APPENDIX G-2
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP)
AIR QUALITY PERMIT APPLICATION FOR:

- THE PORT MANATEE LANDING (VALVE STATION)
- THE GULFSTREAM INTERCONNECTION STATION
- THE TECO INTERCONNECTION STATION

ATTACHMENT G-2.1
PORT MANATEE STATION EMISSION CALCULATIONS
ATTACHMENT G-2.2
GULFSTREAM INTERCONNECTION STATION EMISSION CALCULATIONS
ATTACHMENT G-2.3
TECO INTERCONNECTION STATION EMISSION CALCULATIONS

PORT DOLPHIN ENERGY LLC (THE APPLICANT)
THE PORT DOLPHIN DEEPWATER PORT (DWP)

MAY 2007

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APPENDIX G-2 SECTION 1 EXECUTIVE SUMMARY

Port Dolphin Energy LLC (the Applicant) plans to construct and operate the Port Dolphin deepwater port (DWP) located in federal waters approximately 28 miles off the Florida coast and 42 miles southwest of the pipeline landing at Port Manatee, Florida. The proposed subsea pipeline will extend approximately 41.2 miles from the DWP; traverse federal and state waters through Passage Key Inlet into Tampa Bay; with landing near Port Manatee, Florida (Figure G-2-1). The onshore pipeline facility would include the Port Manatee valve station at the landing point; the Gulfstream interconnection station (at O'Neil Rd.); and, the TECO interconnection station (at Buckeye Rd. and Interstate 75) (Figures G-2-2 to G-2-4). The on-shore facilities associated with the deepwater port operations are subject to the Florida Department of Environmental Protection (FDEP) air quality rules and regulations. This document is submitted to request FDEP air quality permit authorization for the on-shore facilities.

The on-shore facilities include the following:

- The Port Manatee valve station (the offshore pipeline landing site);
- The Gulfstream interconnection station; and,
- The TECO interconnection station.

Since the aggregated potential emissions from these facilities are lower than the Title V major source threshold (100 tons per year), the Applicant has elected to permit each facility separately. In addition, since each of the three (3) on-shore facilities has a potential to emit (PTE) less than 10 tons per year; they are exempt from the requirements to obtain an air permit pursuant to Florida Administrative Code (F.A.C.) Chapter 62-210.300. Per verbal guidance from FDEP, the Applicant is submitting emissions documentation to demonstrate this exemption.

The following supporting documentation is provided in this document:

- An area map indicating the location of the Port Manatee landing point; and, plots identifying the terrestrial routes are provided in G-2 2 and G-2 3;
- A process description is provided in G-2 4; and,
- Emissions documentation and calculation methods are provided in Attachments G-2.1, G-2.2 and G-2.3.

APPENDIX G-2 SECTION 2 PORT MANATEE LANDING MAP

PORT MANATEE, USGS COCKROACH BAY (FL) TOPO MAP
UTM 17 345922E 3057389N (NAD27)

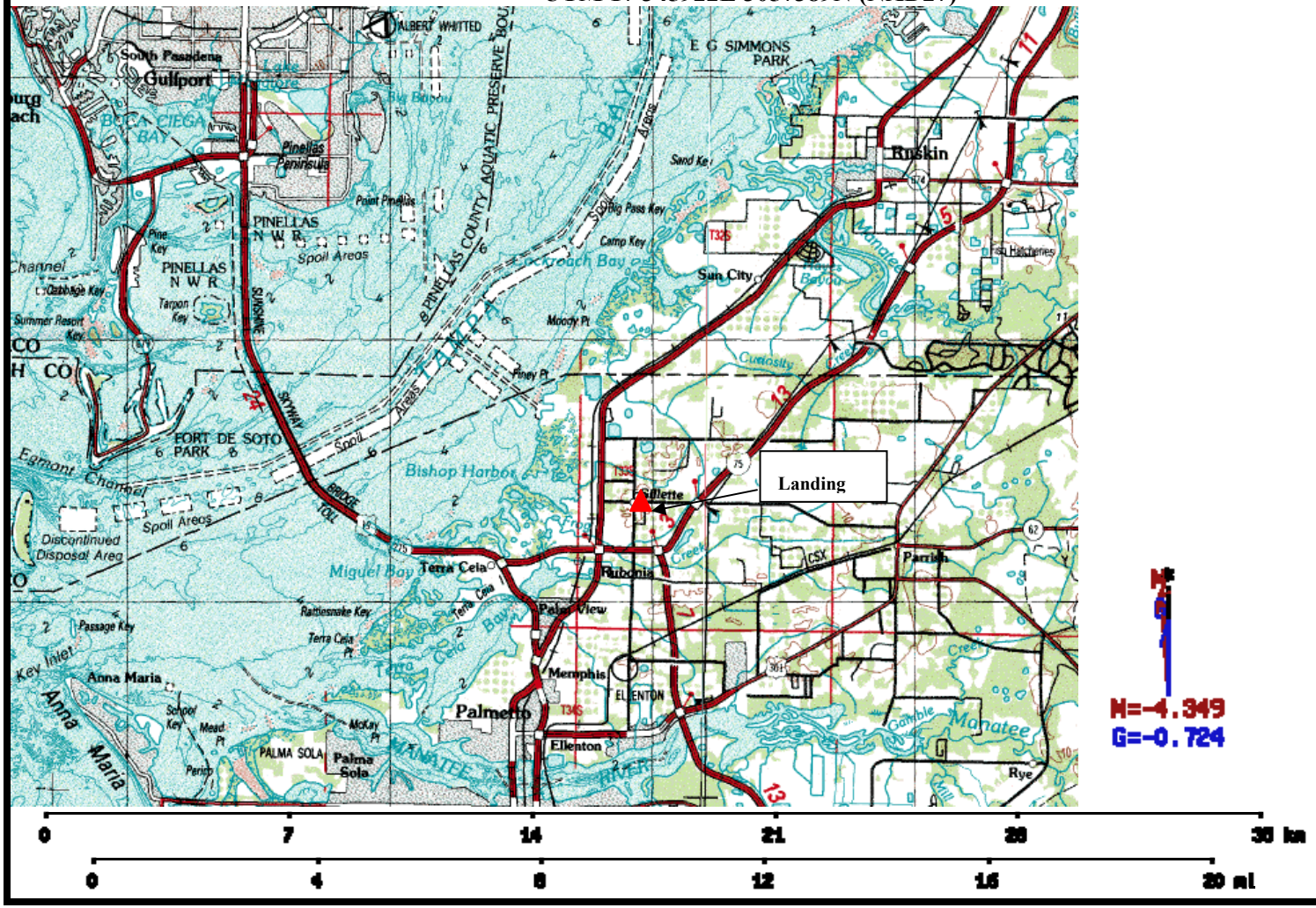

Figure G-2-1

APPENDIX G-2 SECTION 3 ONSHORE FACILITY LOCATIONS

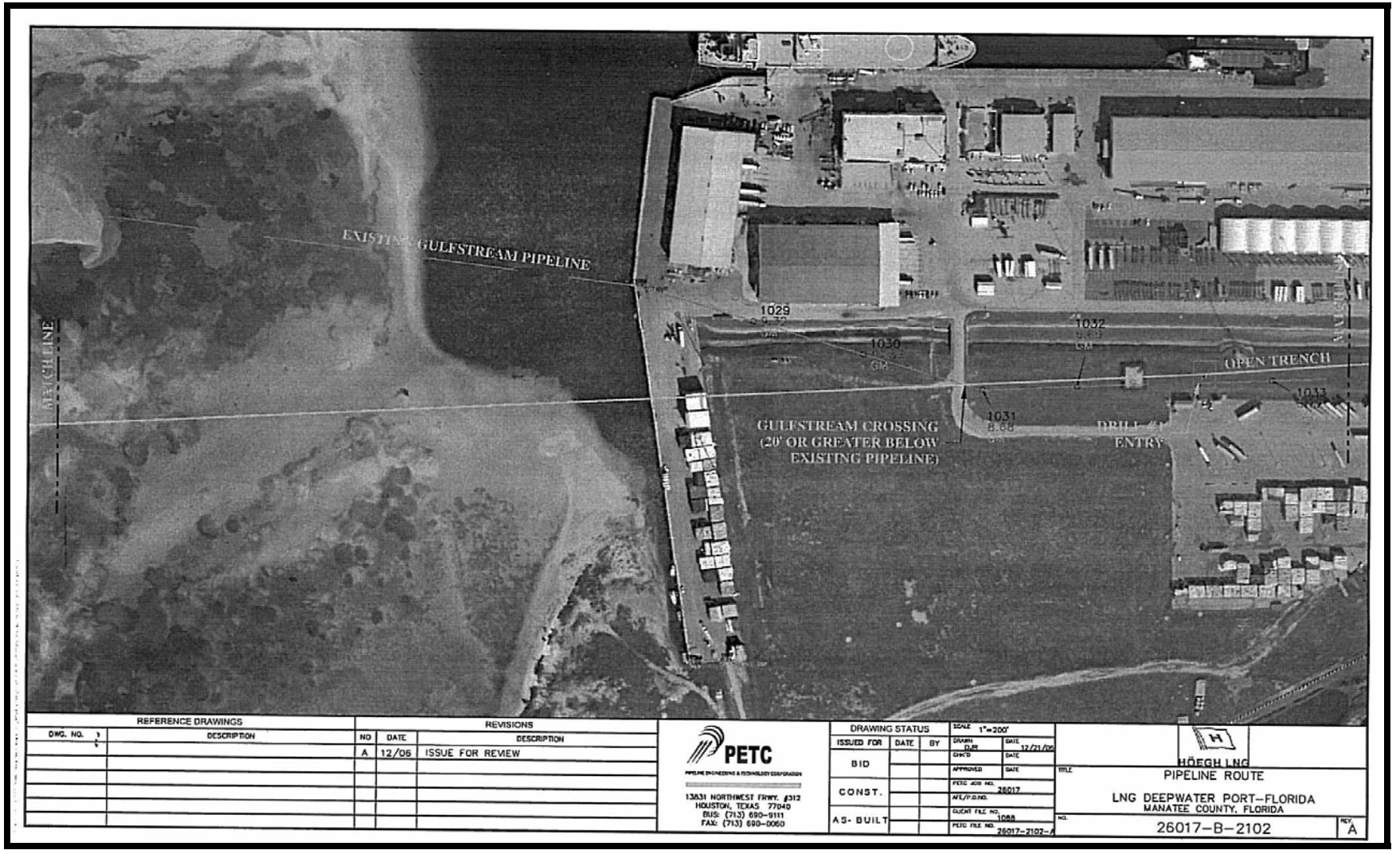

Figure G-2-2

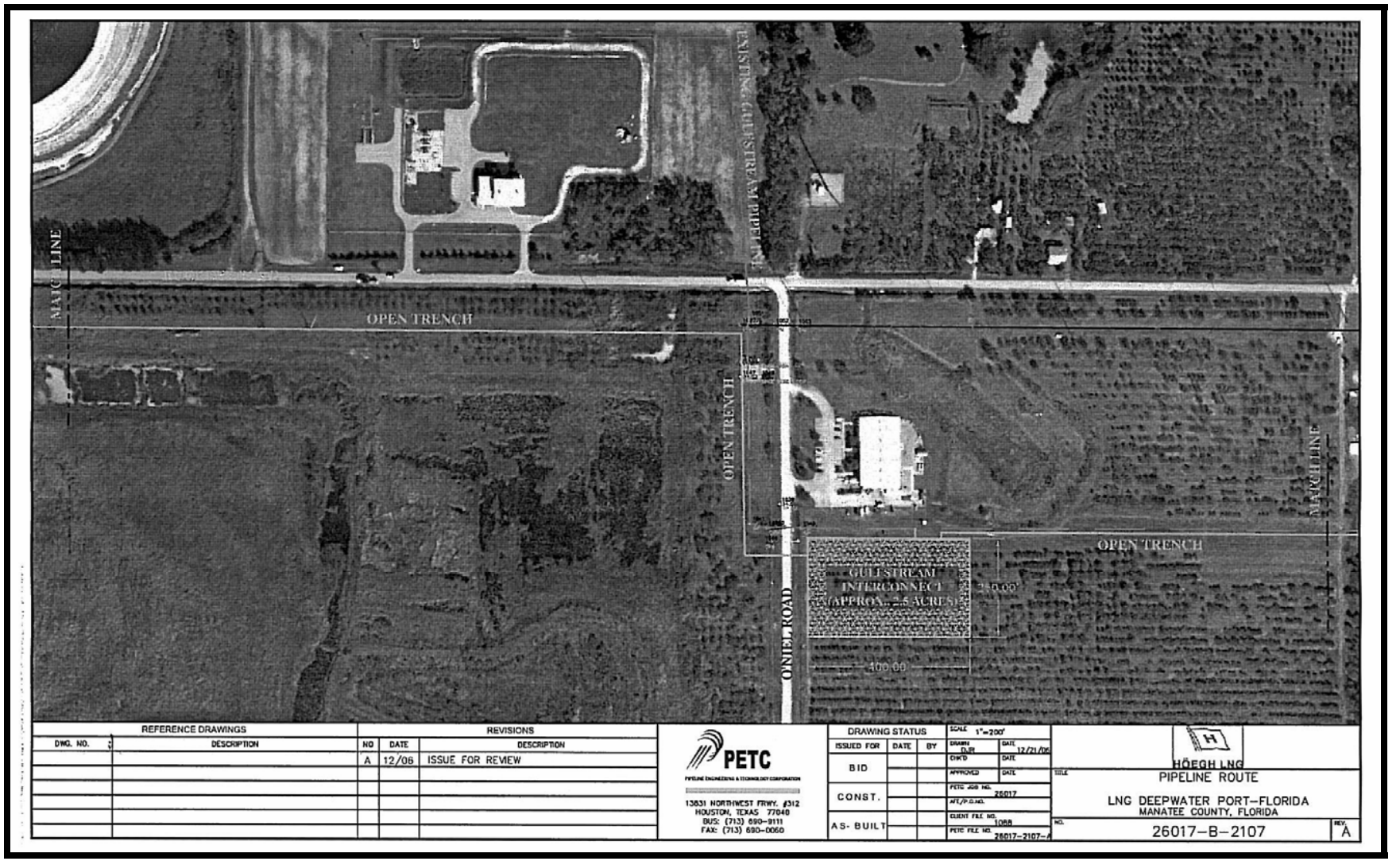

Figure G-2-3

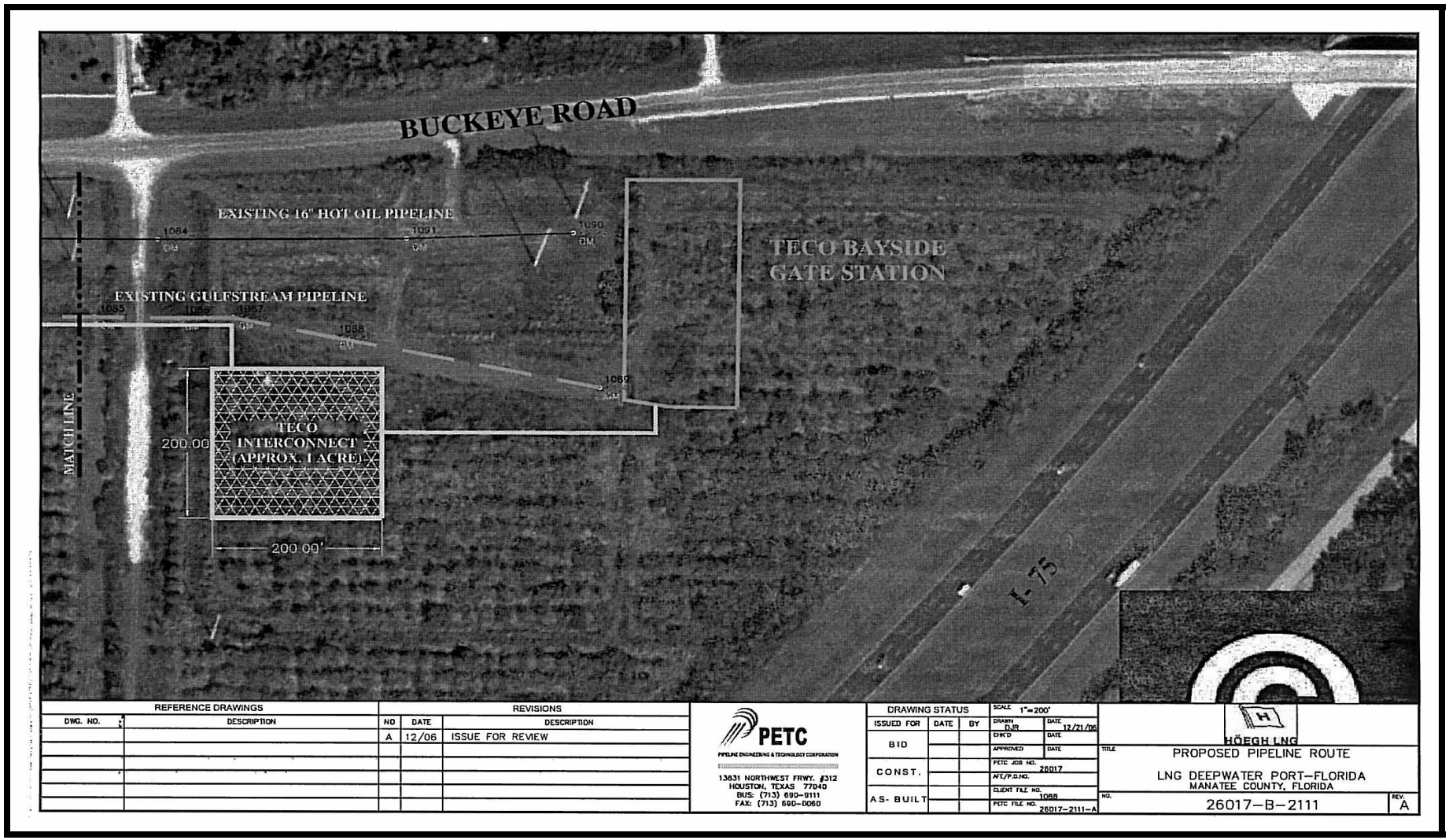

Figure G-2-4

APPENDIX G-2 SECTION 4 PROJECT DESCRIPTION

The Port Dolphin DWP will be located in the federal waters of the outer continental shelf (OCS), approximately 28 miles off the Florida coast and 42 miles southwest of the pipeline landing at Port Manatee, Florida (adjacent to Pinellas, Hillsborough, Manatee, and Sarasota counties). Port Dolphin will be capable of mooring liquefied natural gas (LNG) shuttle and regasification vessels (SRVs). Each SRV will be equipped to store, transport, and vaporize LNG, and to meter and send out natural gas by connecting to one of two (2) submersible buoys located within the DWP safety zone. Each buoy will consist of a flexible riser and a subsea flowline connecting to the proposed pipeline. The pipeline will extend 41.2 miles from the DWP, traversing federal and state waters, through Passage Key Inlet into Tampa Bay; and, landing near Port Manatee, Florida at a proposed onshore valve station (the Port Manatee valve station). Additional onshore pipeline facilities include the Gulfstream interconnect at O'Neil Road; and, the TECO interconnection station at Buckeye Road and Interstate 75. The Gulfstream interconnection station is located approximately 3.6 miles from the landing point; and, the TECO interconnection station is located approximately 2.2 miles from the landing point.

The following equipment is proposed at each onshore facility:

- Pressure reduction station;
- Gas filter/coalesces;
- Meter station;
- Condensate tank and day tank (the Gulfstream and TECO sites only);
- Pipeline launcher/receiver;
- Stand-by generator (the Gulfstream and TECO sites only); and
- Office/control building with gas chromatograph (the Gulfstream and TECO sites only).

APPENDIX G-2 SECTION 5 EMISSION CALCULATIONS

G-2 5.1 STAND-BY GENERATORS

G-2 5.1.1 GULFSTREAM INTERCONNECTION STATION

The Applicant is proposing a 402 hp Caterpillar C9 (or equivalent) diesel fired generator set with air to air after cooler (ATAAC). The diesel fired generator is expected to operate no more than 2 hours per week; and, 104 hours per year for maintenance and testing purposes. Engine emission factors, emission calculations and technical specifications are provided in Attachment G-2.2 of this document.

G-2 5.1.2 TECO INTERCONNECTION STATION

The Applicant is proposing a 91hp Caterpillar D75-4S (or equivalent) diesel fired generator set; with Tier II U.S. EPA approved emissions certified engine. The diesel fired generator is expected to operate no more than 2 hours per week; and, 104 hours per year for maintenance and testing purposes. Engine emission factors, emission calculations and technical specifications are provided in Attachment G-2.3 of this document.

G-2 5.2 CONDENSATE TANKS

G-2 5.2.1 GULFSTREAM INTERCONNECTION STATION

The Gulfstream facility operates one (1) 150 barrel condensate storage tank; and, one (1) 150 gallon residue storage tank. Working, standing and flashing losses were calculated using E&P TANK Version 2.0 program; and, the annual oil production rate at the site. Detailed calculations are presented in Attachment G-2.2 of this document.

G-2 5.2.2 TECO INTERCONNECTION STATION

The TECO facility includes one (1) 150 barrel condensate storage tank; and, one (1) 100 gallon residue storage tank. Working, standing and flashing losses are calculated using E&P TANK Version 2.0 program; and, the annual oil production rate at the site. Detailed calculations are presented in Attachment G-2.3 of this document.

G-2 5.3 EQUIPMENT LEAKS

Annual emission calculations conservatively assume the components will be operated 8,760 hours per year. Fugitive emissions were calculated using the methods described in the U.S. EPA Protocol for Equipment Leak Emission Estimates, November 1995. Facility specific (Oil and Gas Production Operations) fugitive emissions factors were used. Detailed emission calculations are provided in Appendices A, B, and C for the Port Manatee, Gulfstream, and TECO facilities.

APPENDIX G-2
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP)
AIR QUALITY PERMIT APPLICATION FOR:

- THE PORT MANATEE LANDING (VALVE STATION)
- THE GULFSTREAM INTERCONNECTION
- THE TECO INTERCONNECTION

ATTACHMENT G-2.1
Port Manatee Station Emission Calculations

PORT DOLPHIN ENERGY LLC (THE APPLICANT)
THE PORT DOLPHIN DEEPWATER PORT (DWP)

MAY 2007

Port Manatee Site-wide Total Emissions		
Compound	**Emission Rate (lb/hr)**	**Emission Rate (tpy)**
VOC	0.3542	1.5514
H_2S	<0.001	<0.001

Port Manatee Site-wide Total HAP Emissions		
Compound	**Emission Rate (lb/hr)**	**Emission Rate (tpy)**
Benzene	0.0013	0.0059
Ethylbenzene	0.0018	0.0080
Toluene	0.0016	0.0069
Xylene	0.0055	0.0239
n-Hexane	0.0015	0.0065
Total HAP	0.012	0.051

Port Manatee Landing Fugitive Emissions (un-speciated)					
Component Name	**Stream Type**	**Number of Components[1]**	**Emission Factor[2] (kg/hr/source)**	**Emission Rate (lb/hr)**	**Emission Rate (tpy)**
Valves	Gas/Vapor	200	4.50E-03	1.9842	8.6906
Valves	Light Oil	50	2.50E-03	0.2756	1.2070
Valves	Heavy Oil	20	8.40E-06	0.0004	0.0016
Pumps	Gas/Vapor	0	2.40E-03	0.0000	0.0000
Pumps	Light Oil	4	1.30E-02	0.1146	0.5021
Pumps	Heavy Oil	2	8.62E-03	0.0380	0.1665
Relief Valves	Gas/Vapor	6	8.80E-03	0.1164	0.5098
Relief Valves	Light Oil	2	7.50E-03	0.0331	0.1448
Relief Valves	Heavy Oil	0	3.20E-05	0.0000	0.0000
Flanges	Gas/Vapor	200	3.90E-04	0.1720	0.7532
Flanges	Light Oil	50	1.10E-04	0.0121	0.0531
Flanges	Heavy Oil	20	3.90E-07	0.0000	0.0001
Connectors	Gas/Vapor	800	2.00E-04	0.3527	1.5450
Connectors	Light Oil	200	2.10E-04	0.0926	0.4056
Connectors	Heavy Oil	80	7.50E-06	0.0013	0.0058
Sampling Connections	Gas/Vapor	6	8.80E-03	0.1164	0.5098
Total Emissions				**3.31**	**14.50**

Notes

[1] Component count estimated from the process equipment.

[2] Fugitive emission factors based on the *Protocol For Equipment Leak Emission Estimates,* EPA-453/R-95-017, November 1995. Facility specific (Oil and Gas Production Operations) fugitive emissions factors were used. The Heavy Oil - Pump factor is the SOCMI emission factor for Heavy Liquid - Pump.

Port Manatee Fugitive Emissions Speciation			
LNG Sample[1]	**Mole Fraction**	**Molecular Weight (lb/lb-mole)**	**Weight Fraction**
Methane	0.8500	16.04	0.7068
Ethane	0.1000	30.07	0.1559
Propane	0.0275	44.10	0.0629
Butane+	0.0120	58.12	0.0362
Pentanes+	0.0012	72.15	0.0045
n-Hexane	0.0001	86.18	0.0004
CO2	0.0050	44.01	0.0114
N2	0.0100	28.01	0.0145
O2	0.0025	32.00	0.0041
H_2S	0.2500	34.08	0.0000
Total S	2.0000	32.06	0.0001
Water Vapor	7.0000	18.02	0.0001
Benzene	0.0001	78.11	0.0004
Toluene	0.0001	92.14	0.0005
Ethylbenzene	0.0001	106.17	0.0006
Xylene	0.0001	318.50	0.0017
Total			**1.0000**
Total VOC			**0.1070**
Speciated HAP and H2S			
Formaldehyde			0.0000
Benzene			0.0004
Toluene			0.0005
Ethylbenzene			0.0006
Xylene			0.0017
n-Hexane			0.0004
H_2S			0.0000

Note:

[1] Speciation provided by Continental Shelf Associates.

APPENDIX G-2
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP)
AIR QUALITY PERMIT APPLICATION FOR:

- THE PORT MANATEE LANDING (VALVE STATION)
- THE GULFSTREAM INTERCONNECTION
- THE TECO INTERCONNECTION

ATTACHMENT G-2.2
Gulfstream Interconnection Station Emission Calculations

PORT DOLPHIN ENERGY LLC (THE APPLICANT)
THE PORT DOLPHIN DEEPWATER PORT (DWP)

MAY 2007

Gulfstream Interconnection Station Site-wide Total Emissions		
Compound	**Emission Rate**	
	(lb/hr)	**(tpy)**
VOC	2.03	8.73
H_2S	<0.001	<0.001
NO_X	3.65	0.19
CO	0.22	0.012
$PM_{10/2.5}$	0.029	0.0015
SO_2	0.82	0.043

Gulfstream Interconnection Station Site-wide Total HAP Speciation		
Compound	**Emission Rate**	
	(lb/hr)	**(tpy)**
Formaldehyde	0.0033	0.00017
Benzene	0.0040	0.0060
Toluene	0.0027	0.0070
Ethylbenzene	0.0018	0.0080
Xylene	0.0063	0.024
Propylene	0.0073	0.00038
1,3-Butadiene	0.00011	0.0000057
Acetaldehyde	0.0022	0.00011
Acrolein	0.00026	0.000014
Naphthalene	0.00024	0.000012
n-Hexane	0.0025	0.011
Total HAP	**0.031**	**0.057**

Gulfstream Interconnection Station Fugitive Emissions (un-speciated)					
Component Name	**Stream Type**	**Number of Components[1]**	**Emission Factor[2] (kg/hr/source)**	**Emission Rate (lb/hr)**	**Emission Rate (tpy)**
Valves	Gas/Vapor	200	4.50E-03	1.98	8.69
Valves	Light Oil	50	2.50E-03	0.28	1.21
Valves	Heavy Oil	20	8.40E-06	0.00037	0.0016
Pumps	Gas/Vapor	0	2.40E-03	0.00	0.00
Pumps	Light Oil	4	1.30E-02	0.11	0.50
Pumps	Heavy Oil	2	8.62E-03	0.04	0.17
Relief Valves	Gas/Vapor	6	8.80E-03	0.12	0.51
Relief Valves	Light Oil	2	7.50E-03	0.033	0.14
Relief Valves	Heavy Oil	0	3.20E-05	0.00	0.00
Flanges	Gas/Vapor	200	3.90E-04	0.17	0.75
Flanges	Light Oil	50	1.10E-04	0.012	0.053
Flanges	Heavy Oil	20	3.90E-07	0.000017	0.000075
Connectors	Gas/Vapor	800	2.00E-04	0.35	1.54
Connectors	Light Oil	200	2.10E-04	0.093	0.41
Connectors	Heavy Oil	80	7.50E-06	0.0013	0.0058
Sampling Connections	Gas/Vapor	6	8.80E-03	0.12	0.51
Total Emissions				**3.31**	**14.50**

Notes

[1] Component count estimated from the process equipment.

[2] Fugitive emission factors based on the Protocol For Equipment Leak Emission Estimates, EPA-453/R-95-017, November 1995. Facility specific (Oil and Gas Production Operations) fugitive emissions factors were used. The Heavy Oil - Pump factor is the SOCMI emission factor for Heavy Liquid - Pump.

Gulfstream Interconnection Station Fugitive Emissions Speciation			
LNG Sample[1]	**Mole Fraction**	**Molecular Weight (lb/lb-mole)**	**Weight Fraction**
Methane	0.8500	16.04	0.7068
Ethane	0.1000	30.07	0.1559
Propane	0.0275	44.10	0.0629
Butane+	0.0120	58.12	0.0362
Pentanes+	0.0012	72.15	0.0045
n-Hexane	0.0001	86.18	0.0004
CO2	0.0050	44.01	0.0114
N2	0.0100	28.01	0.0145
O2	0.0025	32.00	0.0041
H_2S	0.2500	34.08	0.0000
Total S	2.0000	32.06	0.0001
Water Vapor	7.0000	18.02	0.0001
Benzene	0.0001	78.11	0.0004
Toluene	0.0001	92.14	0.0005
Ethylbenzene	0.0001	106.17	0.0006
Xylene	0.0001	318.50	0.0017
Total			**1.0000**
Total VOC			**0.1070**
Speciated HAP and H2S			
Formaldehyde			0.0000
Benzene			0.0004
Toluene			0.0005
Ethylbenzene			0.0006
Xylene			0.0017
n-Hexane			0.0004
H_2S			0.0000

Note:

[1] Speciation provided by Continental Shelf Associates.

Gulfstream Interconnection Station Fugitive Emissions Speciation		
Compound	**Emission Rate (lb/hr)**	**Emission Rate (tpy)**
VOC	0.3542	1.5514
H_2S	0.0000	0.0001

Gulfstream Interconnection Station Fugitive Emissions Speciation		
Compound	**Emission Rate (lb/hr)**	**Emission Rate (tpy)**
Benzene	0.0013	0.0059
Toluene	0.0016	0.0069
Ethylbenzene	0.0018	0.0080
Xylene	0.0055	0.0239
n-Hexane	0.0015	0.0065
Total HAP	**0.012**	**0.051**

Gulfstream Interconnection Station Condensate Storage Tank Emissions		
Compound	**Emissions**	
	(lb/hr)	**(tpy)**
H_2S	0.0000	0.0000
O2	0.0000	0.0000
CO2	0.0000	0.0000
N2	0.0000	0.0000
Methane	0.0280	0.1240
Ethane	0.0740	0.3220
Propane	0.2970	1.3000
i-Butane	0.2280	0.9990
n-Butane	0.1480	0.6470
i-Pentane	0.1340	0.5850
n-Pentane	0.0960	0.4210
Hexane	0.0000	0.0000
Heptane	0.0000	0.0000
Octane	0.0000	0.0000
Nonane	0.0000	0.0000
Decane+	0.0010	0.0030
Benzene	0.0000	0.0000
Toluene	0.0000	0.0000
Ethylbenzene	0.0000	0.0000
Xylene	0.0000	0.0000
n-Hexane	0.0010	0.0030
2,2,4, Trimethylpentene	0.0000	0.0000
Formaldehyde	0.0000	0.0000
Total	**1.0070**	**4.4040**
Total VOC	**0.9050**	**3.9580**

Gulfstream Interconnection Station Day Tank Emissions		
Compound	**Emission Rate**	
	(lb/hr)	**(tpy)**
H_2S	0.0000	0.0000
O2	0.0000	0.0000
CO2	0.0000	0.0000
N2	0.0000	0.0000
Methane	0.0230	0.0990
Ethane	0.0590	0.2570
Propane	0.2370	1.0400
i-Butane	0.1830	0.8000
n-Butane	0.1180	0.5180
i-Pentane	0.1070	0.4680
n-Pentane	0.0770	0.3370
Hexane	0.0000	0.0000
Heptane	0.0000	0.0000
Octane	0.0000	0.0000
Nonane	0.0000	0.0000
Decane+	0.0000	0.0020
Benzene	0.0000	0.0000
Toluene	0.0000	0.0000
Ethylbenzene	0.0000	0.0000
Xylene	0.0000	0.0000
n-Hexane	0.0000	0.0020
Formaldehyde	0.0000	0.0000
2,2,4, Trimethylpentane	0.0000	0.0000
Total	**0.8040**	**3.5230**
Total VOC	**0.7220**	**3.1670**

Gulfstream Interconnection Station Stand-by Diesel Generator Emissions						
Source Name[1]	**Engine Rating (hp)**	**Emission Factor (g/hp-hr)[2]**				
		NO_X	**CO**	**$PM_{10/2.5}$**	**VOC**	**SO_2**
Caterpillar C9 ATAAC	402	4.11	0.25	0.0330	0.06	0.9299
		Emission Rate (lb/hr)				
		3.65	0.22	0.029	0.053	0.82
		Emission Rate (tpy)				
		0.19	0.012	0.0015	0.0028	0.043

[1] The maximum operating scenarios for the diesel engine are 2 hours per week and 104 hours per year for maintenance and testing purposes.
[2] NO_X, CO, PM, and VOC emission factors are based on diesel engine vendor data. Same emission factor is assumed for PM_{10} and $PM_{2.5}$. SO_2 emission factor not available from manufacturer; emission factor from AP-42, Chapter 3, Section 3.3, Table 3.3-1, October 1996.

Gulfstream Interconnection Station Stand-by Diesel Generator Emissions			
HAP Speciation[3]			
Pollutant	**Emission Factor (lb/Mmbtu)**	**Emission Rate (lb/hr)**	**Emission Rate (tpy)**
Benzene	0.0009	0.0026	<0.001
Toluene	0.0004	0.0012	<0.001
Xylene	0.0003	0.00080	<0.001
Propylene	0.0026	0.0073	<0.001
1,3-Butadiene	0.0000	0.00011	<0.001
Formaldehyde	0.0012	0.0033	<0.001
Acetaldehyde	0.0008	0.0022	<0.001
Acrolein	0.0001	0.00026	<0.001
Naphthalene	0.0001	0.00024	0.000012

[3] Emission factors based on AP-42, Chapter 3, Section 3.3, Table 3.3-2, October 1996. Am average brake-specific fuel consumption of 7,000 Btu/hp-hr was used to convert from lb/Mmbtu to lb/hp-hr.

Gulfstream Interconnection Station

Condensate Storage Tank

Emission Calculations

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Project Setup Information

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Project File:	S:\P\P064402\0146 CSA Dolphin\on-shore facility\Calculations\Condensate Tank_Gulfstream Interconnection Station.ept
Flowsheet Selection:	Oil Tank with Separator
Calculation Method:	RVP Distillation
Control Efficiency:	100.0%
Known Separator Stream:	Low Pressure Oil
Entering Air Composition:	No
Filed Name:	Dolphin DWP On-Shore - Gulfstream Interconnection Station Condensate Tank
Date:	2007.02.01

Gulfstream Interconnection Station

Condensate Storage Tank Emission Calculations

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Data Input

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Separator Pressure:	1200.00[psig]
Separator Temperature:	70.00[F]
Ambient Pressure:	14.70[psia]
Ambient Temperature:	70.00[F]
C10+ SG:	0.8990
C10+ MW:	166.00

-- Low Pressure Oil ----------

No.	Component	mol %
1	H2S	0.0000
2	O2	0.0000
3	CO2	0.0000
4	N2	0.0000
5	C1	0.4600
6	C2	0.6400
7	C3	2.1900
8	i-C4	3.0500
9	n-C4	3.0500
10	i-C5	5.9000
11	n-C5	5.9000
12	C6	0.0000
13	C7	0.0000
14	C8	0.0000
15	C9	0.0000
16	C10+	78.6400
17	Benzene	0.0000
18	Toluene	0.0000
19	E-Benzene	0.0000
20	Xylenes	0.0000
21	n-C6	0.1600
22	224Trimethylp	0.0000

-- Sales Oil ----------

Production Rate:	5 [bbl/day]
Days of Annual Operation:	365 [days/year]
API Gravity:	53.0
Reid Vapor Pressure:	7.70 [psia]

Gulfstream Interconnection Station
Condensate Storage Tank Emission Calculations

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Calculation Results

****

-- Emission Summary ----------

Item	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]
Total HAPs	0.000	0.000
Total HC	4.405	1.006
Page 1 ---------- E&P TANK		
VOCs, C2+	4.281	0.977
VOCs, C3+	3.959	0.904

Uncontrolled Recovery Info.

Vapor	187.3500 x1E-3 [MSCFD]
HC Vapor	187.3500 x1E-3 [MSCFD]
GOR	37.47 [SCF/bbl]

-- Emission Composition ----------

No	Component	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]
1	H2S	0.000	0.000
2	O2	0.000	0.000
3	CO2	0.000	0.000
4	N2	0.000	0.000
5	C1	0.124	0.028
6	C2	0.322	0.074
7	C3	1.300	0.297
8	i-C4	0.999	0.228
9	n-C4	0.647	0.148
10	i-C5	0.585	0.134
11	n-C5	0.421	0.096
12	C6	0.000	0.000
13	C7	0.000	0.000
14	C8	0.000	0.000
15	C9	0.000	0.000
16	C10+	0.003	0.001
17	Benzene	0.000	0.000
18	Toluene	0.000	0.000
19	E-Benzene	0.000	0.000
20	Xylenes	0.000	0.000
21	n-C6	0.003	0.001
22	224Trimethylp	0.000	0.000
	Total	4.404	1.005

Gulfstream Interconnection Station
Condensate Storage Tank Emission Calculations

-- Stream Data ----------

No.	Component	MW	LP Oil	Flash Oil	Sale Oil	Flash Gas	W&S Gas	Total Emissions
		mol %	mol %	mol %	mol %	mol %	mol %	
1	H2S	34.80	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	O2	32.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	CO2	44.01	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	N2	28.01	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	C1	16.04	0.4600	0.0701	0.0000	18.9633	2.0688	8.5448
6	C2	30.07	0.6400	0.3288	0.0020	15.4132	9.6416	11.8540
7	C3	44.10	2.1900	1.7271	0.4557	24.1655	37.9610	32.6728
8	i-C4	58.12	3.0500	2.7834	2.1393	15.7139	21.1402	19.0602
9	n-C4	58.12	3.0500	2.8843	2.5213	10.9258	13.2304	12.3470
10	i-C5	72.15	5.9000	5.8445	5.7246	8.5616	9.2620	8.9936
11	n-C5	72.15	5.9000	5.8942	5.8682	6.2028	6.6368	6.4705
12	C6	86.16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
13	C7	100.20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
14	C8	114.23	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15	C9	128.28	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	C10+	166.00	78.6400	80.3048	83.1219	0.0190	0.0220	0.0208
17	Benzene	78.11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	Toluene	92.13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	E-Benzene	106.17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	Xylenes	106.17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	n-C6	86.18	0.1600	0.1627	0.1671	0.0349	0.0372	0.0363
22	224Trimethylp	114.24	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	MW	143.99	146.08	149.40	44.53	51.49	48.82	
	Stream Mole Ratio	1.0000	0.9794	0.9462	0.0206	0.0332	0.0538	
	Heating Value [BTU/SCF]	2533.23	2905.44	2762.76				
	Gas Gravity [Gas/Air]	1.54	1.78	1.69				
	Bubble Pt. @ 100F [psia]	40.77	19.39	9.09				
	RVP @ 100F [psia]	17.20	12.80	7.99				
	Spec. Gravity @ 100F	0.886	0.889	0.894				

Page 2---------- E&P TANK

Gulfstream Interconnection Station
Day Tank Emission Calculations

****

Project Setup Information

****

Project File:	S:\P\P064402\0146 CSA Dolphin\on-shore facility\Calculations\Day Tank_Gulfstream Interconnection Station.ept
Flowsheet Selection:	Oil Tank with Separator
Calculation Method:	RVP Distillation
Control Efficiency:	100.0%
Known Separator Stream:	Low Pressure Oil
Entering Air Composition:	No
Filed Name:	Dolphin DWP On-Shore - Gulfstream Interconnection Station Day Tank
Date:	2007.02.01

Gulfstream Interconnection Station
Day Tank Emission Calculations

****

Data Input

****

Separator Pressure:	1200.00[psig]
Separator Temperature:	70.00[F]
Ambient Pressure:	14.70[psia]
Ambient Temperature:	70.00[F]
C10+ SG:	0.8990
C10+ MW:	166.00

-- Low Pressure Oil ----------

No.	Component	mol %
1	H2S	0.0000
2	O2	0.0000
3	CO2	0.0000
4	N2	0.0000
5	C1	0.4600
6	C2	0.6400
7	C3	2.1900
8	i-C4	3.0500
9	n-C4	3.0500
10	i-C5	5.9000
11	n-C5	5.9000
12	C6	0.0000
13	C7	0.0000
14	C8	0.0000
15	C9	0.0000
16	C10+	78.6400
17	Benzene	0.0000
18	Toluene	0.0000
19	E-Benzene	0.0000
20	Xylenes	0.0000
21	n-C6	0.1600
22	224Trimethylp	0.0000

-- Sales Oil ----------

Production Rate:	4[bbl/day]
Days of Annual Operation:	365 [days/year]
API Gravity:	53.0
Reid Vapor Pressure:	7.70[psia]

Gulfstream Interconnection Station
Day Tank Emission Calculations

****

Calculation Results

****

-- Emission Summary ----------

Item	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]
Total HAPs	0.000	0.000
Total HC	3.524	0.805
Page 1---------- E&P TANK		
VOCs, C2+	3.425	0.782
VOCs, C3+	3.167	0.723

Uncontrolled Recovery Info

Vapor	149.8800 x1E-3 [MSCFD]
HC Vapor	149.8800 x1E-3 [MSCFD]
GOR	37.47 [SCF/bbl]

-- Emission Composition ----------

No	Component	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]
1	H2S	0.000	0.000
2	O2	0.000	0.000
3	CO2	0.000	0.000
4	N2	0.000	0.000
5	C1	0.099	0.023
6	C2	0.257	0.059
7	C3	1.040	0.237
8	i-C4	0.800	0.183
9	n-C4	0.518	0.118
10	i-C5	0.468	0.107
11	n-C5	0.337	0.077
12	C6	0.000	0.000
13	C7	0.000	0.000
14	C8	0.000	0.000
15	C9	0.000	0.000
16	C10+	0.002	0.000
17	Benzene	0.000	0.000
18	Toluene	0.000	0.000
19	E-Benzene	0.000	0.000
20	Xylenes	0.000	0.000
21	n-C6	0.002	0.000
22	224Trimethylp	0.000	0.000
	Total	3.523	0.804

Gulfstream Interconnection Station
Day Tank Emission Calculations

-- Stream Data ----------

No.	Component	MW mol %	LP Oil mol %	Flash Oil mol %	Sale Oil mol %	Flash Gas mol %	W&S Gas mol %	Total Emissions
1	H2S	34.80	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	O2	32.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	CO2	44.01	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	N2	28.01	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	C1	16.04	0.4600	0.0701	0.0000	18.9633	2.0688	8.5448
6	C2	30.07	0.6400	0.3288	0.0020	15.4132	9.6416	11.8540
7	C3	44.10	2.1900	1.7271	0.4557	24.1655	37.9610	32.6728
8	i-C4	58.12	3.0500	2.7834	2.1393	15.7139	21.1402	19.0602
9	n-C4	58.12	3.0500	2.8843	2.5213	10.9258	13.2304	12.3470
10	i-C5	72.15	5.9000	5.8445	5.7246	8.5616	9.2620	8.9936
11	n-C5	72.15	5.9000	5.8942	5.8682	6.2028	6.6368	6.4705
12	C6	86.16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
13	C7	100.20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
14	C8	114.23	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15	C9	128.28	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	C10+	166.00	78.6400	80.3048	83.1219	0.0190	0.0220	0.0208
17	Benzene	78.11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	Toluene	92.13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	E-Benzene	106.17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	Xylenes	106.17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	n-C6	86.18	0.1600	0.1627	0.1671	0.0349	0.0372	0.0363
22	224Trimethylp	114.24	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
MW		143.99	146.08	149.40	44.53	51.49	48.82	
Stream Mole Ratio		1.0000	0.9794	0.9462	0.0206	0.0332	0.0538	
Heating Value [BTU/SCF]		2533.23	2905.44	2762.76				
Gas Gravity Gas/Air]		1.54	1.78	1.69				
Bubble Pt. @ 100F [psia]		40.77	19.39	9.09				
RVP @ 100F [psia]		17.20	12.80	7.99				
Spec. Gravity @ 100F		0.886	0.889	0.894				

Page 2---------- E&P TANK

Appendix G-2

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP)
AIR QUALITY PERMIT APPLICATION FOR:

- THE PORT MANATEE LANDING (VALVE STATION)
- THE GULFSTREAM INTERCONNECTION STATION
- THE TECO INTERCONNECTION STATION

ATTACHMENT G-2.3
TECO Interconnection Station Emission Calculations

PORT DOLPHIN ENERGY LLC (THE APPLICANT)
THE PORT DOLPHIN DEEPWATER PORT (DWP)

MAY 2007

TECO Interconnection Station Site-wide Total Emissions		
Compound	**Emission Rate**	
	(lb/hr)	**(tpy)**
VOC	2.21	8.65
H_2S	<0.001	<0.001
NO_X	2.81	0.15
CO	0.60	0.031
$PM_{10/2.5}$	0.20	0.010
SO_2	0.19	0.010

TECO Interconnection Station Site-wide Total HAP Emissions		
Compound	**Emission Rate**	
	(lb/hr)	**(tpy)**
Formaldehyde	<0.001	<0.001
Benzene	0.0019	0.0059
Toluene	0.0018	0.0069
Ethylbenzene	0.0018	0.0080
Xylene	0.0056	0.024
Propylene	0.0016	<0.001
1,3-Butadiene	<0.001	<0.001
Acetaldehyde	<0.001	<0.001
Acrolein	<0.001	<0.001
Naphthalene	<0.001	<0.001
n-Hexane	0.0024	0.011
Total HAP	**0.017**	**0.056**

TECO Interconnection Station Fugitive Emissions (un-speciated)					
Component Name	**Stream Type**	**Number of Components[1]**	**Emission Factor[2] (kg/hr/source)**	**Emission Rate (lb/hr)**	**Emission Rate (tpy)**
Valves	Gas/Vapor	200	4.50E-03	1.98	8.69
Valves	Light Oil	50	2.50E-03	0.28	1.21
Valves	Heavy Oil	20	8.40E-06	0.00037	0.0016
Pumps	Gas/Vapor	0	2.40E-03	0.00	0.00
Pumps	Light Oil	4	1.30E-02	0.11	0.50
Pumps	Heavy Oil	2	8.62E-03	0.038	0.17
Relief Valves	Gas/Vapor	6	8.80E-03	0.12	0.51
Relief Valves	Light Oil	2	7.50E-03	0.033	0.14
Relief Valves	Heavy Oil	0	3.20E-05	0.00	0.00
Flanges	Gas/Vapor	200	3.90E-04	0.17	0.75
Flanges	Light Oil	50	1.10E-04	0.012	0.053
Flanges	Heavy Oil	20	3.90E-07	0.000017	0.000075
Connectors	Gas/Vapor	800	2.00E-04	0.35	1.54
Connectors	Light Oil	200	2.10E-04	0.093	0.41
Connectors	Heavy Oil	80	7.50E-06	0.0013	0.0058
Sampling Connections	Gas/Vapor	6	8.80E-03	0.12	0.51
Total Emissions				**3.31**	**14.50**

Notes

[1] Component count estimated from the process equipment.

[2] Fugitive emission factors based on the Protocol For Equipment Leak Emission Estimates, EPA-453/R-95-017, November 1995. Facility specific (Oil and Gas Production Operations) fugitive emissions factors were used. The Heavy Oil - Pump factor is the SOCMI emission factor for Heavy Liquid - Pump.

TECO Interconnection Station Fugitive Emissions Speciation			
LNG Sample[1]	**Mole Fraction**	**Molecular Weight (lb/lb-mole)**	**Weight Fraction**
Methane	0.8500	16.04	0.7068
Ethane	0.1000	30.07	0.1559
Propane	0.0275	44.10	0.0629
Butane+	0.0120	58.12	0.0362
Pentanes+	0.0012	72.15	0.0045
n-Hexane	0.0001	86.18	0.0004
CO2	0.0050	44.01	0.0114
N2	0.0100	28.01	0.0145
O2	0.0025	32.00	0.0041
H_2S	0.2500	34.08	0.0000
Total S	2.0000	32.06	0.0001
Water Vapor	7.0000	18.02	0.0001
Benzene	0.0001	78.11	0.0004
Toluene	0.0001	92.14	0.0005
Ethylbenzene	0.0001	106.17	0.0006
Xylene	0.0001	318.50	0.0017
Total			**1.0000**
Total VOC			**0.1070**
Speciated HAP and H_2S			
Formaldehyde			0.0000
Benzene			0.0004
Toluene			0.0005
Ethylbenzene			0.0006
Xylene			0.0017
n-Hexane			0.0004
H_2S			0.0000

Note:

[1] Speciation provided by Continental Shelf Associates.

TECO Interconnection Station Fugitive Emissions Speciation		
Compound	**Emission Rate (lb/hr)**	**Emission Rate (tpy)**
VOC	0.3542	1.5514
H_2S	<0.001	<.0.001

TECO Interconnection Station Fugitive Emissions Speciation		
Compound	**Emission Rate (lb/hr)**	**Emission Rate (tpy)**
Benzene	0.0013	0.0059
Toluene	0.0016	0.0069
Ethylbenzene	0.0018	0.0080
Xylene	0.0055	0.024
n-Hexane	0.0015	0.0065
Total HAP	**0.012**	**0.051**

TECO Interconnection Station Condensate Storage Tank Emissions		
Compound	**Emission Rate**	
	(lb/hr)	**(tpy)**
H_2S	0.0000	0.0000
O2	0.0000	0.0000
CO2	0.0000	0.0000
N2	0.0000	0.0000
Methane	0.0280	0.1240
Ethane	0.0740	0.3220
Propane	0.2970	1.3000
i-Butane	0.2280	0.9990
n-Butane	0.1480	0.6470
i-Pentane	0.1340	0.5850
n-Pentane	0.0960	0.4210
Hexane	0.0000	0.0000
Heptane	0.0000	0.0000
Octane	0.0000	0.0000
Nonane	0.0000	0.0000
Decane+	0.0010	0.0030
Benzene	0.0000	0.0000
Toluene	0.0000	0.0000
Ethylbenzene	0.0000	0.0000
Xylene	0.0000	0.0000
n-Hexane	0.0010	0.0030
2,2,4, Trimethylpentene	0.0000	0.0000
Formaldehyde	0.0000	0.0000
Total	**1.0070**	**4.4040**
Total VOC	**0.9050**	**3.9580**

TECO Interconnection Station Day Tank Emissions		
Compound	**Emission Rate**	
	(lb/hr)	**(tpy)**
H_2S	0.0000	0.0000
O2	0.0000	0.0000
CO2	0.0000	0.0000
N2	0.0000	0.0000
Methane	0.0230	0.0990
Ethane	0.0590	0.2570
Propane	0.2370	1.0400
i-Butane	0.1830	0.8000
n-Butane	0.1180	0.5180
i-Pentane	0.1070	0.4680
n-Pentane	0.0770	0.3370
Hexane	0.0000	0.0000
Heptane	0.0000	0.0000
Octane	0.0000	0.0000
Nonane	0.0000	0.0000
Decane+	0.0000	0.0020
Benzene	0.0000	0.0000
Toluene	0.0000	0.0000
Ethylbenzene	0.0000	0.0000
Xylene	0.0000	0.0000
n-Hexane	0.0000	0.0020
Formaldehyde	0.0000	0.0000
2,2,4, Trimethylpentane	0.0000	0.0000
Total	**0.8040**	**3.5230**
Total VOC	**0.7220**	**3.1670**

TECO Interconnection Station Stand-by Diesel Generator Emissions						
Source Name[1]	**Engine Rating (hp)**	**Emission Factor (lb/hp-hr)[2]**				
		NO_X	**CO**	**$PM_{10/2.5}$**	**VOC**	**SO_2**
Caterpillar D75-4S	91	0.0310	0.0067	0.0022	0.0025	0.0021
		Emission Rate (lb/hr)				
		2.81	0.60	0.20	0.23	0.19
		Emission Rate (tpy)				
		0.15	0.031	0.010	0.012	0.0096

[1] The maximum operating scenarios for the diesel engine are 2 hours per week and 104 hours per year for maintenance and testing purposes.

[2] Emission factors based on AP-42, Chapter 3, Section 3.3, Table 3.3-1, October 1996. Same emission factor is assumed for PM_{10} and $PM_{2.5}$.

TECO Interconnection Station Stand-by Diesel Generator Emissions			
HAP Speciation[3]			
Pollutant	**Emission Factor (lb/MMBtu)**	**Hourly Emission Rate (lb/hr)**	**Annual Emission Rate (tpy)**
Benzene	0.00093	<0.001	<0.001
Toluene	0.00041	<0.001	<0.001
Xylene	0.00029	<0.001	<0.001
Propylene	0.0026	0.0016	<0.001
1,3-Butadiene	0.000039	<0.001	<0.001
Formaldehyde	0.0012	<0.001	<0.001
Acetaldehyde	0.00077	<0.001	<0.001
Acrolein	0.000093	<0.001	<0.001
Naphthalene	0.000085	<0.001	<0.001

[3] Emission factors based on AP-42, Chapter 3, Section 3.3, Table 3.3-2, October 1996. Am average brake-specific fuel consumption of 7,000 Btu/hp-hr was used to convert from lb/Mmbtu to lb/hp-hr.

TECO Interconnection Station
Condensate Storage Tank

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Project Setup Information

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Project File:	S:\P\P064402\0146 CSA Dolphin\on-shore facility\Calculations\Condensate Tank_TECO Interconnection Station.ept
Flowsheet Selection:	Oil Tank with Separator
Calculation Method:	RVP Distillation
Control Efficiency:	100.0%
Known Separator Stream:	Low Pressure Oil
Entering Air Composition:	No
Filed Name:	Dolphin DWP On-Shore - TECO Interconnection Station Condensate Tank
Date:	2007.02.01

TECO Interconnection Station
Condensate Storage Tank

****
Data Input
****

Separator Pressure:	1200.00[psig]
Separator Temperature:	70.00[F]
Ambient Pressure:	14.70[psia]
Ambient Temperature:	70.00[F]
C10+ SG:	0.8990
C10+ MW:	166.00

-- Low Pressure Oil ----------

No.	Component	mol %
1	H2S	0.0000
2	O2	0.0000
3	CO2	0.0000
4	N2	0.0000
5	C1	0.4600
6	C2	0.6400
7	C3	2.1900
8	i-C4	3.0500
9	n-C4	3.0500
10	i-C5	5.9000
11	n-C5	5.9000
12	C6	0.0000
13	C7	0.0000
14	C8	0.0000
15	C9	0.0000
16	C10+	78.6400
17	Benzene	0.0000
18	Toluene	0.0000
19	E-Benzene	0.0000
20	Xylenes	0.0000
21	n-C6	0.1600
22	224Trimethylp	0.0000

-- Sales Oil ----------

Production Rate:	5[bbl/day]
Days of Annual Operation:	365 [days/year]
API Gravity:	53.0
Reid Vapor Pressure:	7.70[psia]

TECO Interconnection Station
Condensate Storage Tank
****
Calculation Results
****

-- Emission Summary ----------

Item	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]
Total HAPs	0.000	0.000
Total HC	4.405	1.006
Page 1---------- E&P TANK		
VOCs, C2+	4.281	0.977
VOCs, C3+	3.959	0.904

Uncontrolled Recovery Info.

Vapor	187.3500 x1E-3 [MSCFD]
HC Vapor	187.3500 x1E-3 [MSCFD]
GOR	37.47 [SCF/bbl]

-- Emission Composition ----------

No	Component	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]
1	H2S	0.000	0.000
2	O2	0.000	0.000
3	CO2	0.000	0.000
4	N2	0.000	0.000
5	C1	0.124	0.028
6	C2	0.322	0.074
7	C3	1.300	0.297
8	i-C4	0.999	0.228
9	n-C4	0.647	0.148
10	i-C5	0.585	0.134
11	n-C5	0.421	0.096
12	C6	0.000	0.000
13	C7	0.000	0.000
14	C8	0.000	0.000
15	C9	0.000	0.000
16	C10+	0.003	0.001
17	Benzene	0.000	0.000
18	Toluene	0.000	0.000
19	E-Benzene	0.000	0.000
20	Xylenes	0.000	0.000
21	n-C6	0.003	0.001
22	224Trimethylp	0.000	0.000
	Total	4.404	1.005

TECO Interconnection Station
Condensate Storage Tank

-- Stream Data ----------

No.	Component	MW	LP Oil mol %	Flash Oil mol %	Sale Oil mol %	Flash Gas mol %	W&S Gas mol %	Total Emissions mol %
1	H2S	34.80	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	O2	32.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	CO2	44.01	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	N2	28.01	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	C1	16.04	0.4600	0.0701	0.0000	18.9633	2.0688	8.5448
6	C2	30.07	0.6400	0.3288	0.0020	15.4132	9.6416	11.8540
7	C3	44.10	2.1900	1.7271	0.4557	24.1655	37.9610	32.6728
8	i-C4	58.12	3.0500	2.7834	2.1393	15.7139	21.1402	19.0602
9	n-C4	58.12	3.0500	2.8843	2.5213	10.9258	13.2304	12.3470
10	i-C5	72.15	5.9000	5.8445	5.7246	8.5616	9.2620	8.9936
11	n-C5	72.15	5.9000	5.8942	5.8682	6.2028	6.6368	6.4705
12	C6	86.16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
13	C7	100.20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
14	C8	114.23	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15	C9	128.28	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	C10+	166.00	78.6400	80.3048	83.1219	0.0190	0.0220	0.0208
17	Benzene	78.11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	Toluene	92.13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	E-Benzene	106.17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	Xylenes	106.17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	n-C6	86.18	0.1600	0.1627	0.1671	0.0349	0.0372	0.0363
22	224Trimethylp	114.24	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

MW	143.99	146.08	149.40	44.53	51.49	48.82
Stream Mole Ratio	1.0000	0.9794	0.9462	0.0206	0.0332	0.0538
Heating Value [BTU/SCF]	2533.23	2905.44	2762.76			
Gas Gravity [Gas/Air]	1.54	1.78	1.69			
Bubble Pt. @ 100F [psia]	40.77	19.39	9.09			
RVP @ 100F [psia]	17.20	12.80	7.99			
Spec. Gravity @ 100F	0.886	0.889	0.894			

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TECO Interconnection Station

Day Tank

****

Project Setup Information

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Project File:	S:\P\P064402\0146 CSA Dolphin\on-shore facility\Calculations\Day Tank_TECO Interconnection Station.ept
Flowsheet Selection:	Oil Tank with Separator
Calculation Method:	RVP Distillation
Control Efficiency:	100.0%
Known Separator Stream:	Low Pressure Oil
Entering Air Composition:	No
Filed Name:	Dolphin DWP On-Shore - TECO Interconnection Station Day Tank
Date:	007.02.01

****

Data Input

****

Separator Pressure:	1200.00[psig]
Separator Temperature:	70.00[F]
Ambient Pressure:	14.70[psia]
Ambient Temperature:	70.00[F]
C10+ SG:	0.8990
C10+ MW:	166.00

-- Low Pressure Oil ----------

No.	Component	mol %
1	H2S	0.0000
2	O2	0.0000
3	CO2	0.0000
4	N2	0.0000
5	C1	0.4600
6	C2	0.6400
7	C3	2.1900
8	i-C4	3.0500
9	n-C4	3.0500
10	i-C5	5.9000
11	n-C5	5.9000
12	C6	0.0000
13	C7	0.0000
14	C8	0.0000
15	C9	0.0000
16	C10+	78.6400
17	Benzene	0.0000
18	Toluene	0.0000
19	E-Benzene	0.0000
20	Xylenes	0.0000
21	n-C6	0.1600
22	224Trimethylp	0.0000

-- Sales Oil ----------

Production Rate:	4 [bbl/day]
Days of Annual Operation:	365 [days/year]
API Gravity:	53.0
Reid Vapor Pressure:	7.70 [psia]

TECO Interconnection Station
Day Tank
****
Calculation Results
****

-- Emission Summary ----------

Item	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]
Total HAPs	0.000	0.000
Total HC	3.524	0.805
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VOCs, C2+	3.425	0.782
VOCs, C3+	3.167	0.723

Uncontrolled Recovery Info.

Vapor	149.8800 x1E-3 [MSCFD]
HC Vapor	149.8800 x1E-3 [MSCFD]
GOR	37.47 [SCF/bbl]

-- Emission Composition ----------

No	Component	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]
1	H2S	0.000	0.000
2	O2	0.000	0.000
3	CO2	0.000	0.000
4	N2	0.000	0.000
5	C1	0.099	0.023
6	C2	0.257	0.059
7	C3	1.040	0.237
8	i-C4	0.800	0.183
9	n-C4	0.518	0.118
10	i-C5	0.468	0.107
11	n-C5	0.337	0.077
12	C6	0.000	0.000
13	C7	0.000	0.000
14	C8	0.000	0.000
15	C9	0.000	0.000
16	C10+	0.002	0.000
17	Benzene	0.000	0.000
18	Toluene	0.000	0.000
19	E-Benzene	0.000	0.000
20	Xylenes	0.000	0.000
21	n-C6	0.002	0.000
22	224Trimethylp	0.000	0.000
	Total	3.523	0.804

TECO Interconnection Station
Day Tank
-- Stream Data ----------

No.	Component	MW mol %	LP Oil mol %	Flash Oil mol %	Sale Oil mol %	Flash Gas mol %	W&S Gas mol %	Total Emissions
1	H2S	34.80	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	O2	32.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	CO2	44.01	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	N2	28.01	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	C1	16.04	0.4600	0.0701	0.0000	18.9633	2.0688	8.5448
6	C2	30.07	0.6400	0.3288	0.0020	15.4132	9.6416	11.8540
7	C3	44.10	2.1900	1.7271	0.4557	24.1655	37.9610	32.6728
8	i-C4	58.12	3.0500	2.7834	2.1393	15.7139	21.1402	19.0602
9	n-C4	58.12	3.0500	2.8843	2.5213	10.9258	13.2304	12.3470
10	i-C5	72.15	5.9000	5.8445	5.7246	8.5616	9.2620	8.9936
11	n-C5	72.15	5.9000	5.8942	5.8682	6.2028	6.6368	6.4705
12	C6	86.16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
13	C7	100.20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
14	C8	114.23	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15	C9	128.28	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	C10+	166.00	78.6400	80.3048	83.1219	0.0190	0.0220	0.0208
17	Benzene	78.11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	Toluene	92.13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	E-Benzene	106.17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	Xylenes	106.17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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MW	143.99	146.08	149.40	44.53	51.49	48.82
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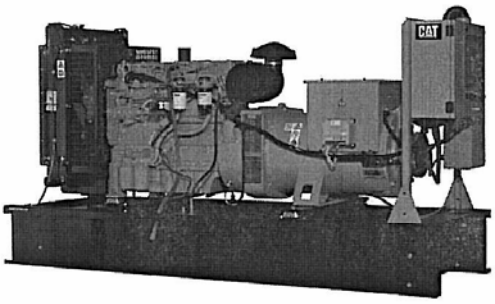
DIESEL GENERATOR SET

CATERPILLAR®



STANDBY 60-100 kW
PRIME 54-90 kW

60 Hz

Model	Standby kW (kVA)	Prime kW (kVA)
D60-4S	60 (60)	54 (54)
D75-4S	75 (75)	67.5 (67.5)
D80-4	80 (100)	72 (90)
D90-4S	90 (90)	82 (82)
D100-4	100 (125)	90 (112.5)
D100-4S	100 (100)	90 (90)

Tier II EPA Approved, Emissions Certified

FEATURES

GENERATOR SET
- Complete system designed and built at ISO 9001 certified facilities
- Factory tested to design specifications at full load conditions

ENGINE
- Governor, electronic
- Electrical system, 12 VDC
- Cartridge type filters
- Battery rack and cables
- Coolant and lube drains piped to edge of base

GENERATOR
- Insulation system, class H
- Drip proof generator air intake (NEMA 2, IP23)
- Electrical design in accordance with BS5000 Part 99, EN61000-6, IEC60034-1, NEMA MG-1.33

CONTROL SYSTEM
- EMCP 3.1 digital control panel
- Vibration isolated NEMA 1 enclosure with lockable hinged door
- DC and AC wiring harnesses

MOUNTING ARRANGEMENT
- Heavy-duty fabricated steel base with lifting points
- Anti-vibration pads to ensure vibration isolation
- Complete OSHA guarding
- Stub-up pipe ready for connection to silencer pipework
- Flexible fuel lines to base with NPT connections

COOLING SYSTEM
- Radiator and cooling fan complete with protective guards
- Standard ambient temperatures up to 50° C (122° F)

CIRCUIT BREAKER
- UL/CSA listed
- 3-pole with solid neutral
- NEMA 1 steel enclosure, vibration isolated
- Electrical stub-up area directly below circuit breaker

AUTOMATIC VOLTAGE REGULATOR
- Voltage within ± 0.5% 3-phase and ± 1.0% single phase at steady state from no load to full load
- Provides fast recovery from transient load changes

EQUIPMENT FINISH
- All electroplated hardware
- Anticorrosive paint protection
- High gloss polyurethane paint for durability and scuff resistance

QUALITY STANDARDS
- BS4999, BS5000, BS5514, EN61000-6, IEC60034, NEMA MG-1.33, NFPA 110 (with optional equipment)

DOCUMENTATION
- Operation and maintenance manuals provided
- Wiring diagrams included

WARRANTY
- All equipment carries full manufacturer's warranty.

LEHE5157-00