | QC Results

Type of Vessel:

API gravity of stored oil:

Operating Pressure of Vessel (psig):

Operating Temperature of Vessel (F):

Oil/Condensate Throughput (bbls):

Op Press upstream of Vessel (psig):

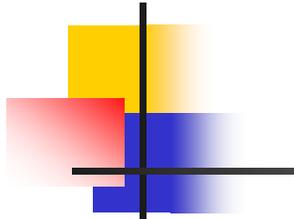
Op Temp upstream of Vessel (F):

SCF of flash per bbl of oil:

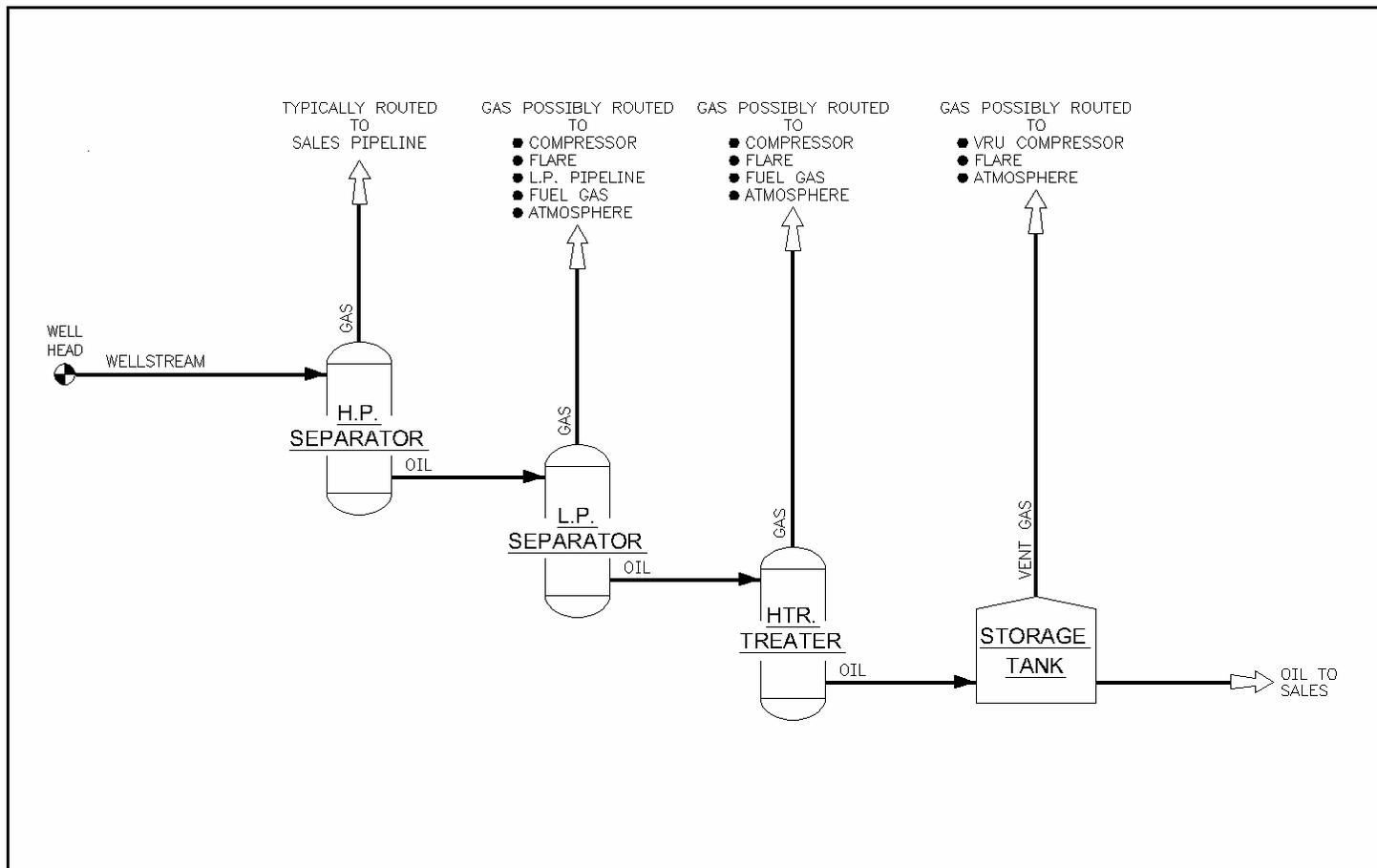
Comments:

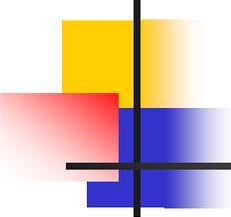
No Emissions to Report

Operator: ERG\Monthly Survey 2008/01\11, 11, ERG\Losses from Flashing: 1111



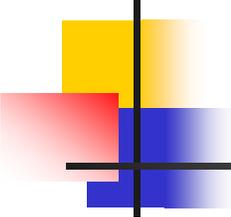
Losses from Flashing





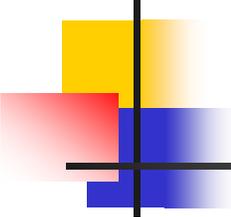
Losses from Flashing - GOR

- Direct measurement
- Vasquez-Beggs Correlation Equations (SPE Paper 6719)
- Griswold and Ambler GOR Chart Method (SPE Paper 7175)
- Lab analysis of pressurized oil sample gas-to-oil ratio (GOR)
- API E&P TANK Version 2 software
- Process simulators such as HYSYS or PROSIM



Losses from Flashing - GOR

- LP sep. oil to heater treater (HT) that dumps to atm. storage tank (T-1) that vents its flash gas to atmosphere.
- The LP sep. flash gas to the suction of the onsite compressor (i.e., the system). The heater treater vents its flash gas remotely to the low pressure vent system (V-1).



Losses from Flashing - GOR

- Create two flash records, FLASH-1 and FLASH-2
- FLASH-1, enter data for the flash between the LP to HT - vents to V-1
- FLASH-2, enter data for the flash between the HT and T-1 - vents locally
- LP sep sends gas to the onsite compressor, and flash not vented to atm. (or flared) and would not be reported.

MMS Gulfwide Offshore Activity Data System (GOADS-2008) - Description Edit Mode

File Edit Help

Diesel or Gasoline Engine - EDIT DATA

Operator: ERG
 11, 11, ERG
 Amine Unit: 11111
 Boiler, Heater, or Burner: 111
 Cold Vent: 111
 Combustion Flare: 111
 Diesel or Gasoline Engine: 111
 Glycol Unit: 111
 Losses from Flashing: 111
 22, 22, ere
 22, 22, ERG

General Information | Exhaust System | Control Equipment | QC Results

Operating Horsepower (hp):

Average Fuel Usage (Btu/hp-hr):

Fuel Type:

Fuel Sulfur Content (% by mass):

Max Rated Horsepower (hp):

Fuel Heating Value (Btu/lb):

Max Rated Fuel Usage (Btu/hp-hr):

Operator: ERG\11, 11, ERG\Diesel or Gasoline Engine: 1111

MMS Gulfwide Offshore Activity Data System (GOADS-2008) - Activity Edit Mode

File Edit Help

Diesel or Gasoline Engine - EDIT DATA

Operator: ERG

- Monthly Survey 2008/01
- Monthly Survey 2008/02
 - 11, 11, ERG
 - Amine Unit: 11111
 - Boiler, Heater, or Bl
 - Cold Vent: 111
 - Combustion Flare: 1
 - Diesel or Gasoline E
 - Glycol Unit: 111
 - Losses from Flashin
 - 22, 22, ere
 - 22, 22, ERG
- Monthly Survey 2008/03

General Information | QC Results

Operating Horsepower (hp):

Average Fuel Usage (Btu/hp-hr):

Fuel Type:

Fuel Sulfur Content (% by mass):

Max Rated Horsepower (hp):

Fuel Heating Value (Btu/lb):

Max Rated Fuel Usage (Btu/hp-hr):

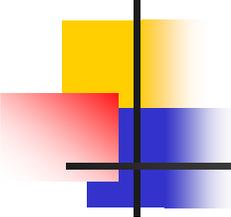
Total Fuel Used (gal):

Hours Operated (hrs):

Comments:

No Emissions to Report

Operator: ERG\Monthly Survey 2008/02\11, 11, ERG\Diesel or Gasoline Engine: 1111



GOADS-2008 Demonstration
